



Careers in manufacturing: engineering

Specialist areas

There are a wide range of specialist areas within the engineering sector. Most of these occupations will require a Bachelor Degree or higher qualification.

These include:

- Engineering manager
- Chemical engineer
- Materials engineer
- Biomedical engineer
- Engineering technologist
- Metallurgist
- Nanotech engineer.

Engineering manager

Engineering managers plan, organise, direct, control and coordinate the engineering and technical operations of an organisation.

Chemical engineer

Chemical engineers design and prepare specifications for chemical process systems and the construction and operation of commercial-scale chemical plants, and supervise industrial processing and fabrication of products undergoing physical and chemical changes.

Materials engineer

Materials engineers investigate the properties of metals, ceramics, polymers and other materials and assess and develop their engineering and commercial applications.

Biomedical engineer

Biomedical engineers apply knowledge and methodology of physics, engineering, mathematics, computing, physical chemistry and materials science to problems in biology and the treatment and prevention of human disease.

Specialisations:

- Bioengineer
- Clinical engineer
- Medical engineer

Engineering technologist

Engineering technologists analyse and modify new and existing engineering technologies and apply them in the testing and implementation of engineering projects.

Metallurgist

Metallurgists research, develop, control and provide advice on processes used in extracting metals from their ores, and processes used for casting, alloying, heat treating or welding refined metals, alloys and other materials to produce commercial metal products or develop new alloys and processes.

Specialisations:

- Hydrometallurgical engineer
- Metallographer
- Pyrometallurgical engineer
- Radiological metallurgist.

Nanotech engineer

Nanotech engineers use a combination of techniques from across the sciences, including physics, chemistry, biosciences, material science and engineering. Nanotech engineers design and manipulate structures at the atomic and subatomic level to create devices and materials of increased durability and efficiency.

Nanotechnology is already widely used in the consumer electronics industry and the manufacture of products, such as self-cleaning glass, stain resistant fabrics, solar controlled glass and UV protective coatings for plastics and polymers.

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