

## Control and Instrumentation Engineer

Control and instrumentation engineers design, develop and manage the operation of sophisticated equipment which is used to monitor and control a wide range of machinery in manufacturing and processing industries.

### The Work

You could be:

- working with specific types of systems such as programmable logic controllers (PLC), advanced process control (APC) or distributed control systems (DCS)
- using computers and mathematical techniques to develop and test new control systems
- modifying existing systems to make them more effective
- using data from automatic monitoring to make sure that the processes are effective, efficient and safe
- using instruments to make close analysis of particular parts of the system
- preparing drawings using Computer Aided Design (CAD) software
- overseeing the installation of control and instrument systems in a variety of equipment
- working with design engineers and other professionals; liaising with clients and contractors
- managing projects to time and within budget, writing reports and giving presentations.

### 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 control and instrument engineers at graduate entry is usually around £25,000 to £30,000 a year. With experience this can rise to £35,000 to £40,000 a year. Senior engineers can earn over £55,000 a year or more depending on the sector.

If doing contract work, which can last a few weeks to a few months, earnings can be up to around £45 an hour.

### Conditions

- You would work in an office, a design laboratory or a factory, depending on the kind of work you were doing.
- If you work in the oil and gas industry, you may be offshore on a rig or platform for a few weeks at a time.
- In many jobs you would have to work out of hours, perhaps on shift work. You might sometimes need to be on call.
- You may have to wear protective clothing and footwear.
- You might have to travel to visit clients and work on site.
- Depending on the industry you work in, you may have to spend time outside in all weathers or work at height.

## Getting In

- You would normally need an HNC (SCQF Level 7), HND (SCQF Level 8) or degree (SCQF Level 9-10) in a relevant subject such as electrical or electronic engineering. Qualifications in other branches of engineering or in physics may be acceptable.
- 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 usually including Maths and Physics or a technological subject.
- You could complete the Graduate Apprenticeship in Engineering: Instrumentation, Measurement and Control which is offered through Robert Gordon University. For entry you require 4 Highers at BBBB including Maths and either Engineering Science, Physics or another technological subject plus English at National 5. You must also be in (or in the process of looking for) a position with an employer.
- You may be able to qualify by other training routes.
- Certain colour vision conditions may affect entry to careers in this branch of engineering.

Many control and instrument engineers work for companies which design and develop equipment. Others work for the companies which use the equipment, for example in the chemical and biochemical industries, aerospace, power generation, robotics, general manufacturing and oil and gas.

Job prospects are good. There are increasing opportunities in many engineering sectors, such as renewable energy.

## What Does It Take

You need to have:

- an interest in maths and science
- a high level of numeracy and IT Skills
- technical and practical ability
- a creative and analytical approach to solving problems
- good communication and interpersonal skills
- strong teamworking skills
- business awareness.

You need to be able to:

- handle and analyse complex information
- plan and organise programmes of work and manage projects
- motivate and manage others
- work to timetables and meet deadlines
- be flexible and adaptable
- take responsibility and make decisions.

## Training

- After gaining your HNC, HND or degree and some practical experience with an employer, you can 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 can also register as a professional engineer with either the [Institute of Measurement and Control \(InstMC\)](#) or the [Institution of Engineering and Technology \(IET\)](#).
- You must keep up to date with new developments throughout your career.

## Getting On

- Control and instrument engineers who first qualify as IEng can progress to CEng after further training and experience. This can open up a wider range of opportunities.
- You might move into general management, or into teaching and academic research in colleges and universities.
- You may become a consultant offering specialist engineering services.
- There can be good opportunities to work abroad.

## More Information

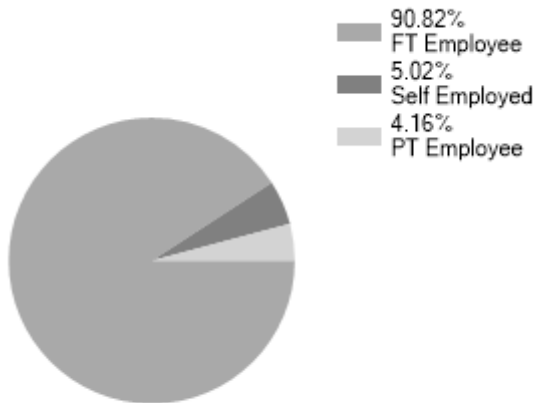
The Engineering Council sets and maintains the standards of the engineering profession in the UK. It does so through 50 professional engineering institutions which are Licensed Members of the Engineering Council.

The [Tomorrow's Engineers](#) website has more information on careers in engineering.

## Contacts

## Statistics

Employment Status UK %

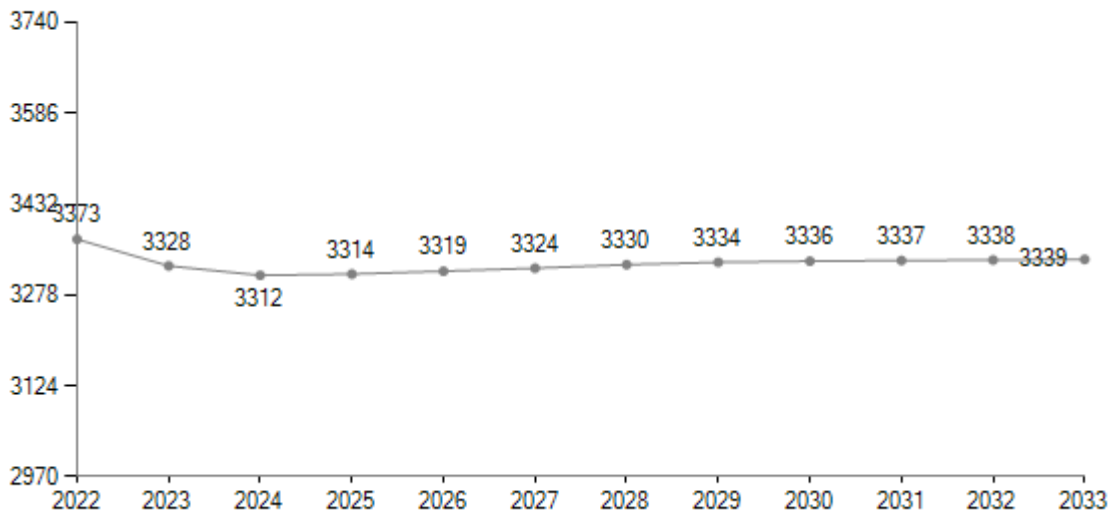


### Past Unemployment - Scotland

No Claimant statistics available for Scotland.

LMI data powered by [LMI for All](#)

Predicted Employment in Scotland



LMI data powered by [Lightcast](#)