Engineering

Overview

The engineering sector is broad and provides vast opportunities for inquisitive, practical and technical minded problem solvers. If you enjoy using technology to design new products, structures or systems, then a role in engineering could be the career for you.

Encompassing a wide range of disciplines, the engineering sector plays a key role in many different industries and has a huge impact on the world around us. Often perceived as a hard hat job role, engineering can range from innovations in new drug development through to developing advances in telecommunications.

What's the job market like?

Despite the initial drop in activity in the engineering sector caused by the COVID-19 pandemic, the industry was less affected than the Scottish economy as a whole and has made a relatively fast recovery. The mid term jobs growth is increasingly steadily, with the workforce expected to increase by 2.1% or 3,100 people by 2024.
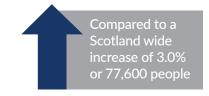
Over the next five years, the renewables industry is expected to continue to expand. Half of Scotland's total energy demand (electricity, heat and transport) is to be supplied by renewable sources by 2030.

Analysis from Scottish Engineering's 2021/2022 quarterly reports states that the positive demand it had cautiously tracked in 2021 appeared to be strengthening and order intake, output volume and exports were at their most positive levels since 2018.

The UKTN website states that the 10 best engineering jobs to keep an eye on in the future are: Green energy engineer, Civil engineer, Environmental engineer, Electrical engineer, Marine engineer, Biomedical engineer, Chemical engineer, Mechatronic engineer, Defence engineer and Aerospace engineer.

Engineering total employment, 2021 - 2024

The workforce is expected to grow 2021 and 2024: Up by 2.1% or 3,100 people

Compared to a Scotland wide increase of 3.0% or 77,600 people

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E: info@oascotland.org.uk T: 0131 550 1575
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Types of engineering

Generally, engineering is separated into four main categories; chemical, civil, electrical and mechanical engineering. More recently, a number of software and cybersecurity positions are being classified as engineering roles.

Chemical Engineering

Chemical engineering is an area concerned with the design and operation of industrial chemical plants as well as methods of improving production. There is a large focus on research and development alongside a high standard of focus on health and safety.

Civil Engineering

Civil engineering is the branch of engineering responsible for the design and maintenance of roads, bridges, dams, airports and similar structures. Work can take place in the public sector from local government departments through to national agencies, and in the private sector from small scale firms through to global companies.

Mechanical Engineering

Mechanical engineering is a field that combines engineering, physics and mathematics principles to design, analyse, manufacture and maintain mechanical systems. Mechanical engineers typically control and oversee the generation, distribution and use of energy, as well as the processing of materials.

Electrical Engineering

Electrical engineers design, create and supervise the production of electrical equipment, such as radar and navigation systems, communications systems and power generation equipment. The industry has experienced exponential growth in recent years due to the widespread use of electronic hardware in robotics, automation and other fields. Electrical engineering is an attractive option for service leavers; the experience gained working with complex military systems coupled with the process driven and organised characteristics the role requires, means many veterans are highly qualified for roles within this sector.

Software Engineering

Software engineering is the branch of computer science that involves the design, development, and maintenance of software products. Engineers operate within a set of principles, best practices and procedures that have been carefully tested and tailored to meet the needs and requirements of ever changing software and technology.

Cybersecurity Engineering

Cybersecurity engineers, identify threats and weaknesses in systems and software before using their skills to create and apply high-tech solutions to defend against hacking, malware and cybercrime. Generally cybersecurity engineers take on a technical role often found within a larger organisation that works with sensitive data. With a growing need for protection against cyber breaches and the significant skills shortage in this field, the demand for cyber security professionals has increased by 60% over the past year. The requirement for these roles is expanding rapidly as companies place cyber security at the top of their priorities.

Scottish Military Employers

Many companies in the Engineering sector are huge supporters of the experience, skills and values veterans have gained during their time within the Armed Forces. Some provide Veterans Entry Programmes to help translate military experience into a new role in civvy street.

Military Transferable Skills and Attributes

Ex-military engineers have an extensive portfolio of technical expertise such as: civil engineering, aircraft engineering (avionics and mechanical), marine engineering, automotive and systems engineering. This experience is often accredited and most service leavers will have a civilian recognised qualification. However, there are still opportunities for those without an engineering background; military employer schemes, further education and resettlement courses can provide experience and civilian qualifications to enter the sector. Although your specialist qualifications and experience are important, it is often your military 'soft skills' which give you a competitive advantage on civvy street.

Transferable military skills include:

- Teamwork
- Project Management
- Human Resource Management
- Engineering Maintenance
- Site Safety Supervision
- Quality Assurance

- Engineering Instruction and Training
- Computer Aided Design (CAD)
- Warehousing and Storage
- Mechanical Engineering
- Electrical/Electronic Engineering
- Air Engineering (avionics and mechanical)

- Systems Engineering
- Marine Engineering
- Health and Safety
- I.T.

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