Chemical Engineer

Chemical engineers design, plan, construct and operate large-scale manufacturing processes. This could be for a wide range of goods from fuel oils to food, pharmaceuticals and cosmetics. They also help manage world resources and protect the environment. Chemical engineers work in either research and development or manufacturing.

They are sometimes known as process engineers.

The Work

You could be:

- looking for ways of changing raw materials such as oil, into new and useful products, or adapting and improving existing products
- using computer modelling to create processes and simulations
- designing and developing the machinery used in manufacturing processes
- developing small-scale test processes and adapting successful tests to full-scale processes
- running trials on new systems and making adjustments
- making sure energy is used efficiently in the manufacturing process
- designing and constructing production plants
- finding the best way to reduce or dispose of by-products
- running a chemical process plant and making sure processes are cost efficient, safe and comply with environmental laws.

Pay

The figures below are only a guide. Actual pay rates may vary, depending on:

- where you work
- the size of the company or organisation you work for
- the demand for the job.

The average starting salary for chemical engineers is around £30,000 a year. With experience this can rise to between £35,000 and £55,000. Chartered engineers can earn up to £70,000 a year or more.

Conditions

- Chemical engineers work in a laboratory, an office or a factory, depending on the type of work.
- You normally work with a team of engineers and technicians.
- In some cases, factory conditions may be noisy or dirty. You may need to wear protective clothing, a facemask or a hard hat.
- Many engineers work regular hours, but in factory work you may work shifts and may need to be on call outside normal hours.
- There are strict health and safety procedures to follow.

- If you work in the oil and gas industry you may spend time working offshore, on a rig or platform.

Getting In

- You normally need a degree (SCQF Level 10-11) in chemical engineering. Other relevant qualifications with suitable chemistry or engineering content may be accepted.
- The entry requirements for most degree courses are 4-5 Highers usually including Maths, Chemistry and Physics. Sometimes National 5 English and Physics may also be required.
- It is recommended to take a degree accredited by the Institution of Chemical Engineers (IChemE). These are shown on the IChemE website.
- Relevant work experience, paid or voluntary, is helpful.
- You may be able to qualify by other training routes.
- Certain colour vision conditions may affect entry to careers in this branch of engineering.

Chemical engineers work in the chemicals, food and drink, pharmaceuticals, cosmetics, plastics, paper, textiles, oil, gas, coal, artificial fibres and water industries. There are also jobs in engineering contracting companies to design and build production plants. Work is available in the UK and abroad and there is a steady demand for qualified staff throughout the world.

What Does It Take

You need to have:

- an aptitude for chemistry and maths
- analytical and problem solving skills
- excellent IT and CAD skills
- a logical and accurate approach
- organisational skills
- good communication skills
- project management skills
- an understanding of health and safety regulations.

You need to be able to:

- work alone or as part of a team
- motivate and lead a team
- make decisions
- manage and motivate others
- meet deadlines.

Training

- After gaining your degree and some further training with an employer, you can register with the Engineering Council as an Incorporated Engineer (IEng) or Chartered Engineer (CEng) engineer.
- For IEng you need to have either a recognised Bachelor's degree or a recognised HNC (SCQF Level 7) or HND (SCQF Level 8) plus further study to Bachelor's degree level.

- For CEng you need to have a recognised Bachelor's degree with Honours plus a recognised Masters degree (SCQF Level 11) (or equivalent), or a recognised integrated Master of Engineering (MEng) degree (SCQF Level 11).
- If you do not have the above qualifications, you may still be able to achieve IEng or CEng by other approved routes. You can check these alternative routes with the Engineering Council or with the appropriate professional engineering institution.
- The Institution of Chemical Engineers (IChemE) accredits a number of company graduate training schemes. The IChemE website has more details.
- You must be willing to keep up to date with changes in a fast moving industry.

Getting On

- Chemical engineers who first qualify as IEng can progress to CEng after further study, training and experience. This can open up a wider range of opportunities.
- You can work towards becoming a Chartered Chemical Engineer (MIChemE) through the IChemE. This will also improve your prospects.
- You could move into project management.
- You might move into a senior management job.
- You could move into teaching and academic research in colleges and universities.
- You might become a self-employed consultant offering specialist engineering services.
- There can be good opportunities to work abroad.

More Information

As the regulatory body for the UK engineering profession, the Engineering Council sets and maintains the internationally recognised standards of professional competence.

Employment prospects in this area are very good. Jobs are widely available and process plants are located in industrial areas throughout the UK (particularly Scotland, the Midlands, North West and North East England) and overseas.

The Tomorrow's Engineers website has more information on careers in engineering.

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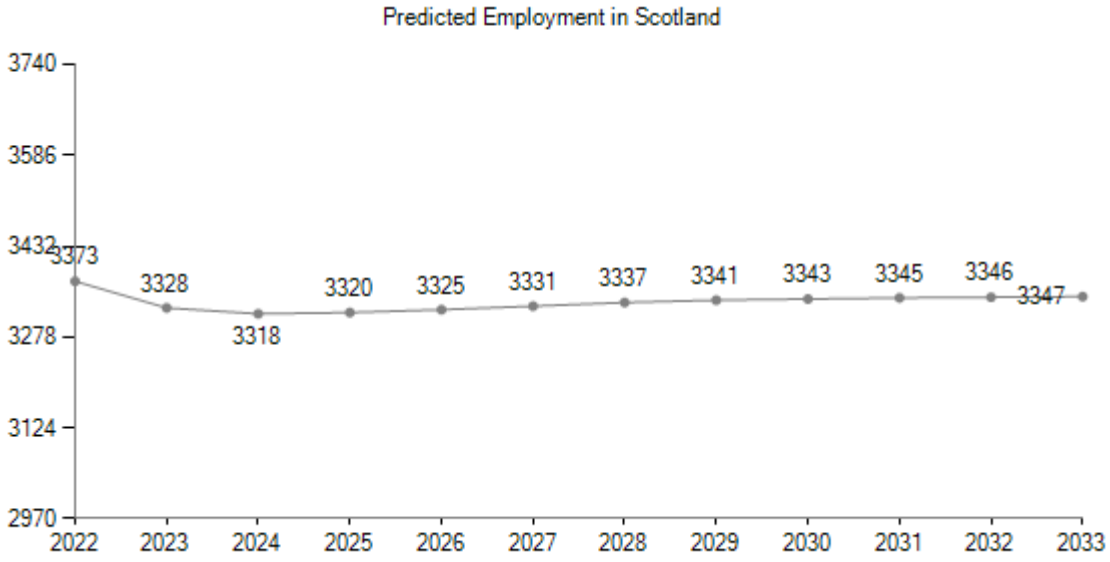
Statistics

Past Unemployment - Scotland

No Claimant statistics available for Scotland.

LMI data powered by LMI for All



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