Electrical Engineer

Electrical engineers research, develop and maintain electrical control systems, machinery and equipment. This includes the machinery and equipment used to generate and distribute electricity.

The Work

You could be:

- producing and working from design specifications and technical drawings
- working on the design and development of equipment for generating and controlling electricity, such as wind turbines
- ensuring that electricity equipment and systems run efficiently and smoothly, and dealing with faults and breakdowns
- operating and maintaining equipment and systems which distribute electricity
- working on the design, manufacture and installation of a wide range of heavy electrical equipment, such as lifts, mining equipment and industrial machinery
- designing and conducting tests, and recording and analysing test results
- making modifications to equipment based on the test results
- using specialist engineering and design software to produce plans and designs
- working in teams with other engineers, architects and technical staff.

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 starting salary for electrical engineers at graduate entry is usually around £30,000 a year. Senior engineers can earn between £35,000 and £45,000 and lead engineers can earn £60,000 or more a year.

Conditions

- You might be based in a design laboratory, a power station or a factory, depending on your work.
- Conditions may be hot, dusty or cramped, although you will probably spend more time in a comfortable office.
- You would usually work normal hours, but in factories and power stations you may have to work unsocial hours or shifts.
- You might have to travel to install and maintain equipment on site.

Getting In

- You would normally need an HNC (SCQF Level 7), HND (SCQF Level 8) or degree (SCQF Level 9-11) in a

subject such as electrical and electronic engineering.

- For entry to an HNC or HND course you normally need 1-2 Highers plus some subjects at National 5. For a degree course you need 4-5 Highers including Maths and Physics or a technological subject.
- Studying for a Foundation Apprenticeship (SCQF Level 6) while in fifth and sixth year at school could give you entry to an HND or degree in a relevant engineering discipline. Entry requirements vary between colleges, but you usually require 3 subjects at National 5 including English and Maths. You would be expected to have Higher Maths by the end of sixth year.
- You may be able to qualify by other training routes.
- You may need to pass a colour vision test. Certain colour vision conditions may affect entry to careers in this branch of engineering.

Electrical engineers work for a very wide range of employers, including electricity companies, manufacturing firms, the transport, chemical, construction, telecommunications and renewable energy industries. The Ministry of Defence, the armed forces and central and local government also have opportunities.

What Does It Take

You need to have:

- excellent maths, science and technology skills
- technical and practical ability
- a creative approach to solving problems
- IT and computer-aided design skills
- good communication skills
- a good understanding of electrical health and safety issues
- business awareness.

You need to be able to:

- explain complex design ideas clearly
- plan and organise projects
- work under pressure
- meet deadlines and keep within budget
- work in a team and motivate others.

Training

- After gaining your HNC, HND or degree and some practical experience with an employer, you can go on to register with the Engineering Council as a professional engineer – either Incorporated Engineer (IEng) or Chartered Engineer (CEng).
- For IEng you need to have either a recognised Bachelor's degree or a recognised HNC or HND plus further study to Bachelor's degree level.
- For CEng you need to have a recognised Bachelor's degree with Honours (SCQF Level 10) 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 any of 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.
- You must keep up to date with new developments throughout your career.

Getting On

- Electrical 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 could move on to project or general management.
- You may go into teaching and academic research in colleges and universities.
- You might become a consultant offering specialist engineering services.
- There can be good opportunities to work abroad.

More Information

The Engineering Council sets and maintains the standards of the engineering profession in the UK. It does so through 50 professional engineering institutions which are Licensed Members of the Engineering Council.

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

Contacts

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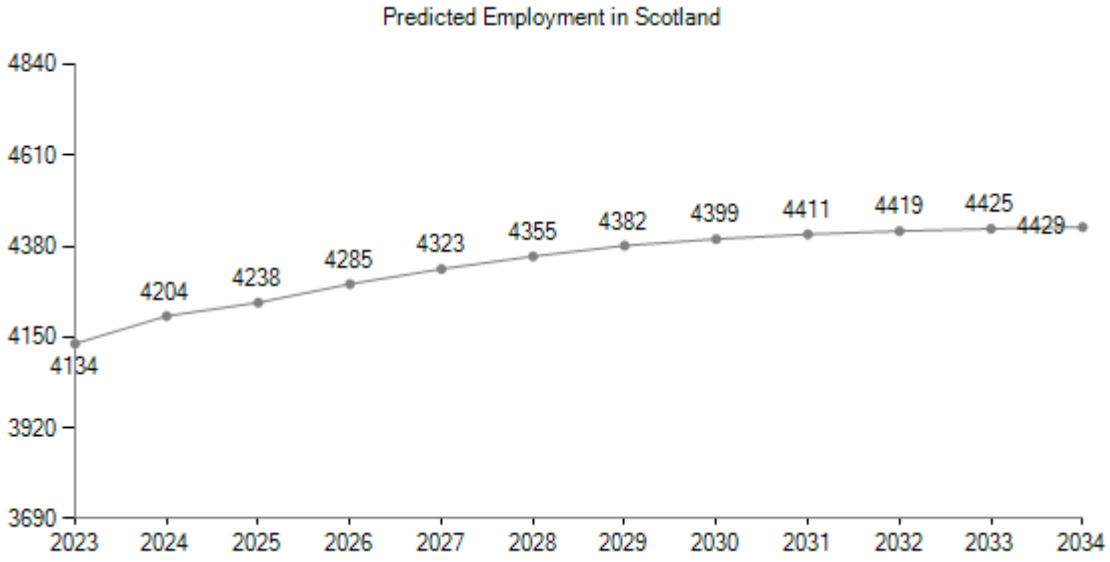
Statistics

Past Unemployment - Scotland

No Claimant statistics available for Scotland.

LMI data powered by LMI for All



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