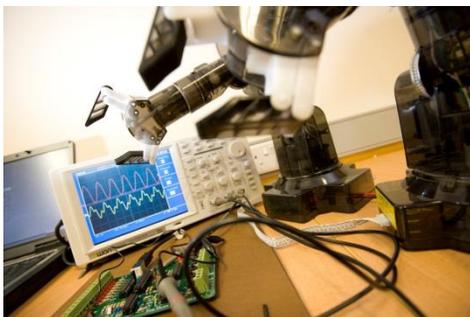




# Engineering Job Profiles

## Electrical/Electronics Engineering





## Electrical Engineer

### Job Profiles

Electrical engineers design, build and maintain electrical control systems, machinery and equipment.

If you are good at maths, science and IT, and you want a career in engineering, this could be an ideal option for you.

In this job you will need to be good at solving problems, structuring your workload and enjoy working as part of a team.

### Work Activities

As an electrical engineer, you would work with high and low voltage equipment in a number of areas, including:

- transport networks, including rail electrification and signaling
- power generation, transmission and distribution
- renewable energy sources, such as solar paneling, hydroelectric and wind turbines
- manufacturing and construction
- Building services, such as lighting, heating, ventilation and lift systems.

Your exact duties would depend on your industry, but could include:

- carrying out feasibility studies for new technical developments
- drawing up project plans and circuit diagrams, using computer-assisted engineering and design software
- estimating costs and project timescales
- coordinating the work of technicians and craftspeople
- testing installations and systems, and analyzing test data
- making sure projects meet safety regulations
- overseeing inspection and maintenance programs
- Attending meetings, writing reports and giving presentations.

You would normally work on projects with other professionals, such as civil engineers, architects, engineering technicians and IT staff.

## Working Hours & Conditions

You would usually work around 40 hours a week. You may have to work occasional overtime in order to meet deadlines. Depending on your job, you could be based in an office, factory, production plant, workshop, power station or research facility. You may need your own transport to get from site to site.

## Income

Electrical engineers starting out can earn between £21,000 and £25,000 a year. Apprentice salaries can be significantly lower than this.

Experienced engineers can earn between £25,000 and £40,000. Chartered engineers can earn £45,000 or more.

These figures are intended as a guideline only and can vary greatly from employer to employer.

## Skills, Interests & Qualities

To be an electrical engineer you will need to have:

- excellent maths, science and IT skills
- the ability to produce and interpret technical diagrams
- the ability to analyze complex problems and assess possible solutions
- the ability to explain design ideas clearly
- strong decision-making skills
- excellent communication skills
- good organizational skills
- the ability to manage a budget
- excellent team working and people skills
- a good understanding of electrical health and safety regulations.

## Electrical Engineer Technician



### Job Profiles

Electrical engineering technicians install, maintain and repair electrical equipment and controls in a wide range of industries. They work on motors, panels, generators and transformers.

If you're interested in how things work, are good at solving problems and want a varied and practical career, then this job could offer you a lot of opportunities. You'll need the ability in math's and science, and an understanding of electrical principles. You would normally start by doing an Apprenticeship but you may also be able to take an electrical course at college to get a trainee position.

### Work Activities

As an electrical engineer technician you would install, maintain and repair electrical equipment and controls. You might work in a range of industries, including:

- Power generation and transmission- installing turbines, switchgear and power lines and street lighting networks.
- Industrial machinery and equipment- making, fitting and repairing drives, motors and programmable logic control (PLC) panels
- Transport- upgrading rail electrification and signalling systems
- Building services infrastructure- installing and maintaining lighting, heating, air conditioning lifts and escalators.

You would follow engineering instructions and use wiring and circuit diagrams when working on installations and repairs. You would also use a range of tools to calibrate, inspect and test equipment and machinery to make sure they are working correctly and safely.

As an experienced technician you may be responsible for drawing up preventative maintenance rotas and carrying out quality control checks, for example on production line machinery.

You would normally work as part of the team, often supervising fitters and operators. You will need colour- normal type of vision for this work.

## Working Hours & Conditions

You would usually work a 40- hour week which could include shift work and overtime. You might also be on-call to respond to out of hours problems.

Your working environment would depend on your exact job, but include an office, factory, workshop, power station or research facility.

You will usually need a driving licence.

## Income

Electrical engineers starting out can earn between £18,000 and £25,000 a year. Apprentice salaries can be significantly lower than this.

Experienced engineers can earn between £25,000 and £40,000.

These figures are intended as a guideline only and can vary greatly from employer to employer.

## Skills, Interests & Qualities

As an electrical engineering technician, you will need:

- Ability in maths, science and I.T
- Excellent problem-solving skills
- Excellent practical skills
- The ability to communicate with staff at all levels
- The ability to read drawings and circuit diagrams
- A willingness to keep up to date with new developments
- Good team working skills
- An awareness of electrical health and safety issues.

## Electronics Engineer

### Job Profiles

Electronic engineers design and develop the systems used by machines and equipment in lots of industries, from mobile communications and computing to aerospace. If you love electronics and like finding out how things work, this could be a perfect career for you.

To do this job well, you will need to be good at science, maths and IT. Part of the job is about finding better ways of doing things, so you'll need to be good at figuring out problems and coming up with new ideas. You'll also need good communication skills to get those across.

To become an electronics engineer, you will usually need a foundation degree, HND or degree in a relevant electronics subject.

### Work Activities

Electronic engineers research, design and develop electronic components and equipment in a range of industries, for example:

- Telecommunications- mobile phones, radio, TV and satellite communications
- Data communications- PC's, tablets and ATM machines
- Scientific research- acoustics, optics, physics and nanotechnology
- Medical instruments-clinical & laboratory
- Military- communications, navigations and weapons systems
- Aerospace- Avionics, radar, navigation and communication systems
- Manufacturing- programmable logic controls (PLC's) and industrial machinery

As an electronics engineer, you would:

- Assess new developments or innovations to see if they are workable
- Prepare technical plans using computer-aided engineering and design software
- Estimate manufacturing and labour costs, and project timescales
- Coordinate the work of technicians and craftspeople
- Test prototypes and analyze data
- Make sure that projects meet safety regulations
- Plan and oversee inspection and maintenance schedules

### Working Hours & Conditions

You would normally work 40 hours a week but you may work longer to meet project deadlines. Most of your work would take place in offices or in the lab. Occasionally, you may have to work on site factories, workshops or outdoors.

## Income

Those new to the job can earn between £21,000 and £25,000. Apprentice salaries can be significantly lower than this.

Experienced electronic engineers may earn around £40,000

Senior electronic engineers can earn between £40,000 and £55,000 a year

Chartered electronic engineers on average earn around £65,000 a year.

These figures are intended as a guideline only and can vary greatly from employer to employer.

## Skills, Interests & Qualities

To be a mechanical engineer you should have:

- A flair for math's, science, technology and IT
- The ability to analyze problems
- Strong decision making skills
- Excellent decision making skills
- Excellent communication skills
- The ability to prioritise and work effectively
- The ability to manage a budget
- Excellent team working skills
- A clear understanding of electrical health and safety regulations

## Lift Engineer

### Job Profiles

Lift engineers install service and repair all types of lifts and escalators. These can range from those found in shops and public buildings to ones used in tall housing and office blocks. Senior engineers may also be involved in lift design.

If you want a practical job, are good at solving problems, and like the idea of doing something different every day, this could be the job for you.

You'll need qualifications and experience in electrical or mechanical engineering to do this job. You can also get it through a training apprenticeship.

### Work Activities

Lift engineers, or lift technicians, install, refurbish, service and repair electrical and hydraulic lifts and escalators. They also work on stair lifts, vehicle mounted lifts, restaurant 'dumb waiters' and patient hoists like those found in hospitals and nursing homes.

As a lift engineer, depending on your day to day duties, you may:

- Carry out routine checks on gears, motors overload detection services brakes, doors and locks
- Make minor repairs or isolating problems until a service can be carried out
- Respond to emergency breakdown call outs
- Install and fit lifts, lifting gear and lift wells
- Demonstrate new equipment to clients
- Refurbish or replace lift interiors, flooring, panel displays, communication systems, buttons and lighting
- Update written and computerised work records
- Analyse breakdown trends to identify recurring defects in equipment

Part of your work would be to inspect lift equipment to make sure that it meets relevant health and safety regulations. You would also produce risk assessment reports and documentation for insurance and legal purposes. You need colour normal vision for this type of work.

In lift design work, you would use computer aided design (CAD) software to produce customised lifts, for example panoramic lifts with glass panels, like those found in atriums or on the outside of buildings.

## Working Hours & Conditions

You would normally work 40 hours a week, Monday to Friday. Overtime is common and you may have shifts covering a 24 hour rota.

Work conditions would vary depending on the buildings you are working in. the job could be oily and dirty, and you are likely to work in confined spaces, particularly on older systems. You would travel from site to site, usually in a company vehicle, so a driving licence may be required.

## Income

Starting salaries can be between £15,000 and £20,000 a year. Experienced engineers can earn between £25,000 and £40,000. Apprentice wages can be significantly lower than this.

Figures are intended as a guideline only and can vary greatly depending on employer.

## Skills, Interests & Qualities

As a lift engineer, you will need:

- Skills in electrical and/or mechanical work
- Excellent in problem-solving skills
- An understanding of engineering drawings and principles
- Good communication and customer care skills
- Good organizational skills to plan workloads
- The ability to work without close supervision
- IT skills for updating records and records and writing reports
- Familiarity with CAD packages if involved in design work
- A willingness to work flexibly
- An awareness of industry guidelines on health and safety

# Why Pick An Apprenticeship ?

