A guide to studying this subject at university and your opportunities afterwards.

Subjects inside include: engineering (communications, electronic, mechanical, manufacturing and petroleum) and product design.

Looking Ahead

Engineering

University of Portsmouth
Subject overview

There are over 2,500 engineering courses at universities across the UK, so opportunities to study these subjects are numerous. Many courses will be very similar to each other covering the main areas in engineering, but there are also niche courses, for example ‘audio engineering’ or ‘chemical nanotechnology’. It’s important to find the right course for you, so do your research.

Most universities offer you the option to study for a degree in engineering (BEng) or to combine undergraduate and postgraduate study and complete a Master’s of Engineering course (MEng). This is because to be a practising Chartered Engineer you will need to be qualified to postgraduate level. It is entirely your choice as you can study the BEng followed later by a Master’s course if you prefer. The MEng is usually an additional year of study and often demands higher entry requirements.

There are many courses on offer around the country. Here are some examples of engineering courses on offer at the University of Portsmouth:

**Engineering**
- Communication Systems
- Computer Engineering
- Electronic Engineering
- Engineering and Technology (Foundation year)
- Mechanical Engineering
- Mechanical and Manufacturing Engineering
- Petroleum Engineering

**Product design**
- Computer Aided Product Design
- Product Design and Innovation

To meet the needs of this rapidly changing industry, our courses sometimes change. Visit [www.ucas.com](http://www.ucas.com) for courses available across the UK and [www.port.ac.uk/courses](http://www.port.ac.uk/courses) for up-to-date information on Portsmouth courses.

**Choosing an engineering course**

**Look out for:**

- Course accreditation with organisations such as the Institution of Engineering and Technology and the Institution of Mechanical Engineers.

- National Student Survey (NSS) statistics show whether students graduating from their course have been happy with the course, facilities and support provided during their studies. This can be found through your chosen university’s website.

- Employment statistics for graduates, which can be found on your chosen university’s website, via their careers service or at [www.unistats.com](http://www.unistats.com).

- Additional features of the course such as work placements, study abroad options, optional units, extended projects and enterprise opportunities.

- Subjects covered on the course – every university will be different, so it’s vital you find the right combination of subjects for you.
The course

What will you study?

During your time at university, you will study your chosen subject in depth. Universities usually run a number of compulsory or ‘core’ topics for each course, which everyone studies in order to gain an understanding of the key areas. There will also be ‘optional’ topics from which you select according to your interests and how you want to specialise within your course.

Units vary depending on the university. Below are a few examples of core and optional units for engineering courses at the University of Portsmouth:

- **Core units**: depending on the course, you could study topics such as algorithms and programming, illustration techniques, sustainable development, thermo-fluid mechanics or transmission techniques and broadcasting. Most are specialist aspects of your chosen subject.

- **Optional units**: just a few examples include microcontrollers and programmable logic – BEng (Hons) Communication Systems; energy engineering – BEng (Hons) Mechanical Engineering; illustration techniques – BSc (Hons) Computer Aided Product Design; and artificial intelligence – BEng (Hons) Electronic Engineering. The optional units sometimes reflect the research interests of the lecturers, so it’s worth investigating this to see if their interests match your own.

How will you study?

**Lesson type**
Engineering courses are usually taught using a mixture of lectures, subject tutorials, laboratory sessions and project work.

**Contact time**
You will spend on average about 24–29 per cent of your week in lectures, laboratory sessions and subject tutorials.

**Assessment methods**
You will be assessed by a mixture of coursework, exams, practical tests, project work and presentations. In the final year you will undertake an individual project that will contribute significantly to your final degree classification.

Further information for the universities you are considering can be found via the university websites, Unistats at [www.unistats.com](http://www.unistats.com) or Which? University at [www.university.which.co.uk](http://www.university.which.co.uk).
Getting a place

Key skills and qualities required for these subjects

Skills
Engineers are superb problem solvers and need to be innovative and creative with the materials they have. Teamwork and communication skills are vital. You will need to have an aptitude for practical situations and an interest in finding out how things work. A working knowledge of computer programs including CAD would be useful.

Qualities
Qualities relate more to your personality. You will need to be methodical, show attention to detail and have an enquiring, inquisitive mind. In an industry where technology develops rapidly, you will need to be prepared for continuous learning throughout your course and career.

Qualifications
As for all degree courses, you will usually need at least five GCSEs grade A*-C including English and maths. You will also need Level 3 qualifications such as A Levels, International Baccalaureate (IB) or BTEC. A background in maths, science, design and technology subjects will help you when studying engineering.

Top tips for a successful application

- Show an active and genuine interest in your subject – refer to research and hot topics you have investigated and talk about engineers or developments that have inspired you.
- Refer to relevant work experience or volunteering you have undertaken. Explain what you have gained from these experiences.
- Discuss trips you have been on, perhaps to museums, exhibitions or public lectures.
- If you have completed a relevant extended project during your A Levels, discuss this in your application. Explain what you have learnt and gained from the project.
- For the universities you are applying to, read the entry information included within the course information on the UCAS and university websites carefully. This will often show what sort of person they are looking for.
- Refer to hobbies and interests you hope to continue at university through the clubs and societies offered via the Students’ Union; this will show how you hope to become a member of the university community.
What to do next

• Unlike at school and college, university courses do not always have a set curriculum and can therefore vary widely in their content. Look carefully at the course content of the universities you are considering to make sure they cover the topics you are most interested in.

• Compare universities on a range of factors including employability, student satisfaction, assessment methods and lecturer contact time using the Key Information Sets (KIS) which can be found on each university’s website or via www.unistats.com.

• Show a genuine interest and commitment to the subject – research hot topics in recent journals and publications.

• Join the relevant professional body (for example, the Institution of Engineering and Technology) as a junior/student member. You will gain access to a wide range of resources and could have the opportunity to take part in fantastic projects.

• Apply to engineering companies for sponsorship during your degree. This can provide you with financial support during your studies, as well as an opportunity for great work experience.

• Participate in award schemes such as the Duke of Edinburgh Award, to show you have teamwork, commitment and leadership qualities.

• Take up an extracurricular hobby/activity such as playing a sport or musical instrument, or joining a society. This shows you are a well-rounded person.

• Aim to hold a position of responsibility such as a prefect or house captain.

• Get involved in voluntary work/work experience.

Where to find out more


RAE: Royal Academy of Engineering at www.raeng.org.uk.


WISE: promoting female talent in science, engineering and technology at www.wiscampaign.org.uk.

Uni info: a site where students share academic and social knowledge at www.thestudentroom.co.uk and a website that provides university and course reviews at www.whatuni.com.

Where could you work?

Cars, double glazing, sports equipment, smartphones – these very different items are linked by one thing – they are all made possible by engineering. It’s all about using science and mathematics to design and produce items that are necessary for daily life.

Having gained an engineering degree accredited by the relevant institution (such as the Institution of Engineering and Technology) you should be able to find work as an Incorporated Engineer. These are team leaders or supervising technicians on a project. Once you have gained experience, and with the addition of a Master’s degree in engineering (MEng), you will be able to practise as a Chartered Engineer. They work at the highest level of research and development, planning, designing and managing major engineering projects.

Within engineering you will find an area of work that suits your personality. Some involve helping people such as biomedical engineering. Others involve creating large equipment like lifts, cranes and excavators. You may prefer to be involved in work on a much smaller scale such as nanotechnology. Perhaps you care for the environment, so finding and developing renewable energy sources is for you. The opportunities are endless.

Transferable skills
These courses are highly vocational, but will also give you many transferable skills. You will develop your teamwork, communication, problem solving, self-motivation and time management skills, making you highly employable in a wide range of careers outside engineering. Possibilities include the civil service, finance, teaching (which would require a further qualification after your degree) or computing. In fact, it is estimated that 60 per cent of employers looking to recruit graduates (someone with a degree qualification) do not mind what your degree is in, just that you have that level of qualification.
What do our engineering students go on to do?

Each year we gather statistics to identify what our students are doing six months after graduating. Many find work, continue studying or even take time out to travel. Here are the statistics for our engineering students who graduated in 2013:

Destination
78.6% Employed
12.5% Further study
6.5% Unemployed
2.4% Other

Please note, these statistics (in line with national requirements) are gathered just six months after students graduate; employment prospects often change and improve greatly over the following few years. Find out more through the *What do graduates do?* publication at [www.hecsu.ac.uk](http://www.hecsu.ac.uk).

Here are a few examples of careers followed by our students:

**BEng (Hons) Mechanical Engineering**
- CAD Engineer
- Royal Navy Officer

**BEng (Hons) Electronic Engineering**
- Aeronautical Engineer

**BSc (Hons) Computer Network Management and Design**
- Security Analyst

**BEng (Hons) Petroleum Engineering**
- Drilling Engineer
Titles in the series

01. Accounting, Economics and Finance
02. Architecture, Property and Surveying
03. Art and Design
04. Biological Sciences
05. Business and Management
06. Computing and Creative Technologies
07. Engineering
08. English, Film, Journalism and Media
09. Geography, Earth and Environmental Sciences
10. Health Sciences and Social Work
11. History, Politics and Social Studies
12. Law and Criminology
13. Mathematics and Physics
14. Modern Languages and Area Studies
15. Psychology
16. Sports Science