CHOICE AND FLEXIBILITY

If you’re drawn to the application of maths and science to create, innovate and solve real-life problems you may be considering studying engineering. But if you’ve had no exposure to engineering disciplines at school or college, deciding on a specialism may not be straightforward.

At Warwick, our flexible and innovative courses enable you to experience a range of different engineering disciplines before specialising in automotive, biomedical systems, civil, electrical and electronic, electronic, manufacturing and mechanical, mechanical or systems engineering. Alternatively you can choose to study a more diverse engineering curriculum or adopt a business focus.

We also offer a joint degree in Computer Systems Engineering which does not follow the same pathway (see pages 30-31 for more details).

INDUSTRY LINKS

Our courses are delivered in partnership with WMG (Warwick Manufacturing Group), renowned worldwide for its innovative links between academia and industry. This unified approach equips you with the knowledge and transferable skills required to work in industry, now and into the future.

Warwick is a great place to study engineering. Our location in Coventry places you close to many of the UK’s biggest names in engineering and students benefit from our strong connections with industrial partners (e.g. Jaguar Land Rover, Arup, Tata Steel and Rolls-Royce). Our Industrial Advisory Board and Panels support us in our aim to provide you with the skills and knowledge required to succeed when you graduate.

ACCREDITATION

If you aspire to achieve Chartered-Engineer (CEng) status, a degree from Warwick is a great starting point. The majority of our degrees are accredited by licensed professional engineering institutions, such as the IET, IMechE and JBM and provide the academic component (in part or fully) needed for Chartered Engineer status. Full information about the accreditation of our courses is available on our website: warwick.ac.uk/engineering/undergraduate/accreditation

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VALUABLE EXPERIENCE TO GET YOU NOTICED

We actively encourage our students to make the most of opportunities to gain valuable work experience or study abroad. Our Placements and Internships Officer will work with you to identify opportunities. Options to take an intercalated year in industry, research or study abroad are reflected in your degree title, and add a year to your degree duration. MEng students may also choose to take their third year at a partner university abroad.

FASCINATING PROJECTS

Practical work such as designing a mobile-phone-based electronic nose or a dominoes-playing robot, give you the opportunity to expand and apply your learning. MEng students participate in a group project which simulates the multidisciplinary working practices you will experience in your career. Building a Formula Student racing car, launching a satellite into space or creating a human-powered submarine are a sample of group projects that allow you to collaborate with other engineering students across disciplines, acquire advanced skills for the workplace and form a lifelong professional network and friendship group.

WORLD CLASS FACILITIES

You’ll have access to an impressive range of research facilities, workshops and laboratories with cutting-edge equipment. One of our recent investments is a £5 million design studio, with manufacturing facilities, where you can see your ideas and innovations come to life, whether they are academic or personal projects.

RESEARCH-LED TEACHING

The academics who teach you work at the forefront of their subjects and are making internationally significant advances. We were ranked 3rd overall in the most recent Research Excellence Framework among UK integrated-engineering departments and we are proud of our research-teaching links.

LEARNING IN A SUPPORTIVE ENVIRONMENT

There is strong support in the School from students and staff alike. Academic staff provide support and feedback hours for additional help with materials they’ve covered. Students are allocated a personal tutor to whom they can turn for advice regarding academic or personal matters. There are a number of student societies related to Engineering, the most active being the Engineering Society which organises conferences, site visits, speaker events and opportunities to network with employers.

DESIRABLE EMPLOYABILITY

Our graduates achieve high rates of starting salary and success in finding work. More than 91% of our 2016 graduates were in work or further study six months after graduation with an average starting salary of £26,300 (Destinations of Leavers from Higher Education survey for 2015/16).

We ask you to start thinking about your future from day one, encouraging you to make the most of the support and opportunities we offer throughout your degree.

THE ENGINEERING BUILD SPACE IS A VIBRANT AND CREATIVE SPACE WHERE USERS CAN HARNESS THEIR CREATIVITY, EXPLORE THEIR IDEAS, AND BRING THEIR DESIGNS TO LIFE.

Spread across three unique spaces, the facility houses everything from discussion space, basic prototyping capability and hand tools through to cutting-edge computer controlled manufacturing equipment and robotics. The facility is a community space where students and staff can work alongside each other, explore ideas and come up with solutions to important design problems. Run by a team of Makers in Residence who work at the cutting-edge of design and manufacture research, users can explore and experiment with the basics of designing and manufacturing while working side-by-side with an experienced team of creative engineers.

"Studying Engineering at Warwick has given me the opportunity to make some lifelong friends, broaden my understanding of engineering and constantly challenges me to learn new things every day.”

Arooj, 2nd year Manufacturing & Mechanical Engineering student
ENGINEERING COURSES

Our courses are structured to give you choice and flexibility whilst meeting the needs of employers who want engineers with strong technical knowledge, and the ability to understand and communicate within technical and business roles.

- AUTOMOTIVE ENGINEERING (BEng/MEng)
- BIOMEDICAL SYSTEMS ENGINEERING (BEng/MEng)
- CIVIL ENGINEERING (BEng/MEng)
- ELECTRICAL AND ELECTRONIC ENGINEERING (BEng/MEng)
- ELECTRONIC ENGINEERING (BEng/MEng)
- ENGINEERING (BEng/MEng)
- ENGINEERING BUSINESS MANAGEMENT (BEng)
- MANUFACTURING AND MECHANICAL ENGINEERING (BEng/MEng)
- MECHANICAL ENGINEERING (BEng/MEng)
- SYSTEMS ENGINEERING (BEng/MEng)

We also offer a Joint Degree in conjunction with the Department of Computer Science.

- COMPUTER SYSTEMS ENGINEERING (BEng/MEng)

“I chose Warwick because of its reputation and their initially general engineering course. Before coming here I only had experience in electronic engineering, but now I've been able to try the other disciplines and find the best one for me. I've actually switched to systems engineering which I wouldn't have been able to do if I'd specialised from first year.”

Jonathan, 2nd year Systems Engineering student

ENTRY REQUIREMENTS*

Our standard entry requirements for courses starting in 2019 are:

**BEng**

A level: AAA to include Mathematics and Physics.

IB: 38 to include 6, 6 in Mathematics and Physics. At least one of these subjects should be at Higher Level.

**MEng**

A level: A**AA to include Mathematics and Physics.

IB: 38 with 6, 6, 6 at Higher Level. Mathematics and Physics is required. At least one of these subjects should be at Higher Level.

English language requirements also apply.

Applicants with a strong profile but without either A level Physics or A level Mathematics may be considered. Please contact ugadmissions@warwick.ac.uk prior to applying.

We encourage applications from students with a wide range of other qualifications. Please see the University website for more details: warwick.ac.uk

*Please note that the joint course Computer Systems Engineering has different entry requirements. Please see pages 30-31 for more information.
**COURSE STRUCTURES**

**WE OFFER FLEXIBLE COURSES THAT ENABLE YOU TO EXPERIENCE A RANGE OF DIFFERENT ENGINEERING DISCIPLINES BEFORE YOU DECIDE TO SPECIALISE.**

All first year students study a general engineering programme, which is much favoured by industry. In the second year, you continue to study the same core modules as all other students until the end of term one, after which you can specialise or continue on the general Engineering pathway.

Students can also switch from the three-year BEng to the four-year MEng degrees if academic requirements and regulations are met, and from the MEng to the BEng if they prefer to graduate earlier.

*Please note that the joint course Computer Systems Engineering does not follow the course structure outlined on this page. Please see pages 30-31 for more information.*

**YEAR 1**

In your first year you will be taught the fundamentals of engineering, which you will build on in later years according to your interests.

**Core modules**

- Dynamics and Thermodynamics
- Electrical and Electronic Circuits
- Engineering Design
- Engineering Mathematics
- Introduction to Engineering Business Management
- Introduction to Engineering: Professionalism and Practice
- Materials for Engineering
- Statics and Structures
- Systems Modelling, Simulation and Computation

**Optional extra module**

- A Modern Foreign Language

**Projects**

You will undertake a range of small projects from ‘reverse engineering’ to design and make challenges on topics including: home automation, light rail transit, car aerodynamics, and intelligent robot vehicles. These projects introduce you to industry-standard software, such as SolidWorks and Matlab.

**YEAR 2**

All second year students follow the same core modules in term 1.

**Term 1 core modules**

- Dynamics and Fluid Mechanics
- Electromechanical System Design
- Engineering Mathematics and Technical Computing
- Technical Operations Management

Terms 2 & 3

You will study second year core and optional modules for your chosen course (see pages 10 to 29).

**Projects**

For most disciplines there will be a core module that involves a ‘design, make and test’ project.

**YEAR 3**

In the third year our courses concentrate entirely on providing specialist engineering knowledge in your chosen discipline. Those who would rather be more business-focused can choose our Engineering Business Management degree which is delivered in partnership with the prestigious Warwick Business School.

**Projects**

Students develop research skills through an individual project related to their degree, specialising in one particular area. This may be linked to our research activities, in conjunction with an external company, or support a fourth year project.

**YEAR 4 (MEng ONLY)**

In the fourth year of an MEng course students study specialist material relevant to their degree course.

**Projects**

MEng students participate in a large group project worth 25% of the year which simulates the multidisciplinary working practices you will experience in your career. Students from all specialist courses work together on these projects.

Popular projects include the IMechE Formula Student competition, Warwick University satellite project (WUSAT), Severn Trent reservoir design, ICE shaping the world infrastructure design for poor communities, and building search-and-rescue devices with Warwick Mobile Robotics.

The MEng final-year multidisciplinary group project is unique to the four-year degree and is not something that you would normally find as part of a one year stand-alone Master’s.

**Intercalated degrees**

Students may choose to spend a year in industry, research or study abroad between years two and three, or between years three and four for MEng.

**Exchange year abroad**

MEng students may choose to take their third year at a partner university abroad (not to be confused with an intercalated study abroad year, which adds a year to your degree duration).
The automotive industry is synonymous with creativity and innovation. In the UK, companies like BMW, Jaguar Land Rover, Nissan and Toyota are supported by a huge network of manufacturers, employing highly skilled engineers at the forefront of their field and internationally recognised for the solutions they create. Our BEng and MEng degrees in Automotive Engineering provide the skills and knowledge you need to kick-start your career in this industry.

At Warwick our students develop an in-depth understanding of the classical principles of engineering by following a general engineering programme for the first year and first term of second year. Thereafter, those choosing the Automotive Engineering route combine a firm grounding in the principles of automotive engineering with experience of cutting-edge technology. You’ll benefit from industrial visits and input from leading firms in the automotive supply chain. You will also get plenty of opportunities for individual and group project work on topics such as gearbox analysis, autonomous vehicles, examining flywheel storage, and developing electric powered IMechE Formula Student racing cars.

By gaining skills ranging from mechanical design, electronic systems, manufacturing techniques, management, ergonomics and human perception of things such as noise, vibration and performance, you’ll graduate as a well-rounded automotive engineer equipped for a broad range of career options. You will also build skills in research, design and innovation, communication and leadership, and be able to adopt a multidisciplinary approach to solving engineering problems. We’ll help you to stand out from the crowd and gain that important first step on your career journey.

**CORE MODULES**

**Year 1**
- General Engineering core programme (see page 8)

**Year 2, Term 1**
- General Engineering core programme (see page 8)

**Year 2, Terms 2 & 3**
- Industrial Engineering
- Manufacturing Engineering Design

**Year 3**
- Automation and Robotics
- CAD/CAM and Simulation
- Design for Manufacture
- Design for Vehicle Safety
- Quality Techniques
- Systems Modelling and Control
- Individual Project

**Year 4 (MEng)**
- Design for Vehicle Comfort
- Group Project

**Examples of optional modules**
- Motor Vehicle Technology
- Automobile Systems, Dynamics and Control
- Automotive Materials and Processes
- Vehicle Propulsion
- Fuel Cells and Energy Storage
- Modern Foreign Language module.

**THE NATIONAL AUTOMOTIVE INNOVATION CENTRE, SITUATED ON THE UNIVERSITY OF WARWICK CAMPUS, IS SET TO BECOME THE LARGEST AUTOMOTIVE RESEARCH AND DEVELOPMENT CENTRE IN EUROPE. THE BUILDING IS A PARTNERSHIP BETWEEN THE UNIVERSITY, WMG, JAGUAR LAND ROVER AND TATA MOTORS EUROPEAN TECHNICAL CENTRE AND IS DUE TO OPEN IN SUMMER 2018.**

*Warwick is in the centre of the automotive and motorsport hub in the UK with most manufacturers and suppliers of the industry being in the close vicinity. The Engineering degree at Warwick also includes an important business and operations management aspect. This is something I believe can provide a very important competitive advantage once I enter the professional world.*

Angel, 2nd year Automotive Engineering student
Our Biomedical Systems Engineering degrees give you the opportunity to gain core engineering skills while developing specialist knowledge that can be used to improve the understanding and management of biomedical problems, and to develop the healthcare technologies of the future.

Biomedical Systems Engineering students develop an in-depth understanding of the classical principles of Engineering by following a general engineering programme for first year and into second year. From the second term of second year onwards, Biomedical Systems Engineers learn to apply systems methodology and concepts from other Engineering disciplines to the modelling, analysis of, and interventions for, biomedical problems.

For example, Biomedical Engineers may choose to apply the principles of electromagnetic engineering to the analysis of motion and creation of devices that monitor and support walking. Students may choose to apply systems thinking perspectives to the impact of healthcare on people, processes, information and organisations, equipping them to work on high-level global priorities in healthcare.

Recent projects include improving magnetic resonance imaging techniques for the diagnosis of disease; improving fluidic systems used in life sciences to study and better control infections such as MRSA; and the optimal design of foot orthoses in the treatment of conditions of the lower limb.

After graduation, Warwick students are especially well equipped to work in areas such as healthcare, pharmacology, medical device development and evaluation, and large-scale healthcare projects. Systems thinking supports description and prediction of the practical, cultural, and economic impact of major interventions.

Core modules

Year 1
- General Engineering core programme (see page 8)

Year 2, Term 1
- General Engineering core programme (see page 8)

Year 2, Terms 2 & 3
- Analogue Electronic Design
- Biomedical and Clinical Engineering
- Systems Engineering Principles

Year 3
- Biomedical Signals and Systems
- Dynamics of Vibrating Systems
- Healthcare Technology Engineering Design
- Quality Techniques
- Signal Processing
- Systems Modelling and Control
- Individual Project

Examples of optional modules
- Advanced Control; Computer Architecture and Systems; Mathematical and Computer Modelling; Multimedia Technology and Signals; Technology in International Development; Modern Foreign Language module.

Further information
warwick.ac.uk/engineering

We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it is important you check our website for the most up-to-date information on module availability.
Civil Engineering is everything you see that’s been built around us, the kind of things we take for granted everyday but would find life hard to live without: roads and railways, schools and hospitals or water and power supplies. Civil engineers design, create, connect and change the world, making our villages, towns and cities work for the people that live there, and working on projects that can make a real difference to people’s lives.

After developing an in-depth understanding of the classical principles of Engineering by following a general engineering programme for first year and the first term of second year, our Civil Engineering degrees will allow you to develop expertise in the fundamental principles of analysis, design, sustainability and safety, to enhance the quality of life for present and future generations.

Teaching and learning at Warwick takes place in an open and engaging environment with top-class facilities. You will have the opportunity to conduct research projects in different labs or take modules related to current research in a range of civil engineering fields. Visits to construction sites, and lectures and seminars from experts in industry provide insights into the latest civil engineering practices. Regular individual and group projects tackle industrial challenges such as the design, building and testing of structures, the development of a robotic construction scheme, designing civil engineering works on HS2 railway or providing engineered solutions for the urban development of poor communities. You will also take part in fieldwork, which has previously included geotechnical engineering in Wales and the Isle of Wight.

Career destinations for civil engineers often include working for consultants and contractors across the specialisms of structures, geotechnics, tunnelling and underground space, water engineering, transportation and energy. Our graduates work as professional and highly proficient engineers in a range of exciting and rewarding careers.

“The School of Engineering is a key player in the University of Warwick’s sustainable cities global research priority. This research network aims to help people live happier, healthier, safer and more environmentally friendly lives by contributing to the development of more sustainable cities.”

“I am currently working on my third year group project where we have been tasked to design the superstructure of a theatre. This has helped me apply my engineering knowledge to a real world situation. The project aims to simulate a real life civil engineering project, so for students, the designers and the clients are our project supervisors.”

Sevenia, 3rd year Civil Engineering student

Examples of optional modules
- Structural Dynamics and Vibrations: Design for Sustainability
- Environmental River Processes
- Renewable Energy Technology
- International Development: Systems Engineering Principles
- Modern Foreign Language module

Further information
www.warwick.ac.uk/engineering

We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it is important you check our website for the most up-to-date information on module availability.
Our Electrical & Electronic Engineering degrees cover the scientific concepts, design and methods relating to electrical and electronic engineering products, processes and systems. For the first year and into the second year of the degree programme students follow a multidisciplinary route into engineering, with modules covering the core areas of the subject, including electrical and electronic engineering topics. Specialisation starts in term two of the second year, with Electrical & Electronic Engineering students following the same second year degree programme as those on the Electronic Engineering course. In third and fourth year, Electrical & Electronic Engineering students focus on power electronics, electrical machines, systems modelling and the operation and control of power systems. Modules in these years reflect our key research areas including power electronics, communications, embedded systems, ASICs and silicon-based smart sensors. Practical work in electrical and electronic engineering begins in the first year, with the third-year individual project forming a major part of the course. For example one past individual project, supported by industry, was titled 'Delivering Satellites to Space with Power Electronics'. Our refurbished, state-of-the-art laboratories are equipped with software and instruments to support the varied teaching activities in electrical and electronic engineering. Electrical and Electronic Engineering graduates contribute to a variety of sectors and industries such as power electronics, electrical power generation, aerospace, automotive, marine engineering and the built environment. Our Industrial Advisory Panel supports us in our aim to provide you with the skills and knowledge required to succeed in industry when you graduate.

Examples of optional modules
- Advanced Robotics
- Advanced Wireless Systems and Networks
- High Performance Embedded Systems Design
- Optical Communications Systems
- Information Theory and Coding
- Multimedia Technology and Signal Propagation
- Modern Foreign Language module.

Further information: warwick.ac.uk/engineering
We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it is important you check our website for the most up-to-date information on module availability.

"The Electrical and Electronic course at Warwick aims to equip you with in-depth state-of-the-art knowledge, delivered by some of the UK’s leading experts in the field. The range of industrial sectors span automotive electrical drive-trains, rail, marine, aerospace, renewable power, consumer electronics, space, all of which are rapidly developing areas with huge potential to make a real impact on the quality of life of future generations. Skills in this field are in high demand within the UK and internationally."
Professor Phil Mawby
Electrical and electronic engineering begins in the first year, with the third-year individual project forming a major part of the course. Past individual project titles, supported by industry, include ‘A Mobile Phone Based Electronic Nose’ that analyses the breath of patients in local hospitals, and ‘Delivering Satellites to Space with Power Electronics.’ Our refurbished, state-of-the-art laboratories are equipped with software and instruments to support the varied teaching activities in electronic engineering.

Electronic Engineering graduates are well placed to contribute within a variety of sectors in addition to electronic engineering, such as design and production, energy, transport, the built environment, information and communications. Our Advisory Panel supports us in our aim to provide you with the skills and knowledge required to succeed in industry when you graduate.

We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it is important you check our website for the most up-to-date information on module availability.

“…I am currently working on a robot arm and it is the most fascinating thing I have ever done. It’s really rewarding to make something on my own and then see it working. Robotics is an expanding industry and it’s great to be a part of it.”

Katie, 3rd year Electronic Engineering student

Examples of optional modules
- Multimedia Technology and Signal Propagation
- Information Theory and Coding
- Optical Components, Systems: Systems Engineering Principles
- Advanced Wireless Systems and Networks
- Modern Foreign Language module.

Further information
warwick.ac.uk/engineering
This is an ideal route into engineering if you wish to sample all our disciplines and want a sustained broad learning experience. As with all our degrees, you will decide whether to stay on this general pathway or switch to another engineering course during your second year of study.

Delivered jointly by the School of Engineering and WMG (Warwick Manufacturing Group), you will be taught by experts across the fields of automotive, biomedical, civil, electrical, electronic, manufacturing, mechanical, and systems engineering. After completing the same core programme as all other Engineering students for the first year and first term of second year, those choosing to stay on the more general pathway will be able to choose options from the different engineering streams. Students will develop an in-depth understanding of the classical principles of Engineering by learning from a wide range of areas.

Many engineered systems involve multidisciplinary teams. General Engineers can see synergy across these disciplines which enables them to solve high-level problems. The Warwick course will allow you to develop sought-after skills including a multidisciplinary approach to problem solving, the ability to manage projects and communicate ideas, and the capacity to lead, research, design, innovate and develop products and systems.

Interdisciplinary projects enable you to tackle challenges that could range from creating search and rescue robots, designing carbon-free homes, optimising mechanical biological waste treatment or building a nano-satellite.

Warwick students are especially equipped to work in multi-disciplinary organisations in functional teams. Students will develop an in-depth understanding of the classical principles of Engineering by learning from a wide range of areas.

Examples of optional modules
Optional modules are available from the following degree streams: Automotive; Biomedical Systems; Civil; Electrical & Electronic; Electronic; Manufacturing & Mechanical; Mechanical; Systems (see rest of this brochure for examples).

The precise modules available to you each year will depend on timetable constraints and module prerequisites (i.e. for some module choices it is necessary for you to have taken a particular module in a previous year).

Further information
warwick.ac.uk/engineering
We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it is important you check our website for the most up-to-date information on module availability.
This course will appeal to you if you want to study Engineering, but seek an alternative to becoming a Chartered Engineer.

Engineering companies need to provide not only superior products, but also superior services in order to be sustainable in the long-term. There is a real demand for graduates with technical knowledge and strategic business management and entrepreneurship skills. By mastering this you’ll provide the key interface between roles as diverse as design, manufacturing, marketing, contract management and supply chain management.

In the same way as our other engineering undergraduates, those studying Engineering Business Management spend their first year and first term of second year studying general engineering concepts. The course then specialises in engineering business related subjects, equipping students with the business and management skills they need to operate in a global economy. Teaching draws on the expertise of the School of Engineering, which delivers the highest standards of technical expertise; WMG (Warwick Manufacturing Group), which offers innovative links between academia and industry; and Warwick Business School (WBS), which is internationally recognised for excellence in business management. Reflecting the realities of the multidisciplinary business environment, our curriculum integrates both the technical and business context you will need to be successful in a wide range of careers. You might aspire to join a company that provides engineering, maintenance or logistic services, for example, or have your sights set on consultancy roles. You’ll develop your engineering expertise alongside knowledge of the full range of business functions, equipping you to find your place in an increasingly competitive global marketplace.

We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it’s important you check our website for the most up-to-date information on module availability.

We are looking to also offer a BSc Engineering and Business Studies for 2019 entry. Details of this course were not confirmed at the time of publication. Please see the website for more information: warwick.ac.uk/engineering

“Engineering Business Management is a unique degree, which teaches understanding of complex engineering processes in relation to the fundamental business concepts.”

Alina, 2nd year Engineering Business Management student
WMG’S CENTRE FOR IMAGING, METROLOGY AND ADDITIVE TECHNOLOGIES PROVIDES A HUB FOR INNOVATION AND RESEARCH THAT BRINGS TOGETHER WORLD LEADING TECHNOLOGIES FOR THE ENHANCEMENT AND UNDERSTANDING OF PRODUCT AND PROCESS PERFORMANCE.

MANUFACTURING & MECHANICAL ENGINEERING

Delivered in partnership with WMG (Warwick Manufacturing Group), renowned worldwide for its innovative links between academia and industry, our Manufacturing and Mechanical Engineering degrees will suit creative problem solvers who want to develop a deep understanding of manufacturing processes and the mechanical design principles for a career working with advanced technologies.

A sound underpinning of the basics in science and management is developed in the first year and first term of second year. After this students learn and develop state of the art techniques and methodologies that graduates will find directly applicable in industry. There are plenty of opportunities to take part in industrial visits and receive input from firms such as Jaguar Land Rover, encouraging you to apply your knowledge to real-world challenges and boost your employability. In third year, you will be able to apply your skills to an individual project such as rapid prototyping, robot design or processing of novel materials. Those who choose the MEng degree will complete a group project in the fourth year, for example designing and building a human-powered submarine or a robot to rescue victims from a collapsed building.

The Fourth Industrial Revolution, a cyber-physical age, will be realised over the next 20 years. As a manufacturing and mechanical engineer, you’ll master modern technologies and skills such as robotics, computer-aided design and simulation. We’ll offer you a rich curriculum and resources to achieve this, and will give you a significant understanding of management techniques and skills alongside these technical subjects to give you the confidence to innovate and lead in the global economy.

After graduation you’ll typically find employment within advanced industries as diverse as aerospace, consumer goods, electronics and pharmaceuticals, as well as the more traditional light- and heavy-engineering sectors.

Examples of optional modules
Motor Vehicle Technology; Advanced Robotics; Automotive Materials and Processes; Fuels and Combustion; Fuel Cells and Energy Storage; Modern Foreign Language module.

Further information
warwick.ac.uk/engineering

We are constantly evolving our courses to keep up with developments in engineering and requirements from industry, so it is important you check our website for the most up-to-date information on module availability.

“I enjoy the Manufacturing and Mechanical course, which is really applicable to a career in industry, be it engineering-focused or management. There is a good balance of modules covering a range of design and manufacturing processes, alongside modules on lean operations and quality, which are important regardless of the industry or career that you choose when you graduate.”

Hok, 3rd year Manufacturing & Mechanical Engineering student

ENGINEERING UNDERGRADUATE PROGRAMMES 2019/20

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Mechanical systems, mechanisms and machines lie at the heart of our traditional engineering industries. The skills and techniques associated with them continue to be essential. In recent years these skills have extended into areas such as precision engineering, nanotechnology and mechatronics, as mechanical engineers have broadened their skill set and embraced technologies from other disciplines to solve difficult problems.

After developing an in-depth understanding of the classical principles of Engineering by following a general engineering programme for the first year and first term of second year, those who choose Mechanical Engineering augment their knowledge with deeper understanding of mechanically based systems. We provide opportunities to learn from world-leading researchers at the School of Engineering and WMG (Warwick Manufacturing Group) in areas such as precision mechanics, fluid dynamics, and sustainable thermal energy technology, as well as complementary areas in other fields of engineering. You will develop highly sought-after skills in project management and communication, alongside the ability to research, design, and develop mechanical engineering products and systems.

You’ll have the chance to apply your new skills through projects at various points in the degree. Current projects early on in the degree include reverse engineering a single-cylinder internal combustion engine using CAE software, and building a fighting robot. Third year students undertake a major individual project to work on a specific problem in depth. For those who choose the MEng degree, the fourth-year project is much more collaborative and is a realistic simulation of working in a multi-disciplinary team in industry. Current group projects include the Formula Student racing car build; using energy from the human body to power a heart pacemaker; creating a cost-effective refrigeration system to store vaccines; and creating interactive installations for a local aerospace museum.

After graduation Warwick’s Mechanical Engineering students are well equipped to work in modern, multi-disciplinary organisations, and are enabled to solve modern technological problems.

“During my time at Warwick I have worked on a variety of group projects, including the first year ‘Dragster’ project, which involves competing a CNC’ed dragster using a spring as propulsion, the second year ‘Landing Gear’ project, which involves the design and manufacture of a model of an aircraft landing gear mechanism, and finally the Warwick Submarine Project during my Master’s which involves the design and manufacture of a fully flooded human powered submarine which competes internationally with other universities.”

Jack, 4th year Mechanical Engineering student

Accrediting institutions:

BEng Mechanical Engineering 3 years | UCAS code: H300
MEng Mechanical Engineering 4 years | UCAS code: H302
Systems Engineering is an interdisciplinary approach to enable the realisation of complex systems or analysis of interactions. Many complex engineering products (such as aerospace and automotive) involve a high level of integration and interaction across the mechanical, electronic and software domains. After studying general engineering for first year and the first term of second year alongside our other students, those specialising in Systems Engineering will develop the tools required to model problems across different areas, synthesising their knowledge and highlighting analogies.

A Systems Engineer needs to understand the broader context of a system, including people, processes and information flow. The Systems thinking approach that will be gained from this course equips engineers to work at a high level on an exceptionally broad range of problems from across the engineering sector and from other disciplines. This will allow you to work on high-level problems facing the world such as climate change, health, food and security.

The Warwick Systems degree reflects our research strengths and industry collaborations in systems modelling and control, information engineering, and biomedical and biological systems. Recent projects include validating automotive dynamic models against real-world data, and developing a systems model of iron storage in brain disease.

As well as giving you the skills to communicate effectively and pursue a flexible career, a degree in Systems Engineering will allow you to work in an environment where you can exploit synergies between the disciplines, for example in a biomedical context. Warwick students are especially equipped to work in multi-disciplinary organisations in functional teams which create systems incorporating (for example) mechanical and electrical components or on large-scale projects where systems thinking is required to understand (for example) the impact of the London Olympics on public transport.

### CORE MODULES

**Year 1**
- General Engineering core programme (see page 8)

**Year 2, Term 1**
- General Engineering core programme (see page 8)

**Year 2, Terms 2 & 3**
- Analogue Electronic Design
- Systems Engineering Principles

**Year 3**
- Automation and Robotics
- Biomedical Signals and Systems
- Dynamics of Vibrating Systems
- Quality Techniques
- Signal Processing
- Systems Modelling and Control
- Individual Project

**Year 4 (MEng)**
- Mathematical and Computer Modelling
- Group Project

Examples of optional modules
- Biomedical Systems Modelling; Automobile Systems, Dynamics and Control; Computer Architecture and Systems; Multimedia Technology and Signal Propagation; Industrial Engineering; Affective Computing; Modern Foreign Language module.

Further information
warwick.ac.uk/engineering

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"Systems Engineering is a very broad discipline, we look at how to solve high-level problems while considering all technical and business requirements. Our modules cover a wide range of topics including mathematical modelling, robotics, and the dynamics of vibrating systems. My favourite part of the course is the projects I have worked on which really encourage you to find creative solutions to problems. For my third-year project I am investigating ways to improve a model of the impact of chemotherapy agents on cancer tumours, which has been a really challenging and rewarding experience."

Josh, 3rd year Systems Engineering student

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Computer Systems Engineering is a fully integrated degree taught jointly with the Department of Computer Science. It focuses on the design of computer systems and their real-time applications, with an emphasis on embedded systems, smart sensors, robotics and connectivity. Our computer systems engineers have the fundamental knowledge and skills of an electronics engineer, with an emphasis on digital electronics, low-power systems, communications, control and real-time operation. Our computer systems engineers are also able to apply state-of-the-art computer science methods in algorithms, fault-tolerant design, code optimisation, and high-performance computing.

You will specialise from the first year as this course does not share the common first year with our other degrees. In your first year you will study computer programming, data structures and algorithms as well as system modelling and electronic circuits. The second year builds on both core disciplines through the study of digital systems design, advanced computer architecture, software engineering, computer networks and optional modules. In your third year you will undertake an individual project under the supervision of world-leading academics from Engineering and Computer Science. You will also study a range of topics with options offered in Engineering and Computer Science.

If you follow the MEng course you will stay on for a fourth year to study more advanced material. You will also participate in an interdisciplinary Engineering group project, which will help advance your research and development skills in a team environment. If you are studying the 3-year variant of this course you may choose to have your degree awarded as a BEng or a BSc. The option of spending a year in industry or studying abroad is available to all students.

Computer Systems Engineering is our flagship joint degree programme with Computer Science, offering students access to the world class facilities and academics in both departments. The curriculum prepares you for a career at the leading edge of technology, from the processors powering connected devices to the large scale systems underpinning the economy.
HOW WILL I LEARN?

THE ACADEMICS WHO TEACH YOU WORK AT THE FOREFRONT OF THEIR SUBJECTS AND ARE MAKING INTERNATIONALLY SIGNIFICANT ADVANCES, SO YOU’LL ENCOUNTER THE LATEST THINKING AND MOST UP-TO-DATE KNOWLEDGE WHILE YOU STUDY AT WARWICK.

We were ranked 3rd overall in the most recent Research Excellent Framework (2014) among UK integrated engineering departments and we are proud of our research-teaching links.

TEACHING
We use a variety of teaching methods, ranging from lectures and group tutorials to small-group teaching in laboratories.

As well as deep subject knowledge, our courses help you develop key skills in independent and critical thinking, presentation, communication, research, leadership, team-working and organisation. Computer laboratories loaded with specialist software are open 24/7, helping you undertake work at a time that suits you. In Year 3 students develop their research skills through an individual project related to their degree, specialising in one particular area. This may be linked to our research activities, be in conjunction with an external company, or support a fourth year project. For those who study for a MEng degree, the fourth year large group project is worth 25% of the year and simulates the multidisciplinary working practices you will experience in your career.

SUPPORT
There is strong support in the School from students and staff. Lecturers provide support and feedback hours for additional help with materials they’ve covered. Students are allocated a personal tutor to whom they can turn for advice regarding academic or personal matters, and can signpost students to other appropriate sources of personal support and guidance within the University. The School also has a Senior Tutor who promotes the academic welfare of students and to whom students can turn for support regarding difficulties in their studies.

ASSESSMENT
Students are assessed by a mixture of coursework and written examinations. Design-orientated work is assessed by oral presentation, project work and group assignments. Projects are assessed by a variety of methods, including oral presentations, written reports and posters.

“Your personal tutor is the academic that you will be the closest with throughout your time at Warwick. They are available for any problems that you want to go through, whether it be personal or academic. The weekly meetings in first year help you ease into the university workload and keep you on a steady track to complete your work.”

Samruddhi, 2nd Year, Mechanical Engineering student
GETTING INVOLVED

OUR CAMPUS IS HOME TO STUDENTS AND STAFF FROM MANY DIFFERENT BACKGROUNDS AND COUNTRIES.

This inclusive and cosmopolitan atmosphere gives Warwick its vibrancy and characteristic ‘buzz’. We value your individuality and provide an environment where you can be yourself and form life-long friendships.

Our Students’ Union (SU) supports over 300 student societies and sports clubs so you’ll have many opportunities to meet people, learn valuable skills and try new things. The SU runs a packed programme of events including gigs, karaoke, open-mic nights and pub quizzes. In addition, Warwick Arts Centre is one of the largest multi-artform venues in the UK and hosts many arts and cultural activities.

ENGINEERS WITHOUT BORDERS
Engineers Without Borders Warwick is affiliated to the national charity Engineers Without Borders UK, a movement that inspires, enables and influences global responsibility through engineering. The society provides opportunities for students to:

► Develop practical skills through creative and sustainable-minded technical projects.
► Volunteer in local schools and events, inspiring the next generation of engineers!
► Learn about international development through talks and networking events.
► Enjoy regular socials with a friendly group of engineers and non-engineers.

ENGINEERING SOCIETY
The Engineering Society is a student-run hub for Warwick engineers to network, socialise, learn and make the most of their university life. With over 1000 members, there’s sure to be something for you:

► Two ground-breaking conferences annually, centred around the innovative future of Engineering and Technology.
► As a Top 5 Finalist in National Undergraduate Employability’s Best University Society 2018 Competition, you can expect unique networking opportunities and site visits with prominent companies.
► Regular and diverse socials - from an annual ball to movie nights, laser tag, group meals and pub crawls!
► Academic and careers sessions to help you throughout your studies as well as a weekly speaker series.
► An all-inclusive community with plenty of ways to get involved. Make sure to check out their website: warwickengineers.co.uk

ENGINEERING SOCIETY WITHOUT BORDERS UNIVERSITY OF WARWICK

ENGINEERING SOCIETY WITHOUT BORDERS UNIVERSITY OF WARWICK

ENGINEERING UNDERGRADUATE PROGRAMMES 2019/20
CAREERS
Choosing Warwick will give you the opportunity to maximise your career prospects. Our degrees are attractive to employers both in the UK and internationally because of the breadth of knowledge and skills our ‘well-rounded’ graduates gain.

We have a strong University Student Careers and Skills Service, who offer valuable graduate careers support.

If you aspire to achieve Chartered-Engineer (CEng) status, a degree from Warwick is a great starting point. The majority of our Engineering degrees are accredited by licensed professional engineering institutions. Full information about the accreditation of our courses is available on our website: warwick.ac.uk/engineering/undergraduate/accreditation

PLACEMENTS & INTERNSHIPS
The School of Engineering has a dedicated Placements and Internships Officer who actively encourages students to gain relevant work experience through a summer or year-long placement. They also provide guidance to help prepare you for the vigorous recruitment and selection procedures used by employers in the UK and overseas.

Students with relevant work experience tend to fare much better in the graduate recruitment process as they can demonstrate greater skills, competencies, strengths and experiences.

“Working as an engineer and having real responsibilities opens your eyes to what you will use your degree for, and gives you the drive and motivation to come back and finish it so you can get back to the world of work!”

Roxy, placement student at Tetra Engineering, Nice, France

“We like on placement I developed personally and professionally while gaining tremendous experience within the aerospace industry and now have an understanding of how a multinational engineering company operates.”

Tony, placement student at Rolls Royce PLC, Derby

STUDENTS CAN ALSO OPT TO STUDY ABROAD FOR A YEAR, EITHER BY TAKING AN INTERCALATED YEAR OR VIA AN EXCHANGE PROGRAMME. STUDYING ABROAD PROVIDES AN OPPORTUNITY TO LIVE AND STUDY IN A DIFFERENT CULTURAL SETTING AND CAN ENHANCE THE LEARNING EXPERIENCE.

ALTERNATIVELY, A YEAR IN RESEARCH IS AN OPTION FOR THOSE WHO MAY WANT TO DEVELOP A CAREER IN ACADEMIA OR A PARTICULAR FIELD OF RESEARCH.

warwick.ac.uk/engineering
FEES & FUNDING

WARWICK IS PRIVILEGED TO ATTRACTION HIGH-FLIERS AND SEEKS TO RECOGNISE AND PROMOTE ACHIEVEMENT, TALENT, IDEAS, HARD WORK AND DIVERSITY.

We regularly offer the following scholarships:

* Women in Engineering Programme: encouraging diversity in Engineering - five scholarships of £2000 per year

* Multicultural Scholars Programme - awards of up to £2000 per year for UK-resident students whose families have their origins in Bangladesh, Pakistan, Africa and the Caribbean

* Merit Scholarships - up to twenty scholarships of £1000 for high achieving students who put Warwick as their firm choice on UCAS

* Warwick Engineering International Scholarships - up to ten scholarships of £4000 for students who are classified as Overseas for admissions purposes

For more details, see our website: warwick.ac.uk/engineering

Please see the University website for details of tuition fees, financial support and the cost of living: warwick.ac.uk/ugfees

“Women in Engineering Programme allowed me to focus on my work as I had little worries about expenditure during my studies. I was also able to travel to Honduras on an engineering project, fully sponsored by the programme. The aim was to design a water system for a disadvantaged community that was lacking clean water. The support gave me the experience of working with Honduran engineers, alongside the University of California, and was my first experience of being an engineer and physically making a difference.”

Omar, 3rd year Systems Engineering student

“The Multicultural Scholars Programme allowed me to focus on my work as I had little worries about expenditure during my studies. I was also able to travel to Honduras on an engineering project, fully sponsored by the programme. The aim was to design a water system for a disadvantaged community that was lacking clean water. The support gave me the experience of working with Honduran engineers, alongside the University of California, and was my first experience of being an engineer and physically making a difference.”

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Omar, 3rd year Systems Engineering student

“The more time I’ve spent at Warwick, the more I’ve realised how lucky I am that I chose to study engineering here. Not only do I find myself genuinely excited for the labs and practical side of the degree but even lecture content which I never thought I would find interesting has been something I’ve thought about outside the lecture theatre. Along with the enthusiastic teaching staff, this makes you so much more motivated to work hard for exams and assessments and I was fortunate enough to be awarded a Merit Scholarship last year by the School of Engineering which has further encouraged me to achieve the best results I can.”

Emma, 2nd year General Engineering student

VISIT US

Don’t just take it from us, come and see for yourself what Warwick is all about. Our University Open Days give you the chance to visit the School of Engineering, see the facilities, meet staff and students, tour the campus and get a real feel for life at Warwick.

warwick.ac.uk/opendays

HOW TO APPLY

Applications are made through UCAS: ucas.com

Further information and guidance about the admissions process is available on the University website: warwick.ac.uk
The information in this brochure was correct at the time of printing. Our course and module content is continually reviewed and updated to reflect the latest research expertise at Warwick. It is therefore very important that you check the website for the latest information before you apply and when you accept an offer.