What is Chemical Engineering?
Chemical Engineering encompasses the development, design and operation of the processes that produce the materials and products we all depend on. These range from the fresh water and gas supplied to our homes, to performance products such as cosmetics and pharmaceuticals. Essentially Chemical Engineering is all about adding value to materials by changing their chemical compositions, structures or physical state.

Some students are uncertain of their choice of degree programme when they join us; the Edinburgh system allows flexibility to change degree programme up until the beginning of second year.

What does the degree involve?
We offer BEng and MEng degrees in Chemical Engineering that provide graduates with the skills and knowledge to make a real contribution to the Chemical and Process industries, and beyond. As well as ‘pure’ Chemical Engineering degrees, we also offer degrees with Management.

The first year you will be introduced to chemical engineering in general with a special emphasis on sustainability. This interdisciplinary course gives students a feel for Chemical Engineering’s place in the wider engineering world. In the second half of the year, you will learn about the basic concepts of Chemical Engineering, including process synthesis, material and energy balances, fluid mechanics, reaction engineering and separation processes. In addition you will study Chemistry and Mathematics; the Chemistry course is the same as that taken by the Chemistry students, allowing flexibility with Chemistry degrees.

In second year, you will study more of the fundamentals underpinning Chemical Engineering, including separation processes, fluid mechanics, chemistry and materials, and thermodynamics, as well as aspects of bioprocess engineering, chemical engineering technology and computer-based techniques for the modelling of process engineering systems. You gain further insight into these topics through laboratory work and visits to local process plants. A mathematics course is also taken in this year.

In the third year, you will study heat, mass and momentum transfer, kinetics and catalysis, solids processing, management, reaction engineering, environmental aspects of chemical engineering, computing, design and control, as well as laboratory work. Design and laboratory classes give opportunities to develop the communication and team working skills that are a vital part of an engineering education.

The fourth year is the final year of the BEng programme and the first of the two honours years for MEng students. In this year you will study modules in design, safety, fluid mechanics, reaction engineering, and a further two modules chosen from a range of options offered within the School of Engineering. These options vary from year to year, and might include batch processing, computational fluid dynamics or separation processes. You will also carry out a study project and a design project.

The fifth year is the final year of the MEng programme. This year emphasises individual research either through an in-house research project, carried out in one of our research groups, or through a six month industrial placement. Industrial Placement Projects run from June to December of the fifth year and account for half of the fifth year assessment. In addition students doing in-house projects complete an interdisciplinary design project with other engineers and six optional taught modules.

Industrial Placement students study a further 6 courses when they return to the University. Courses offered could include polymer engineering, advanced fluid mechanics, advanced safety, process control, molecular simulation and nanotechnology - the modules offered vary from year to year.

What sort of teaching and assessment methods are used?
Teaching is mainly based on lectures and tutorials, with the additional reinforcement of laboratory work and other practical work. The teaching team makes use of web-based materials in many subjects. Assessment is generally by a combination of continuously assessed material and examination, although a small number of modules are entirely continuously assessed. In the later years project work forms a significant part of the assessment, in particular the Design and Research projects in 4th and 5th year contribute significantly to the final degree assessment. In first year lecture classes are large, but this is supplemented by smaller group teaching in tutorials and laboratories. In subsequent years classes are smaller. Group working in teams of various sizes is used extensively at all levels of the degree programme.

Why Chemical Engineering at Edinburgh?
Chemical Engineering forms a part of the School of Engineering, which encompasses Chemical, Mechanical, Civil and Electrical Engineering. All our Chemical Engineering programmes are accredited by the Institution of Chemical Engineers. The most recent Research Assessment Exercise recognised the excellence of our staff, with the Research Fortnight analysis placing us 3rd in the UK for Engineering.

In comparison to other Chemical Engineering departments the average class size at Edinburgh is quite small. Generally there are around 60 students per year. This allows staff to get to know students as individuals, and fosters a strong group identity amongst Chemical Engineering students. A very active Chemical Engineering Society, run by the students, also helps students to get to know each other.

The teaching team integrate the knowledge gained through world-class research activities into the degree, both in lecture material and in undergraduate research projects. We have extensive industrial contacts, through the optional six month placements that students undertake in their fifth year of study and through participation in our design projects.

Most Edinburgh Chemical Engineering graduates choose to use their technical skills directly, working in the process and related industries. The careers chosen by our remaining graduates range from accountancy to archaeology, via stage management and management consultancy.

Degrees in Science and Engineering
BEng/MEng Honours in:
Chemical Engineering
Chemical Engineering with Management

**The University of Edinburgh**

**College of Science and Engineering**

April 2013

**Chemical Engineering**
“The Chemical Engineering programme at Edinburgh equipped me with the skills and problem-solving abilities that I’ve needed in my working life”

Stephen McNulty,
Recent graduate

Are there any opportunities to study abroad?
Normally one or two of our students take part in the University’s International Exchange scheme, spending a year at a university overseas. Recently students have spent a year at universities in the USA and Canada, for example. We also have visiting students from all over the world spending time with us.

Are there any links with industry and commerce?
All staff have links with industry through their research activities. We also use industrial contacts to advise on and assist with Design Projects wherever possible. Expert guest lecturers help give a “real life” flavour to many courses. The optional Industrial Placement Project, undertaken by fifth year MEng students, gives them a real insight into the process industries and we are constantly building relationships with a wide range of companies to ensure opportunities for these placements continue to increase.

Are there any bursaries or scholarships available?
The School of Engineering offers several scholarships and bursaries alongside those offered by the University. For more information please visit: [www.scholarships.ed.ac.uk](http://www.scholarships.ed.ac.uk)

What can I do after my degree?
Whilst many Chemical Engineering graduates still begin their careers working in the chemical or oil industries, or for the engineering contractors who design and build process plants, there is an increasing demand for chemical engineers from less traditional employers. There are growing opportunities for those who wish to use their Chemical Engineering knowledge directly in food and drink production, the water industry, electronics manufacture, biotechnology, pharmaceuticals, personal products and many other areas.

However the breadth and depth of training required to become a practising chemical engineer, with its emphasis on numerate problem-solving and communication skills, is an excellent basis for other careers, for example in informatics, finance, accountancy, marketing or general management. This wide range of potential employers means that our graduates are exceptionally well placed to find rewarding and lucrative careers.

What are admissions staff looking for?
Applicants must have Mathematics and Chemistry to Higher or A Level standard and Physics to at least Standard Grade or GCSE level. Demand for places in Chemical Engineering programmes is strong and therefore you may require qualifications higher than the published minimum to gain a place on our programmes. You will find our most up to date entry requirements at: [www.ed.ac.uk/studying/undergraduate/degrees](http://www.ed.ac.uk/studying/undergraduate/degrees)

All applicants who are made an offer to study this subject will be invited to visit us. A visit will enable you to see the environment in which you may be spending the next few years of your life, as well as the opportunity to discuss any particular questions in a one-to-one session with a lecturer. Visitors usually get to see many other areas of the University, including student accommodation.

Students with strong A Levels or Advanced Highers (or equivalent) may be given the option of starting at second year, thus completing a BEng in only three years or an MEng in four years.

We encourage applications for the MEng rather than the BEng whenever possible. At present, an MEng degree is the simplest route to ensuring that you will be eligible for professional qualification as a Chartered Engineer after appropriate experience in industry. BEng graduates will need to undertake further study before they can attain such status.

In practice the ability to change to, or continue on the MEng programme depends on performance during the third year.

How do I find more?
If you have any questions about Chemical Engineering at Edinburgh please contact:

Recruitment and Admissions Officer
School of Engineering
The University of Edinburgh
Faraday Building
King’s Buildings
Edinburgh, EH9 3JL

Tel: 0131 650 7352
Email: uenquiries@eng.ed.ac.uk
Web: [www.eng.ed.ac.uk](http://www.eng.ed.ac.uk)

![For more detailed information on degree structure and content, please see: www.ed.ac.uk/schools-departments/student-recruitment/publications-resources/degree-programmes](http://www.ed.ac.uk/studying/undergraduate/information-sheets)

<table>
<thead>
<tr>
<th>Typical degree curriculum: MEng Honours in Chemical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Year</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC00536
Every effort has been made to ensure the accuracy of this leaflet at the time of going to press. However, it will not form part of a contract between the University and a student or applicant and must be read in conjunction with the Terms and Conditions of Admission set out in the Undergraduate Prospectus. Printed on recycled paper for Student Recruitment and Admissions – [www.ed.ac.uk/student-recruitment](http://www.ed.ac.uk/student-recruitment). PDF version available at: [www.ed.ac.uk/studying/undergraduate/information-sheets](http://www.ed.ac.uk/studying/undergraduate/information-sheets)