

# ENGINEERING – CAREER SNAPSHOT



## BOOST YOUR PROSPECTS



Explore your options and set career goals



Build your networks



Gain experience



Fine tune your job search skills



Show initiative and stand out

Plan your time at the university - access the [JCU Career Action Plan](#).

According to [Australian Engineering Council of Deans](#) graduate employment rates and starting salaries for engineers are consistently higher than those of graduates of other STEM fields. Nearly 80% of the 2016-17 bachelor degree graduates gained full-time employment and ranked 4th on median starting salary at \$64,000, with women earning \$1,500 more than men. Three years after graduating, 93.9% of the 2015 cohort was in full-time employment with median salary \$77,000, some 10% higher than for bachelors graduates from all fields of education.

[Engineering](#) uses a range of skills such as design thinking, creativity and innovation to define and solve real life problems through the practical application of science, often through interdisciplinary synergies. JCU offers the following specialisations:

**Chemical Engineer** – operate in industries ranging from environmental science, water treatment, the manufacturing of food, fuel, pharmaceuticals and chemicals, minerals processing and development of new materials.

**Civil Engineer** – work in design, construction and maintenance of infrastructure such as buildings, bridges, roads, railways, airports,

water supply systems, dams, mines and waste disposal systems.

**Electrical Engineer** – design solutions for electronics and electrical infrastructure in industries such as energy, communications, automotive, mining, agriculture, aviation or medical technology.

**Electronic Systems and Internet of Things Engineer** – design electronics, software and data analytics for many industries such as communications, energy, smart cities, smart healthcare, precision agriculture, environmental monitoring, mining, manufacturing, and automation.

**Mechanical Engineer** – design, manufacture and maintain machines for a large number of industries such as manufacturing, oil and gas, mining, agriculture, automotive, aerospace, communications, health, transport.



The Australian Government database called Job Outlook offers industry and career snapshots the fields below:

[Chemical engineers](#)

[Civil engineers](#)

[Electrical engineers](#)

[Electronics Engineers](#)

[Mechanical Engineers](#)

[Other Engineering](#) where skills from the above fields can be applied.

It is important that you define your professional identity and your personal brand based on your interests and your highly transferable skillset rather than your specialisation label.

## Employability skills and workplace experience

Your course provides safe environment to develop superior critical thinking skills for a reliable,

evidence-based judgment and solution development, needed to develop safe and effective designs and make correct professional decisions. It helps you **develop professional knowledge and technical skills** specific to your chosen engineering field. It also teaches you that devising and implementing a technical solution involves more than just technical skills and includes, project management; effective oral communication; presentation and technical writing; interdisciplinary collaboration; planning and delegating; identifying developing and maintaining strategic working relationships with key stakeholders. These **transferable skills** help your technical skills shine and help you transfer between jobs, industries and careers. A combination of technical and transferable skills **proven through extra-curricular experiences and [workplace-related experiences within your course](#)** make you in the eyes of employers more employable.

Take ownership of your skill development so by the time you graduate you have filled every semester with **systematically recorded** experiences that complement your course, for example:

- You can start with project management and leadership skills within a [student club](#) and communication skills within [mentoring programs](#) in your first and second year;
- Keep networking and ask for workplace shadowing or mentoring opportunities;
- Apply your course expertise and develop workplace skills through [student challenges and competitions](#); [volunteering](#); [workplace vacation programs](#); project work referred through your professional networks; engineering labouring positions through labour hire or recruitment firms; office part time work within engineering firms; "gigs" (sourced



through Gumtree or Airtasker) and internships in your penultimate year.

Internships are, from employers' viewpoint, an opportunity to observe their prospective employees. The recruitment process is similar to regular job applications - it assesses your ability to prove, based on your track record of gaining knowledge, skills and experience, that you are a great match with the job and the firm. Therefore it is recommended that you keep [auditing](#) your technical and [employability skills](#) over time and keep an experience diary (together with a portfolio of drawings, screen shots, photographs, weblinks to your work) and other evidence of your learning and achievements.

## Enterprise and innovation

The engineering profession often requires enterprising skills. JCU offers a range of free online courses on entrepreneurship, for example: [Developing an Enterprising Mindset](#) or [Lynda.com](#): e.g. Guy Kawasaki on Entrepreneurship; Small Business Secrets; Entrepreneurship Foundations; Design Thinking; Venture Design; Become an Entrepreneur Inside a Company etc.

[Student challenges and competitions](#) and JCU's own Technology Design Thinking Sprint are a good way to apply your skills in action.

## Identifying Opportunities

Studying and volunteering overseas, attending careers fairs are effective ways to develop your understanding of the labour market and professional networks.

Academic and [Grad Networking](#)

- [JCU Study Abroad](#)
- [JCU Careers Fair \(March\)](#)
- [Big Meet Brisbane \(March\)](#)

Engineering-specific volunteering

- [Engineers Without Borders](#)
- [Habitat Australia](#)
- [180 Degrees Consulting](#)

Start early bookmarking vacation programs; internships; graduate

programs and junior engineering jobs through the following websites:

- [JCU Careerhub](#)
- [Seek vacancies](#)
- [Glassdoor](#)
- [GradAustralia](#)
- [Graduate Opportunities](#)
- [Grad Connections](#)
- [Engineering Career](#)
- [Engineering Jobs](#)
- [Companies Websites](#)
- [Queensland Government Graduate Portal](#)
- [Australian Job Search](#)
- [Queensland Government Jobs](#)
- [Australian Public Service recruitment](#)
- [Infrastructure Association of Queensland Company Directory](#)
- [Consult Australia Company Directory](#)
- [Engineering Firms Directory](#)
- [Hays \(recruitment firm\)](#)
- [Chandler Macleod \(recruitment\)](#)
- [Defence Jobs](#)

Job and internship opportunities are frequently posted on employer websites (e.g. [Ergon Vacation work](#), variety of options at [Bombardier Australia](#), [Boeing Australia](#) or [Aurecon](#) – including careers for international students), LinkedIn, Facebook pages, Twitter feeds, your College emails and Facebook posts.

## Cadetships

Employers may offer opportunities for students to work part time while completing their university studies, usually starting in the first or second year of their degree.

For opportunities contact local firms or state governments, for example: [QLD Government Department of Transport and Main Roads Cadetships](#) or across a range of [Federal Government](#) departments.

## Graduate Positions vs Graduate Programs

Large organisations recruit graduates usually once a year for a structured training program. Tap into [Glassdoor](#) and [Whirlpool Forum](#) to find out about the recruitment processes.

Small to medium sized engineering firms tend to recruit small numbers of graduates throughout the year. The advantage of these positions is that you contribute to the business from day one while receiving mentoring from senior staff. Find companies through the Chambers of Commerce in [Townsville](#) and [Cairns](#), [LinkedIn](#), or Yellow Pages.

## Professional Associations

You can show your commitment to the profession, attend conferences, PD and career development courses and enhance your job search through networking events if you join a professional organisation such as: [Engineering Australia Student Chapter \(membership free of charge\)](#)

Many engineers choose to register with a professional body of their choice to demonstrate to the public the level of their qualifications and to help future clients to find them through their membership directories. For more information explore the following websites:

[Professional Engineers Australia](#)

[National Engineering Register](#)

N.B. working on engineering projects located in Queensland requires registration with the [Professional Board of Engineers](#) of QLD (PEQ).

Browse below special interest groups that cater to various areas of activity involving engineering:

[Australian Academy of Technological Sciences and Engineering \(ATSE\)](#)

[Australian Institute of Energy](#)

[Consult Australia](#)

[Infrastructure Assoc. of Australia](#)

[Institute of Public Works Engineering Australia \(IPWEA\)](#)

[Institution of Chemical Engineers](#)

[Institute of Electrical and Electronics Engineers](#)

[International Association of Engineers](#)