

JCU Engineering Futures

2023 Support Opportunities



JAMES COOK
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JCU Overview of Engineering at JCU

JCU is unique among Australian universities, woven into the intellectual, economic and social fabric of communities and set amid irreplaceable ecosystems and cultures. JCU provides a practical and experiential, research-rich learning environment for students, fostering their professional expertise and intellectual curiosity.

JCU's Bachelor of Engineering is a four-year degree with a general first year and an embedded honours, with students completing a total of 12 weeks (60 days) of vacation practice throughout their degree.

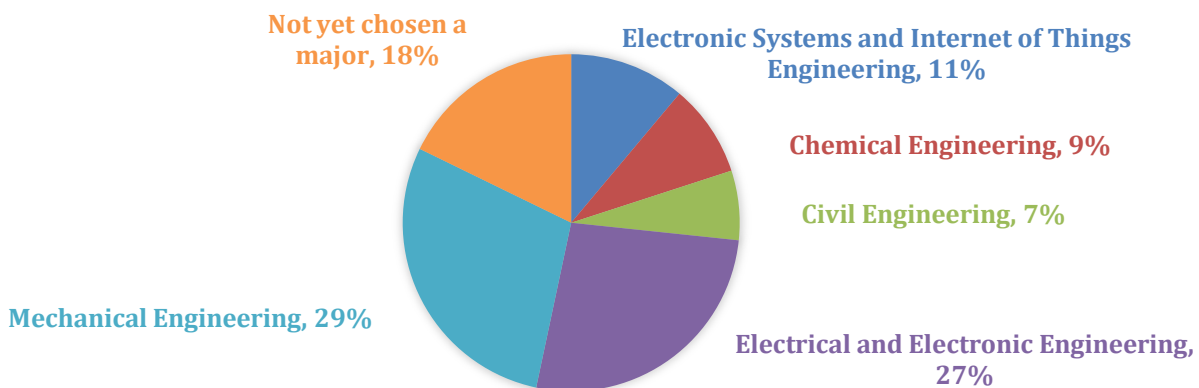
Students begin to specialize from their second year, choosing one or more majors from:

- Chemical
- Civil
- Mechanical
- Electrical and Electronic Engineering
- Electronic Systems and Internet of Things Engineering (Cairns campus only).

In 2023, JCU had 102 students commence the Bachelor of Engineering (or a combination of dual degrees with engineering), the majority coming from within JCU's catchment zone (from Mackay north to the Torres Strait and west to Mt Isa).

In the current second year cohort (those that commenced their studies in 2022) mechanical engineering was the most common major chosen by students, closely followed by electrical/electronic engineering.

2023 Second Year Majors



The Challenge

We don't need to tell you that Australia is facing a significant shortage of engineering skills. The National Skills Commission predicts STEM occupations will increase by 12.9% in the next five years,¹ which means Australia will require over 50,000 new engineers in the near future.

Australia's engineering workforce has two main supply channels: Australians who choose engineering for their tertiary education and career and skilled migrant engineers. Supply from both channels is decreasing at a time when demand is increasing.

A decline in the number of young Australians choosing to study engineering and the reduction of participation in Year 12 science and mathematics,² which is at an all-time low³, is compounding the shortage in home-grown engineers.

Engineers Australia recommends early awareness of engineering and STEM careers is critical to boosting the engineering professional pipeline⁴. They suggest greater activity amongst school-age students and their parents/carers, teachers and careers advisers will help.

Providing real-world examples about what engineering 'is' and what engineers 'do' is necessary to increase the take-up of STEM subjects. However, this requires long term commitment and planning by industry, government, schools, and the tertiary sector.

Engineers Australia recommends industry can partner with local schools to provide support to school-based STEM programs and opportunities. This is often difficult to do as a single business when dealing with numerous schools across the state, who in turn have limited administration resources to work on an individual basis with each and every entity wanting to recruit new engineers.

This is where JCU can help. JCU have relationships with all secondary schools across north Queensland and can tap into careers advisor networks and other schools-based resources and is tackling these issues on a variety of levels, from school outreach programs to student support and participation activities.



¹ National Skills Commission, '[Australia's shift to a higher skilled, services-based economy](#)', Australian Government (2021)

² Bell, M & Briggs, P. '[Engineering skills – supply and demand discussion paper](#)' Engineers Australia (March 2022)

³ Australian Mathematical Sciences Institute, '[Year 12 Mathematics Participation Report Card](#)', (27 April 2022)

⁴ Engineers Australia, '[Strengthening Engineering Workforce Report](#)' (August 2022)

JCU's Engineering Futures Residential Program

This year JCU will be running an engineering residential program for students in years 10, 11 and 12. The program will bring up to 80 students interested in engineering careers to JCU's Townsville campus for a week-long residential camp from Monday 3rd July to Saturday 8th July.

The Engineering Futures Residential Program will target high achieving students with an interest in engineering, maths and science who are on an ATAR pathway or looking to take an ATAR pathway. Students will be recruited from regional and remote locations across JCU's catchment zone (from Mackay, north to Cooktown and the Torres Strait and west to Mt Isa).

Students will experience a variety of engineering-related teaching and learning activities that are designed to help them understand what engineers do on a day-to-day basis, undertaking a real-world engineering problem, extracurricular activities, as well as celebrating their achievements with a graduation ceremony at the end of the week.

The program will:

- Introduce students to the various disciplines of engineering, such as mechanical, electrical, civil, chemical and software engineering.
- Provide hands-on experience with engineering design, problem-solving, and critical thinking skills.
- Inspire students to pursue engineering as a potential career path by introducing them to the many opportunities available in the field.
- Provide students with an opportunity to interact with engineers and JCU engineering students, giving them insight into the profession and potential mentorship opportunities.
- Build confidence and excitement around the study of engineering and related fields, encouraging students to continue their education in STEM fields beyond high school.
- Help students to understand the role of engineering in society and its impact on the world.

A recent expression of interest sent to schools about the program has garnered responses from over 100 students keen to participate.



Image: Students from JCU's Indigenous Winter School

Support Opportunities

JCU's Engineering Futures Residential Program will be an intensive subject-specific learning experience aimed at encouraging uptake of engineering study at university amongst year 10, 11 and 12 students in north Queensland.

As a supporter of Engineering Futures, you will make a significant impact on the education and development of students in regional and remote Queensland, as well helping to tackle the engineering skills crisis.

At a cost of \$2,000 per student, your support will enable us to provide fully-funded places for students to participate in the program.



\$10,000 supports five students to attend. Supporters receive:

- Logo on program website
- Logo on program t-shirts
- Opportunity to include 1 item in student show bag.



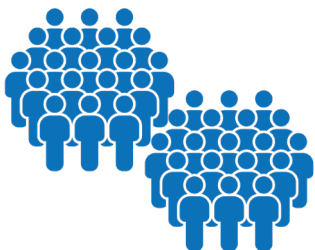
\$20,000 supports 10 students to attend. Supporters receive:

- Logo on program website
- Logo on program t-shirts
- Opportunity to include 1 item in student show bag
- Opportunity to participate in a panel discussion during the event
- Two invitations to graduation ceremony on last day of the program.



\$50,000 supports 25 students to attend. Supporters receive:

- Logo on program website
- Logo on program t-shirts
- Opportunity to include several items in student show bag
- Opportunity to participate in panel discussions during the event
- Two invitations to graduation ceremony on last day of the program
- Branded lunch or dinner on one day of the event.



\$100,000 supports 50 students to attend. Supporters receive:

- Logo on program website
- Logo on program t-shirts
- Opportunity to include several items in student show bag
- Opportunity to participate in panel discussions during the event
- Four invitations to graduation ceremony on last day of the program
- Branded graduation ceremony on final day of event.

We hope you will consider joining with us to provide this valuable learning experience for students in regional and remote Queensland.

We look forward to discussing sponsorship options with you further.

Sincerely,

Hannah Cameron

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