

# 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, engage in extra-curricular activities and stand out

For further ideas, access [JCU Job Ready](#)

## JCU Engineering

[Engineering](#) is an occupation that covers many fields and incorporates many skills. 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 and Electronic 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 and transport.



The Australian Government database, **Job Outlook**, provides information on key duties, knowledge and skills required, pathways, salary, and employment projections for each of the engineering fields below:

- [Chemical Engineers](#)
- [Civil Engineers](#)
- [Electrical Engineers](#)
- [Electronics Engineers](#)
- [Mechanical Engineers](#)
- [Other Engineering](#) – including Aeronautical, Agricultural, Biomedical and Environmental Engineering

The [James Cook University LinkedIn](#) page provides information on over 46,000 JCU alumni (graduates) Over 6,000 alumni have engineering within their profile. You can drill down to identify alumni with your engineering major and view their career pathways and current and past employers.

**N.B.** You will need to be registered on LinkedIn to access this information.

The top ten employers of JCU Engineering alumni listed on LinkedIn are: JCU, GHD, BHP, AECOM, Dept of Transport and Main Roads, Wilmar Sugar Australia, Rio Tinto, Glencore, South32 and Incitec Pivot Ltd.

In addition to engineering, the top fields JCU engineer alumni identify as employed in are: operations; business development; information technology; education; research and program and project management.

## Graduate Outcomes

Graduate outcome information for the Bachelor of Engineering and all other Australian degrees is available on the Australian Government [ComparED](#) site.

### Graduate Employment Engineering

	JCU	National Average
Full-time employment	91.8%	83.7%
Overall employment	93.1%	88.1%
Full-time study	5.5%	13.0%
Median starting salary	\$66,700	\$67,500

### Graduate Outcomes Survey 2018-2020

Retrieved [ComparED](#), 1 April 2021

## Identifying Opportunities

Online job boards, graduate recruitment directories, employer websites and social media accounts all provide information on the range of positions and industries available to Bachelor of Engineering students and graduates.

### Online Job Boards

- [JCU Careerhub](#)
- [Seek vacancies](#)
- [EngineeringCareer](#)
- [Engineering Jobs](#)
- [Engineering Companies](#)
- [Australian Job Search](#)
- [Queensland Government Jobs](#)
- [Hays \(recruitment firm\)](#)
- [Chandler Macleod \(recruitment\)](#)
- [Defence Jobs](#)



## Graduate Recruitment Directories

The following sites provide information on graduate jobs, internships and vacation programs.

- [JCU Career Directory](#)
- [GradAustralia](#)
- [GradConnection](#)
- [Queensland Government Graduate Portal](#)
- [Australian Government Graduate Program](#)

## Job and internship opportunities

are frequently posted on employer websites (e.g. [Ergon Vacation work](#), [GHD](#) or [Aurecon](#)) and their social media channels e.g. LinkedIn and Facebook pages.

**Volunteering** and attending JCU and industry specific Careers Fairs (now online) are effective ways to develop your understanding of the labour market and develop professional networks.

- [Careers Fairs](#)

Engineering-specific volunteering

- [Engineers Without Borders](#)
- [Habitat Australia](#)

## 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.

Contact local firms or government departments to identify opportunities. For example: [QLD Government Department of Transport and Main Roads Cadetships](#) or the [Australian Government Cadetships, Scholarships and Work Experience Opportunities](#)

## Graduate Positions vs Graduate Programs

Large organisations and government departments may offer **Graduate Programs** which are advertised throughout a students' final year of study for commencement of employment in the following year. Successful applicants are offered on the job training and mentoring.

Tap into [GradAustralia](#) and [GradConnection](#) to identify opportunities and [Glassdoor](#) and [Whirlpool Forum](#) to find out about applicant's experiences of the recruitment processes.

Small to medium sized engineering firms, may not offer formal graduate programs and will recruit when a position arises. Identify organisations of interest and familiarize yourself with their recruitment practices.

## Skills and Workplace Experience

Your course helps you **develop professional knowledge and technical skills** specific to your chosen engineering field. It 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; and 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 more employable in the eyes of employers.

Take ownership of your skill development so that 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; office part-time work within engineering firms; "gigs" (sourced through Gumtree or Airtasker) and internships in your penultimate year.

- Complete vacation work or internships to gain knowledge, skills and experience and showcase your talents to potential future employers

It is recommended that you keep [auditing](#) your technical and transferable skills over time and keep an experience diary (together with a portfolio of drawings, screen shots, photographs, web links to your work) and other evidence of your learning and achievements.

## Enterprise and Innovation

The engineering profession often requires enterprising skills. JCU offers access to a range of free online courses on entrepreneurship through LinkedIn Learning e.g. Entrepreneurship Foundations; Design Thinking etc. Sign in through the JCU library site [LinkedIn Learning](#) to ensure you gain free access.

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

## Professional Associations

Investigate your future professional body to gain greater awareness of developments and opportunities within your industry area. [Association of Professional Engineers Australia](#)

Consider applying for student membership (it is free of charge) with the [Engineering Australia Student Chapter](#). Membership demonstrates your commitment to the profession and enables access to additional professional development.

**Registration** – Working on engineering projects located in Queensland requires registration with the [Board of Professional Engineers of Queensland](#).

The following special interest groups cater to various areas of engineering:

- [Australian Academy of Technology and Engineering](#)
- [Australian Institute of Energy](#)
- [Infrastructure Association of Australia](#)
- [Institute of Public Works Engineering Australasia \(IPWEA\)](#)
- [Institution of Chemical Engineers](#)
- [Institute of Electrical and Electronics Engineers](#)
- [International Association of Engineers](#)