Undergraduate Courses In Chemical Engineering.
We are extremely proud of our cutting-edge research. It is through the Government funded ChELSI Institute and Carbon Capture and Utilisation Research Grant we can ensure current and future investment in our department and students. Recent improvements in the department such as state-of-the-art research and teaching laboratories and open social spaces reflect our commitment to our students and will prepare our graduates to look to the future of Chemical Engineering. At Sheffield, you will find a friendly and flourishing modern environment in which to study chemical engineering. We can’t include everything we’d like to tell you so please do look at the web pages or plan to visit us. To find out more, contact the Admissions Tutor. You’ll find our contact details on the back cover.

Professor Phillip Wright
Head of Department
Welcome to the Department of Chemical and Biological Engineering at the University of Sheffield. Our Department undertakes three main activities: teaching undergraduates, teaching postgraduates and research. Since the rest of this brochure is about teaching let me say a few words about our research of which we are enormously proud:

- Energy and the Environment - New energy sources, energy conservation, carbon capture and water
- Fluids - Microfluidics, process fluidics and modelling
- Life Science - Biological and Bioprocess Engineering, Systems and Synthetic Biology
- Solid Materials - Particle products, smart materials and nanotechnology

Members of the teaching staff each carry out specialist research in one of these themes and you will find specialist modules in Years 3 and 4 of the MEng degrees relating to these subjects. If you stay for Year 4 of the MEng you will work in one of these areas on your own research project.

Not only are you taught the theory behind Chemical Engineering, the lecturers also give insight into life in industry, which is very useful for the 3rd year design project and your career beyond university.

Arona Othusitse
MEng Chemical Engineering Year 3
Chemical Engineering at Sheffield
Chemical engineers are problem solvers

Chemical engineering is the practical application of science to change materials and produce energy for a better life and a better environment. Engineering these changes effectively is necessary for the production of commodities essential to our everyday life, including food and drink, pharmaceuticals, fertilisers, man-made fibres, plastics, fuels and energy. Engineers ensure these processes that convert raw materials into useful products are safe and efficient, achieved at the lowest cost, using minimum energy and impact on the environment.

Research and teaching
Our department is recognised for its high quality research; the department is in the top 7 in the country for research quality, this is reflected in our international reputation in environmental engineering, particle technology, process fluidics and biological and environmental systems engineering. All of these areas are incorporated into our undergraduate degree courses, meaning our students will be taught by academics that are at the cutting edge of their fields.

Teaching and learning
We teach using a combination of lectures, project work, tutorials, practical instruction, industrial visits and personal tuition. Through lab work you will develop practical skills and hands on experience of industrial equipment and instrumentation, building principles and concepts learnt during lectures. Excellent computer literacy is important and throughout the course you will use current software and programming languages.

Pastoral support
University life is an exciting experience, but it can also be challenging. Our department provides plenty of pastoral support to help you make the transition from home to study as smoothly as possible. In Intro Week, you’ll be allocated your own Personal Tutor - a member of academic staff who you’ll see for an hour every week during Year 1. Your Personal Tutor can help with anything from careers development to supporting you with personal, health or financial problems. Additionally, each year is allocated a Year Tutor, and we have a Director of Student Support, who takes overall responsibility for pastoral care. If you’re struggling with the content of a module, you can make an appointment to see the module leader for further help. You can also sign up for the Sheffield Mentoring scheme, where you will be matched with a final year student studying Chemical Engineering, who will help you settle in. The University also provides a range of support facilities, including MASH (Maths and Statistics Help), 301 (Study Skills Centre), the University Health Service and the University Counselling Service.
Our aim is to turn out chemical engineers who can go straight into industrial teams designing and operating new processes. On top of academic excellence, employers also require additional skills such as expertise in IT, team working and effective communication; we ensure training in these skills is woven into all of our undergraduate degree programmes from the beginning. In the first and second years our students are involved in two design project weeks: Global Engineering Challenge and Engineering, You’re Hired! Students work alongside other engineering disciplines to solve real world problems, stretching their communication and negotiation skills as well as widening their engineering knowledge.

**Our graduate destinations**

Our graduates are employed by important sectors in the UK economy, such as oil & gas, pharmaceutical, chemicals, consumer goods and water treatment; they are also in demand by the high technology and science-led enterprises such as those finding new medicines, cleaner processes or more sustainable sources of energy.

**Careers**

The Departmental Careers Event Programme provide opportunities for students to network with companies who are actively recruiting for full time employees, 12 month placements or summer projects. Often the company representatives are themselves recent Sheffield graduates who share their own experiences to help our students plan their own career paths.

Our undergraduates are encouraged to join the Institution of Chemical Engineers and the Energy Institute, who accredit all of our courses. This is the first step on the road to becoming a Chartered Engineer. For further information on the role of the Chemical Engineer in the workplace we recommend that you contact:

The Institution of Chemical Engineers [www.iche.me.org](http://www.iche.me.org)
The Energy Institute [www.energyinst.org.uk](http://www.energyinst.org.uk)

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I really enjoy studying chemical engineering in Sheffield because the program has a lot of group projects as well as individual work that builds up to your final grade making learning more interesting and giving a taste of real engineering work. For example in the Global Engineering Challenge week you get to work on a project with engineers from different departments.

**Sara Ortiz de Landazuri**
MEng Chemical Engineering Year 2
Our courses

BEng Chemical Engineering (H810)
In Year 1 we combine your knowledge of mathematics and chemistry and introduce you to the principles of chemical engineering. In Year 2 basic principles are developed, particularly through laboratory classes, to emphasise practical applications. In Year 3 your knowledge of chemical processes is broadened by introducing you to the topics of industrial hazards, pollution and business economics together with more advanced treatment of chemical engineering. A major feature of Year 3 is the design project which involves working as part of a small, supervised team on the process design of a chemical plant.

MEng Chemical Engineering (H800)
The first two years of the MEng course are the same as for the BEng (H810).
In Year 3 of the MEng you will follow a slightly different set of modules and begin your specialisation. Year 4 allows further specialisation and in-depth study with emphasis on an individual research project which may be carried out in association with industry.

MEng Chemical Engineering with Energy (H840)
The first two years of this MEng course are the same as for the BEng (H810).
On this course you will study the sources, supply, processing and use of fuel, including the efficient use of coal, oil and natural gas, the production of electricity from fossil or nuclear fuels and the refining of petroleum. The course includes ways of reducing problems associated with the burning of fossil fuels by developing more efficient and cleaner combustion systems and improved power generation processes. The Department has an excellent reputation worldwide for its work in energy and energy usage, and our graduates occupy many senior positions in this field.

MEng Chemical Engineering with a Modern Language (H8T9)
International engineering professionals are in high demand and our degree with a modern language is a good way to capitalise on an interest in a language. This is important if you aspire to the status EurIng. The languages available are French, German and Spanish. The Modern Language Teaching Centre provides language training in Years 1 and 2 in preparation for studying abroad in Year 3. We have established links with institutions in France (Lyon), Germany, (Bochum) and Spain (Oviedo). Special EU funding may be available through the Socrates/Erasmus programme.
MEng Chemical Engineering with Chemistry (H8F1)
The first two years of this MEng course are the same as for the BEng (H810).
This course will equip you to work at the cutting edge of chemical technology. As a graduate, you will be as comfortable working with highly functional molecules at the bench as you will be with tonne quantities of such molecules in a large-scale plant. You will be able to look forward to a career in the pharmaceutical or fine chemicals industries; the strongest parts of the chemicals sector in Europe.

MEng Chemical Engineering with Biotechnology (H8J7)
The first two years of this MEng course are the same as for the BEng (H810). Modern biotechnology is the application of engineering principles to the molecular biosciences. Bioscience-based industries represent a new frontier for chemical engineering and are utilised for diverse purposes, including new sources of energy, food, medicines and redressing environmental impact.

MEng Chemical Engineering with Nuclear Technology (H990)
The first two years of this MEng course are the same as for the BEng (H810). The need for a low carbon energy future has focussed renewed attention on nuclear power as an important component of any future energy mix for the UK and the world. Events in Fukushima have powerfully illustrated the need for high level engineering skills in this area.

Foundation Year (H801)
This one year course is available for students who do not have appropriate qualifications in Mathematics or Chemistry. On successfully completing the Foundation Year you move into the first year of the undergraduate courses, either BEng or MEng.
Industrial experience

We encourage all our undergraduates to gain some industrial experience through suitable employment during the summer holiday or by taking a year in industry. If you would like to spend a year in industry you have the option to do this formally as part of your degree; you will then graduate with MEng with Employment Experience. This will add one year to your chosen MEng degree and you will be required to pay a proportion of the fees during your year away from the University. The alternative is to take a formal year’s leave from the course to work in industry. Although this will not be reflected on your degree certificate, it will be evident from your CV and you will not have to pay fees. You would usually carry out your industrial experience between Years 3 and 4.

We have an extensive network of contacts in industry, both in the UK and overseas, and will help you to secure a suitable placement. We will support and guide you if you wish to defer entry or want to take a year in industry during the course. You do not need to make any arrangements before you come to Sheffield.

I remember feeling very nervous about starting university and the transition to the British education system (from the American system). Fortunately, every student is assigned a personal tutor whom you can talk to and ask for advice and guidance. I am now in my third year and could not be happier with my university choice. In addition to the wonderful student support, the modules are challenging and tailored to prepare students for our future chemical engineering careers. Over the summer, I did a research internship in Australia and although with limited experience, I could understand the work better from training in university.

Salina Jantarang
MEng Chemical Engineering Year 3
Scholarships

You can tell Sheffield is known for its engineering excellence ranging from its great lab facilities to the friendly academic staff. Not forgetting the wide range of guest lecturers who hold regular talks about the opportunities for graduates...with a free lunch too!

Oliver Huggett-Wilde
Chemical Engineering
Year 3

Academic Achievement Scholarship

We are offering a number of scholarship awards to Home/EU students with established and continued academic excellence. Candidates who achieve AAA or higher at A-level (or IB 37 points) will receive the following awards:

- Students with AAA will receive £1000
- Students with A*AA will receive £1500
- Students achieving marks higher than A*AA will receive £2000

To be eligible for an academic achievement scholarship you must:

- Make The University of Sheffield your first (firm) choice in the UCAS application process
- Be a UK or EU student (not be classed as an international student for tuition fee purposes)

Upon entrance to the department 50% of the award is granted with the remaining 50% provided on achieving a 2.1 (60%) average at the end of the first year.

Candidates will not have to apply for these scholarship, they will automatically be awarded to all eligible students when they commence their studies in the Department. Other awards and prizes will be available for high achievers through the course of their degree.

For further information contact the Undergraduate Admissions Officer, Louise.Hall@sheffield.ac.uk or on 0114 222 7576.
Admissions

Entry requirements
Direct entry to our courses requires the equivalent of three A-Level passes at grades AAA, including Mathematics and Chemistry. A suggested third subject may be Physics, Engineering Science or Biology, but other subjects are accepted and include General Studies. Equivalent qualifications such as the Engineering Diploma (with minimum grade A in A-Level Mathematics), Scottish Highers, Irish Leaving Certificates, the International Baccalaureate, AS-Levels, advanced GNVQ and BTEC qualifications are also accepted, as are a range of overseas diplomas and certificates. You can contact us directly to discuss your particular qualifications.

How to apply
You should apply through UCAS using a UCAS application form. Speak to your Careers Advisor or visit www.ucas.com. Your application is assessed by the Admissions Tutor who considers the subjects that you are studying, any qualifications you have already obtained, your personal statement and the Head Teacher’s/Principal’s reference.

Visits to the department
We strongly encourage all applicants to visit the Department. We organise a programme of visits each year between November and March to which all applicants who are made offers will be invited. This is an excellent opportunity to find out more about your particular course, the Department and the University. You will also meet current students, several members of staff and enjoy tours of the Union, Sports Centre and Endcliffe Student Village.
Chemical Engineers Are Problem Solvers.