

Teacher fact sheet

Engineering – What is it?



ENGINEERS
AUSTRALIA

The traditional image of engineering is a thing of the past. These days engineering covers an extremely diverse range of endeavours and industries. With the emergence of new technologies, the engineering profession is constantly introducing new disciplines. Most of the things we see and use in our daily lives have been created or impacted by advances in engineering.

Engineers are creative thinkers who seek to find solutions to human and environmental problems. They research, design, produce, operate and maintain many of the things we use today. Engineers need a core set of skills, and once acquired these skills apply to many different industries and interests.

10 things you should know about Engineers:

1. They are creative and innovative people
2. They solve problems
3. They work in teams
4. They develop new products, construct and build things
5. They manage projects
6. They can work almost anywhere
7. They advance technology
8. They help re-build and restore societies
9. They design and test things
10. They are full of new ideas



Becoming an engineer

What subjects should you study in secondary school?

Engineering suits people with highly developed skills in logic, numeracy and communication.

To pursue a career in engineering, students need very good results in both Mathematics and Physics and also a good pass in English. Chemistry is also an advantage for some engineering disciplines.

What tertiary qualifications do you need?

Professional engineers generally hold a Bachelor of Engineering from an accredited university. This degree typically takes four years of full-time study to complete. Students can choose to specialise in a particular discipline or take a general degree in engineering.

Some universities offer double degrees that allow students to further broaden their career opportunities. Two of the popular combinations are Engineering with a Bachelor of Business, Science or IT.

Some universities and TAFEs also offer three-year Bachelor of Technology and two-year Diploma of Engineering courses which also provide pathways into a career in engineering.



Career choices in Engineering

There is a diverse range of Engineering career options available. New technologies mean the field is constantly evolving. These are just some of the major disciplines in engineering today:

1. **Aeronautical Engineering:** the design, construction and operation of aircraft, aerospace vehicles and propulsion systems.
2. **Biomedical Engineering:** using engineering to solve problems in medicine and other life sciences.
3. **Chemical Engineering:** the design and application of chemical processes in industries such as petrochemicals, plastics, food processing, industrial chemicals, water and waste treatment.
4. **Civil Engineering:** the design and construction of civil structures such as buildings, roads, bridges, water and sewage treatment plants, harbours and coastal protection.
5. **Computer Engineering:** the development and application of computer-based systems for information processing, conditioning and bulk materials handling.
6. **Electrical Engineering:** the design and development for the fields of communications, computing and electrical power.
7. **Environmental Engineering:** using engineering methods to develop strategies to help safeguard the environment.
8. **Mechatronics Engineering:** the design and automation of machine processes for improved speed and reliability in a range of industries.
9. **Mining Engineering:** the application of engineering principles to underground and above-ground mining.
10. **Structural Engineering:** the analysis and design of structures for load support or resistance in a range of industries.

For more Information

www.engquest.org.au

Engineers Australia's Free National Primary School Program EngQuest

www.makeitso.org.au

Engineers Australia's Public Awareness Campaign

www.engineersaustralia.org.au/careers/careers_home.cfm

Engineers Australia's Careers Section

www.sacome.org.au

SACOME Education Program information

www.theresmoretoit.com.au

Turning your interests into a career

www.alife.net.au

Video tips for career paths

www.wonderclub.com/WorldWonders/ModernWonders.html

Seven wonders of the modern world

www.discoverengineering.org

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