OUR UNDERGRADUATE COURSES

Engineering and design
OUR COURSES

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Our broad curriculum provides an excellent grounding in engineering and design, and the ability to communicate effectively across these disciplines.

MEng (Hons) courses allow students to build on their knowledge and develop good team-working and management skills through a multidisciplinary group project. Such projects could include leading or working as part of Team Sussex Formula Student, or developing and implementing applications of our patented sensor technology.

An industrial placement year gives you the opportunity to gain valuable experience for your future career while working in industry. It also gives returning students a professional perspective to bring to their final year.

As well as theoretical work, significant practical work will give you a well-rounded knowledge to apply to your individual project.

Potential employers are particularly interested in the individual and team projects as they demonstrate your technical and creative flair, as well as your ability to complete projects within time and resource constraints. The breadth of experience that you gain at Sussex gives you a strong advantage in your future career.

GLOBAL DESIGN CHALLENGE

During the first year, you will take part in the exciting, school-wide Global Design Challenge: this gives all our students the opportunity to engage with a real-world design project in multidisciplinary teams.
OVERVIEW

Our Automotive Engineering degrees are designed for students who want to work within the rapidly growing automotive industry. It is through our long term collaborations with key industry members including Jaguar Land Rover, Ricardo and ExxonMobil, that we understand what makes a top-quality automotive engineer.

Our courses cover theoretical and experimental approaches while also ensuring that the business and management aspects are included. Specialist areas of teaching include automotive systems, vehicles and engine technology, testing and modelling for automotive power systems and dynamics of machines. Our experimental facilities include test rigs with engines ranging from Caterpillar engines for off-road applications, through to alternative fuel engine systems.

Students in their final year have the opportunity to join the Mobil 1 sponsored Formula Student Team as their individual or MEng group project. Team Sussex competes in the international IMechE Formula Student event at Silverstone every year, and the team is responsible for the design, manufacture and performance of the car. The team have their own test facility and, as with all Formula 1 events, the car must comply with competition rules and be completed within the budget.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to ‘Automotive Engineering with an Industrial Placement Year’.

ACCREDITATION

Our Automotive Engineering degrees are currently accredited by the Institution of Mechanical Engineers (IMechE) and meet in full (MEng) or in part (BEng) the exemplifying benchmark required for registration as a Chartered Engineer.

CAREER OPPORTUNITIES

There are automotive engineering opportunities in every sector including engine development, motorsport, alternative energy, marine engineering and aerospace. Engineers also flourish in areas including finance, law and international development.

Our recent graduates are now employed by, among others:

- Aston Martin
- Delphi Diesel Systems
- Ford
- Goodyear Dunlop
- Millbrook Proving Ground
- Nissan
- Ricardo
- Scorpion Automotive

BEng (Hons) Automotive Engineering (UCAS code: H331, with an industrial placement year: H30F)

MEng (Hons) Automotive Engineering (UCAS code: H330, with an industrial placement year: H31F)
# Automotive Engineering

## Autumn Term

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<th>Year 1</th>
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<th>Optional Year</th>
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<td>Systems Analysis and Control</td>
<td>One year industrial placement (optional)</td>
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<tr>
<td>Electrical Circuits and Devices</td>
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<td>Programming for Engineers</td>
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<td>Engineering Maths 1A</td>
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## Spring Term

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<td>Engineering Thermodynamics</td>
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<td>Engineering Fluid Mechanics</td>
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## Year 3

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<td>Automotive Systems</td>
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<td>Testing and Modelling for Automotive Power</td>
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<th>Year 3</th>
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<td>Business and Project Management</td>
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<td>Dynamics of Machines and Vehicles</td>
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<td>Engine Technology</td>
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<tr>
<th>Year 4 MEng (Hons) only</th>
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<tr>
<td>MEng (Hons) Group Project</td>
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*For full list of options go to: www.sussex.ac.uk/ei/internal/engcourses*
OVERVIEW

Computers are embedded in a whole range of systems; everything from mobile phones to vehicles and consumer products.

Our courses cover hardware and software and include digital systems, microprocessor design, embedded systems, compilers, computer architecture, web applications and services, operating systems, programming and computer networks. Students work with industry-standard software and embedded systems hardware for the design, simulation and prototyping of electronic systems. Examples of previous student projects include:

- A Microbot System
- External Peripherals for Smartphones
- Hexapod Robot Control
- Wavelet Face Detection: Finding Faces in Images

In Year 4 of the MEng (Hons), students are formed into multidisciplinary teams to undertake a substantial group project. Recent examples include the Formula Student Racing Car, an Aerial Vehicle for Video Reconnaissance and an autonomous search and rescue robotic vehicle.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to 'Computer Engineering with an Industrial Placement Year'.

ACCREDITATION

Our Computer Engineering degrees are currently accredited by the Institution of Engineering and Technology (IET) and meet in full (MEng) or in part (BEng) the exemplifying benchmark required for registration as a Chartered Engineer.

CAREER OPPORTUNITIES

Computer Engineers have a wide range of opportunities with careers available in every sector including satellite development, transport, security and defence, agriculture, medicine and building management. Engineers also flourish in areas including finance, law and international development.

Our recent graduates are now employed by, among others:

- BAE Systems
- Elekta
- Hanover Displays
- JT Electrical
- Lighthouse Systems
- Smiths Detection
- Thales

BEng (Hons) Computer Engineering (UCAS code: HG66, with an industrial placement year: H63F)

MEng (Hons) Computer Engineering (UCAS code: GH4P, with an industrial placement year: H64F)
## Computer Engineering

**Autumn Term** | **Spring Term**
---|---

### Year 1
- Electrical Circuits and Devices
- Programming for Engineers
- Engineering Maths 1A
- Introduction to Programming

#### Year 2
- Digital Systems and Microprocessor Design
- Engineering Mathematics 2
- Databases
- Compilers and Computer Architecture

#### Optional Year
- One year industrial placement (optional)

### Year 3
- Business and Project Management
- Option*
- Option*
- Option*

#### Individual Project

### Year 4  MEng (Hons) only
- Marketing Analysis and Financial Strategic Planning
- Real Time Embedded Systems
- Option*

#### MEng (Hons) Group Project

*For full list of options go to: [www.sussex.ac.uk/ei/internal/engcourses](http://www.sussex.ac.uk/ei/internal/engcourses)
OUR COURSES

Electrical and Electronic Engineering

OVERVIEW

Electrical and Electronic Engineering is a mix of the electronics that we encounter daily and the electrical applications that can be found in areas such as production facilities, the energy sector and transport systems.

Our courses include control engineering, electro-mechanics, electrical machines, power electronics, analogue and digital systems, electrical power systems and embedded-system development. These areas are reflected in the options available for the third year individual project. Examples of previous student projects include:

- Traffic Sign Recognition
- Power Electronics for Wind Turbines
- Digital Holography
- Wireless Sensor Network for Environment Monitoring

Students working on their projects make use of our specialist facilities including the power and control laboratories, the sensors and electronics laboratories, and our advanced non-contact sensor facility.

In Year 4 of the MEng (Hons), students are formed into multidisciplinary teams to undertake a substantial group project. Recent examples include the Formula Student Racing Car, an Aerial Vehicle for Video Reconnaissance and an award-winning Compressed Air Driven Opposed Free-Piston Generator.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to ‘Electrical and Electronic Engineering with an Industrial Placement Year’.

ACCREDITATION

Our Electrical and Electronic Engineering degrees are currently accredited by the Institution of Engineering and Technology (IET) and meet in full (MEng) or in part (BEng) the exemplifying benchmark required for registration as a Chartered Engineer.

CAREER OPPORTUNITIES

Electrical and Electronic Engineers are in great demand with opportunities in every sector including the power industry, aerospace, security and defence, transport, marine engineering, health and medicine. Engineers also flourish in areas including finance, law and international development.

Our recent graduates are now employed by, among others:

- Bowers and Wilkins
- EDF Energy
- General Electrics
- Marco Limited
- Siemens
- Thales

BEng (Hons) Electrical and Electronic Engineering (UCAS code: H606, with an industrial placement year: H60F)

MEng (Hons) Electrical and Electronic Engineering (UCAS code: H600, with an industrial placement year: H61F)
**AUTUMN TERM** | **SPRING TERM**
---|---
**YEAR 1**
Materials and Manufacturing Processes | Electronic Devices and Circuit Prototyping
Electrical Circuits and Devices | Electromechanics
Programming for Engineers | Engineering Thermodynamics
Engineering Maths 1A | Engineering Maths 1B

**YEAR 2**
Electrical Machines and Power Electronics | Embedded Systems
Electronic Circuit and Systems Design | Analogue Communication and Propagation
Digital Systems and Microprocessor Design | Systems Analysis and Control
Engineering Mathematics 2 | Professional and Managerial Skills

**OPTIONAL YEAR**
One year industrial placement (optional)

**YEAR 3**
Business and Project Management | Electrical Drive Systems
Control Engineering | Option*
Electrical Power Systems | Option*

Individual Project

**YEAR 4  ** MEng (Hons) only
Marketing Analysis and Financial Strategic Planning | Advanced Topics in Control of Electromechanical Systems
Advanced Electronic Systems | Option*
Option* |

MEng (Hons) Group Project

*For full list of options go to: www.sussex.ac.uk/ei/internal/engcourses
OVERVIEW

Mechanical Engineering is one of the broadest engineering disciplines, covering the design and manufacture of products and dealing with the conversion, control, transmission and storage of energy in machinery, transportation and power plants.

Our courses cover materials and their properties, applications and performance, fluid mechanics, thermodynamics, electromechanics, systems analysis, simulation and control. These areas are reflected in the wide range of options available for the Year 3 individual project.

Examples of previous student projects include:

• Spoiler aerodynamics
• Dynamic modelling of turbochargers
• Formula Student cooling system
• Feasibility study of a wind turbine

Students working on their projects make use of facilities including the Rolls-Royce DART jet engine, the road vehicle engine test rigs and the high performance computer clusters.

Students can also be involved with the Formula Student Team.

In Year 4 of the MEng (Hons), students are formed into multidisciplinary teams to undertake a substantial group project. Recent examples include the Formula Student Racing Car, an Aerial Vehicle for Video Reconnaissance and an award-winning Compressed Air Driven Opposed Free-Piston Generator.

OPTIONAL INDUSTRIAL PLACEMENTS

Students are aided in their pursuit of an industrial placement year; placements are recognised by a change of degree title to ‘Mechanical Engineering with an Industrial Placement Year’.

ACCREDITATION

Our Mechanical Engineering degrees are currently accredited by the Institution of Mechanical Engineers (IMechE) and meet in full (MEng) or in part (BEng) the exemplifying benchmark required for registration as a Chartered Engineer.

CAREER OPPORTUNITIES

Mechanical Engineers are in high demand with opportunities available in every sector including aerospace, transport, marine engineering and energy. Engineers also flourish in areas such as finance, law and international development.

Our recent graduates are now employed by, among others:

• Arup
• Balfour Beatty
• BP
• Buro Happold
• Jaguar Land Rover
• Mott MacDonald
• Network Rail
• Thales

OUR COURSES

Mechanical Engineering

BEng (Hons) Mechanical Engineering (UCAS code: H300, with an industrial placement year: H32F)

MEng (Hons) Mechanical Engineering (UCAS code: H301, with an industrial placement year: H34F)
# Mechanical Engineering

## Autumn Term | Spring Term

**Year 1**
- Materials and Manufacturing Processes
- Electrical Circuits and Devices
- Programming for Engineers
- Engineering Maths 1A
- Electromechanics
- Engineering Thermodynamics
- Engineering Maths 1B
- Engineering Mechanics
- Global Design Challenge

**Year 2**
- Principles and Applications of Strength of Materials
- Engineering Mathematics 2
- Design for Manufacture
- Engineering Fluid Mechanics
- Systems Analysis and Control
- Thermal Power Cycles
- Professional and Managerial Skills
- Computer Aided Design and Modelling

**Optional Year**
- One year industrial placement (optional)

**Year 3**
- Business and Project Management
- Dynamics of Machines and Vehicles
- Option*
- Heat Transfer
- Design of Mechanisms and Machines
- Individual Project

**Year 4 MEng (Hons) only**
- Marketing Analysis and Financial Strategic Planning
- Advanced Thermofluids
- Mechanical Dynamics
- Option*
- Option*
- MEng (Hons) Group Project

*For full list of options go to: www.sussex.ac.uk/ei/internal/engcourses*
OVERVIEW

Product Design meets the demands of 21st-century design by teaching a balanced blend of art, technology and science and offers students a chance to fuse their inspirational thinking with sound technological reasoning.

Students are introduced to inspirational and creative teaching methods that not only aid in the development of their design, mathematical and engineering skills, but also encourage an empathic understanding of the user and an awareness of society and sustainability.

Product Design at Sussex facilitates real-life experience and helps build up valuable industry links. Here you will work alongside a school of enthusiastic tutors and industry experts who will help develop and guide your passion for product design.

OPTIONAL INDUSTRIAL PLACEMENTS

Product Design with an industrial placement year allows students to gain valuable experience for their future career while working in industry during their third year of this four year course.

ACCREDITATION

Our Product Design courses are accredited to the highest level by the Institution of Engineering Designers (IED).

CAREER OPPORTUNITIES

The understanding of industry, the creativity and the communication skills which Product Design students gain throughout their degree provide a wide range of exciting employment options.

Our recent graduates are now employed by, among others:

- Design Engineer at Dyson
- Design Manager at Mars
- Design Researcher at The Big Picture
- Senior Packaging Designer at John Lewis
- Furniture Designer at Ben Whistler
- Product Design Development Engineer at the Pure H2O Company
- Product Developer at 20th Century Fox
- Surface Designer at Jaguar Cars

OUR COURSES

Product Design

BSc (Hons) Product Design (UCAS code: HW12)

BSc (Hons) Product Design with Industrial Placement Year (UCAS code: HW1F)
### PRODUCT DESIGN

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<thead>
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<th>AUTUMN TERM</th>
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<tr>
<td><strong>YEAR 1</strong></td>
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<td>Drawing for Design</td>
<td>Computer Aided Visualisation</td>
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<tr>
<td>Materials and Manufacturing Processes</td>
<td>Applied Technology</td>
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<tr>
<td>Mathematics for Product Design</td>
<td>Experience Prototyping</td>
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<tr>
<td>Visual Communication</td>
<td>The Narrative of Design in Modern Culture</td>
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<td></td>
<td>Global Design Challenge</td>
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<td><strong>YEAR 2</strong></td>
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<td>Design for Manufacture</td>
<td>Toy and Game Design</td>
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<td>Design Techniques in Practice</td>
<td>Interaction Design 2</td>
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<tr>
<td>Interaction Design 1</td>
<td>Professional and Managerial Skills</td>
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<tr>
<td>Human Factors and Design for Society</td>
<td>Design for Industry</td>
</tr>
<tr>
<td><strong>YEAR 3</strong> applies to One Year Industrial Placement course only (UCAS code: HW1F)</td>
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<tr>
<td>One year industrial placement (optional)</td>
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<tr>
<td><strong>FINAL YEAR</strong></td>
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<tr>
<td>Business and Project Management</td>
<td>Thinking Big: The Five Senses</td>
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<tr>
<td>Design Philosophy</td>
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<tr>
<td>The Role of Design in the Circular Economy</td>
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<td>Design Project: Design Show</td>
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</table>
OVERVIEW

Our Foundation Year gives students who do not yet meet the current entry requirements the opportunity to study one of our engineering degree courses.

During the Foundation Year, a broad range of subjects is covered including the physical processes which underpin engineering, the materials that form our environment and how they behave under controlled conditions and how to convey design concepts. There is a strong practical content enabling students to experience the application of the theory.

The course is taught entirely on campus and students benefit from the full undergraduate experience.

COURSE STRUCTURE

**Autumn term**

- Foundation Mechanics
- Properties of Matter

**Spring term**

- Electricity and Magnetism
- Applied Technology

**Throughout the year**

- Engineering Laboratory
- Foundation Mathematics

ENTRY REQUIREMENTS

Applicants are considered on an individual basis. If you are unsure about your suitability for the Foundation Year please ask; we are happy to advise. We welcome applications from students of any age who demonstrate academic maturity and have a background that suggests readiness to study at degree level.

For recent school leavers we would normally expect A level grades of at least CCC standard (or equivalent).

Those with non-science A levels (or equivalent) may be asked to achieve high grades and must be able to demonstrate evidence of Mathematics/Science ability at GCSE level (or equivalent).

Applicants whose first language is not English should have IELTS 6.5 overall, with not less than 6.0 in each section.

Further information on entry requirements can be found at: [www.sussex.ac.uk/engineering/ugstudy](http://www.sussex.ac.uk/engineering/ugstudy)

**Engineering Degrees with a Foundation Year** (UCAS code: H100)
Creative Technologies and Design Foundation Year

OVERVIEW

The Foundation Year develops creativity in a range of ways enabling the realisation of concepts in physical, digital and multisensory forms.

Topics covered include creative practice, visual communications, portfolio development, sketching and prototyping, blended physical digital interaction, creativity and independent creative project work – as well as study skills. There is a strong practical content enabling students to experience the application of theory.

Successful completion of this course leads on to one of the following degrees offered at the University of Sussex within the Department of Engineering and Design:

• BSc (Hons) Product Design

And within the Department of Informatics:

• BSc (Hons) Computing for Digital Media
• BSc (Hons) Games and Multimedia Environments (GAME)

The course is particularly suitable for mature candidates with appropriate experience or evidence of personal development and an interest in the field of study, but who lack the formal qualifications for entry directly into Year 1.

ENTRY REQUIREMENTS

Applicants are considered on an individual basis. If you are unsure about your suitability for the Foundation Year please ask; we are happy to advise. We welcome applications from students of any age who demonstrate academic maturity and have a background that suggests readiness to study at degree level.

For recent school leavers we would normally expect A level grades of at least CCC standard (or equivalent).

Successful applicants will need to provide evidence of mathematical ability (at least GCSE grade B standard).

Applicants whose first language is not English should have IELTS 6.5 overall, with not less than 6.0 in each section.

Further information on entry requirements can be found at: www.sussex.ac.uk/study/foundation/
“The skills I’ve learnt at Sussex will continue with me into graduate employment, and the opportunities that Sussex has given me have allowed me to gain confidence so that I can be of real benefit to employers.”

THOMAS WESTWOOD
When you study at Sussex you get the best of both worlds – a campus set in the beautiful South Downs and Brighton, the city by the sea with its exciting culture and nightlife.

If you’re living away from home for the first time you will soon settle down into its community atmosphere, where everything you need is on your doorstep. The bars, cafes and sports facilities are only ever a short walk away.

Sussex is the only UK university surrounded by a national park, allowing you to step off campus and experience peace, serenity and breathtaking views.

At the same time you’re only nine minutes by train from Brighton with its beach, shops, bars, cafes and eclectic arts and music scene. Whether it’s the sea air or the stunning backdrop of the South Downs, Brighton feels special. The atmosphere is unique, relaxed and friendly. It is a city where individuality and diversity are valued and applauded.

But don’t take our word for it, come and see us and find out for yourself. To book onto an Open Day, visit [www.sussex.ac.uk/visitors](http://www.sussex.ac.uk/visitors)

We look forward to seeing you.
ENTRY REQUIREMENTS FOR OUR DEGREE COURSES

Typical A level offers (or equivalent), are:

**Engineering degrees**
- **BEng (Hons)**
  ABB-BBB including Mathematics
- **MEng (Hons)**
  AAB including Mathematics

**Product Design degrees**
- **BSc (Hons)**
  ABB-BBB including Art or a design subject

An alternative entry route is through the successful completion of one of our **Foundation Years**. See pages 14 and 15 for entry requirements.

Applicants whose first language is not English should have IELTS 6.5 overall, with not less than 6.0 in each section.

For entry to our degree courses, you must apply through the Universities and Colleges Admissions Service (UCAS). The easiest way to apply is online through the UCAS Apply service with help from your school or by visiting [www.ucas.ac.uk](http://www.ucas.ac.uk).

Full information about the application and selection process is included in the small print section of the University of Sussex Undergraduate Prospectus (obtainable online from [www.sussex.ac.uk/study/ug](http://www.sussex.ac.uk/study/ug) or by phoning +44 (0)1273 876787). The UCAS code for the University of Sussex is SUSX S90. UCAS course codes are listed on each degree page in this booklet.

There will be general and departmental talks, tours and demonstrations plus plenty of opportunities to meet lecturers and current students.

OPEN DAYS

To help you decide whether to apply, you can attend one of our Open Days in the summer or autumn, or arrange for a campus tour at any other time. To book a place, go to [www.sussex.ac.uk/study/visitus](http://www.sussex.ac.uk/study/visitus) or phone +44 (0)1273 876787.

CONTACT US

We welcome general or course enquiries. Our contact details are on the back cover of this booklet.

**Disclaimer:** The information presented in this booklet is correct at the time of going to print (September 2016) but modules running in future academic years may be subject to change. The reason for this is that Engineering and Design is a constantly developing area and so we regularly review and update our modules and options to reflect this and give you the best student experience. Please refer to our web pages for the most up to date information on courses and modules: [www.sussex.ac.uk/engineering/ugstudy](http://www.sussex.ac.uk/engineering/ugstudy).