

The Good Universities Guide 2018

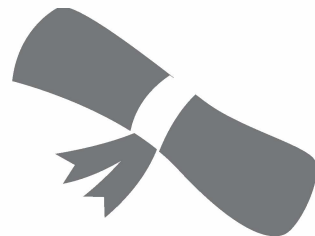
ENGINEERING

This is a detailed profile of the engineering field of study. It lists the range of specialisations available and compares degree-level courses. We examine the institutions that get the best ratings, based on real student experience and graduate outcome data, which will help you decide the right university for your educational journey.



HOW TO CHOOSE YOUR DEGREE

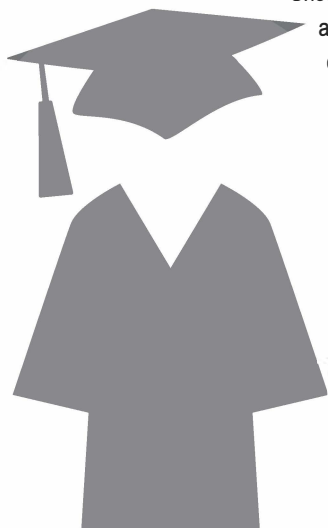
Every degree is a unique mix of many different ingredients — from the subjects covered to the career it leads to — and choosing the right course requires a lot of research. Once you have worked out the field in which you want to study, there are many factors to consider when you are weighing up courses and institutions.



- The first step to success is to ensure you will be studying subjects you are interested in and that lead to the career you want. Some courses require all students to complete the same 'core' subjects to meet industry requirements and don't allow a lot of room to choose electives or explore different subject areas. Others give you the freedom to choose a broad range of electives and graduate with a specialisation or major.
- Each course has a very different intellectual style, so make sure that it is suited to you. Some courses are mainly quantitative, while others are verbal or language-based. Some are conceptual and encourage you to express your own ideas through writing, while others require you to apply what you learn practically.
- A typical bachelor degree can be completed in around three years. Some degrees may require five or six years of full-time study plus an internship period to gain full accreditation. Double degrees and part-time programs will also take longer to complete.
- When choosing a course, you need to be sure that you will meet the entry requirements or investigate whether alternative entry is available. Some courses rely more heavily upon the submission of a portfolio, an interview or an audition.
- Some courses lock you into an occupation. Others are much broader in their scope. If you are sure about your future career, you might opt for a specialised vocational option that allows you to immerse yourself in your field. If you're not 100 per cent certain about what the future holds, you could enter a generalist degree that will give you room to explore.
- Different programs teach very different things — even courses in the same field may be taught differently at separate institutions. The university you choose should concentrate on topics you are interested in or that are professionally relevant.

HOW TO CHOOSE YOUR TERTIARY PROVIDER

Choosing where to study is about more than how close the campus is to your home and whether it offers a course you like. These are important factors, but you should also consider the following points as you conduct your research:



- Public institutions, which includes most Australian universities, are funded by the government. Private institutions are independent and usually rely on full tuition fees to subsidise student places. While universities offer a range of fields, private education providers often focus on a particular discipline or provide a specialised campus environment.
- Would you prefer an intimate regional environment or a buzzing metropolitan one? Every institution has a different atmosphere, so be sure to take the time to visit before applying. Institutions differ in terms of the range of services and facilities on offer, such as sporting options and academic support, often depend on the university's size and location.
- Are most students studying on or off campus? Are there more school leavers or mature-age students? Does the student body contain a lot of international students to add to the cultural diversity? You may find that each institution offers different study modes for your course, such as part-time or distance options, which will shape your university experience.

ENGINEERING

WHAT YOU'RE IN FOR...

Engineers make, build, design and do, creating a huge range of things that we use on a daily basis. Many courses direct you to a particular specialisation, however it is possible to combine other fields through double degrees and post-graduate study.

MEDIAN GRADUATE SALARY

\$62,500

UNDERGRADUATE

\$100,000

POSTGRADUATE

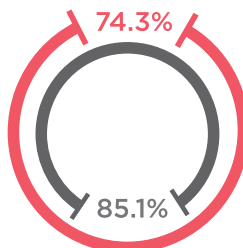


FULL-TIME EMPLOYMENT

undergraduate **postgraduate**



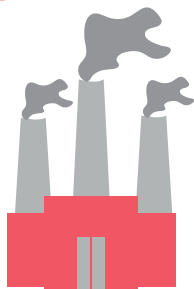
Proportion of students who have secured a full-time job within four months of graduating



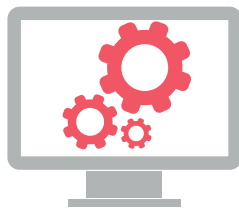
WHAT CAN I DO?



Engineering Management



Manufacturing



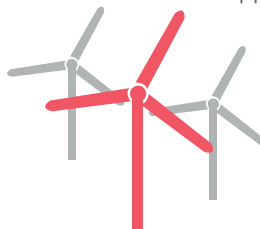
IT



Telecommunications



Mining



Environmental Engineering

COMPARE



Decide the categories most important to your university search and compare field of study ratings over the page to choose the right institution.

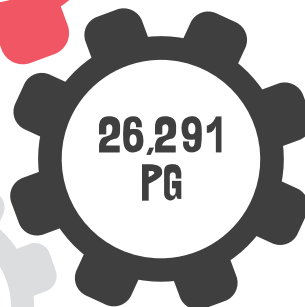
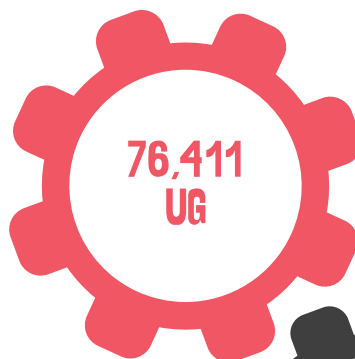


DISCOVER

Find out more about career paths and potential jobs by picking up a copy of *The Good Careers Guide 2017* or visiting the website www.goodcareersguide.com.au

NUMBER OF STUDENTS

UG = Undergraduate
PG = Postgraduate
UGI = Undergraduate international



**GOOD
EDUCATION
GROUP**

Good Education Group is Australia's leading independent provider of high-quality education and career information.

MORE ABOUT ENGINEERING

The engineering field of study includes both engineering and technology, and surveying.

Engineering and technology

The following are just some of the available engineering and technology majors:

- Aerospace engineering
- Chemical engineering
- Civil engineering
- Electrical engineering
- Environmental engineering
- Marine engineering

Engineers help to make things that we use on a daily basis — from the cars we drive and the medical technology (including pharmaceuticals) we depend on, to our cities' buildings and our regions' water supplies.

Many courses automatically set you on a path to one specialisation, although some provide a general first year before you specialise. While some engineering specialisations focus on a certain type of technology (automotive, aerospace, biomedical, marine and telecommunications), others are concerned with adapting certain base elements or resources for a myriad of purposes (chemical, electrical, materials and mechanical). Another group concentrates on harvesting, developing and sustaining natural resources (agricultural, environmental and mining). The newer engineering fields — such as aeronautics, informatics and mechatronics — have been more popular than the older sub-disciplines in recent years.

If you're yet to find your specific interest within engineering, you should research carefully and consider the following points. Most engineering students become engineers and, what's more, the specialisation they study is the specialisation they practise. It's not a once-and-for-all decision though; many engineers move into other fields (such as management, project management and consultancy) a few years into their careers.

Another option is to complete a double degree — you can combine engineering with arts, business, computer science, environmental science, commerce and law, among others. A double degree allows you to add another dimension to your technical skill-base and keeps your options open.

For more information, visit:

- Engineers Australia — www.engineersaustralia.org.au
- Young Engineers Australia — www.engineersaustralia.org.au/young-engineers

Surveying

This is a field with a clear focus: 'the determination and identification of the shape, contour, location and dimensions of land or water masses and their features, or planning and designing maps', says one definition. Career versatility is a key selling point for potential surveyors. According to the Surveying

and Spatial Sciences Institute (SSSI), modern surveyors help police at crime scenes, predict earthquakes, use computer imaging and satellites to monitor environmental change, map the ocean floor and tell you where your land ends and your neighbour's begins.

The various traditional surveying specialisations (cadastral, marine and mining) now sit alongside a host of other geoinformatics sub-fields such as geographic information systems, spatial information systems, global positioning and photogrammetry, all of which exploit high-level technology to collect, analyse, display and manage geographical and spatial information.

For more information, visit:

- Surveying & Spatial Sciences Institute — www.sssi.org.au.

Where to study

Overall, engineering is fairly tough to get into compared with other fields. Subjects such as mathematics and sciences (especially physics) are almost always required. Don't forget, there is often a difference in the cut-off scores between single and combined degrees.

Engineering degrees are offered at almost all universities, although some specialisations are more widely available than others. In order to practise, you will need to meet the accreditation requirements set by Engineers Australia, which includes a period of compulsory industry experience.

Degrees in surveying and its many specialisations are offered at a number of universities around the country — just remember to check course handbooks to ensure that the course covers the field in which you are looking to specialise.

What the data tells us

With the exception of CQUni, USQ, Murdoch, CDU, Curtin and ECU, there isn't a great deal of differentiation when it comes to median salary for engineers. In fact, 22 of the 28 institutions fall somewhere between \$55,000 and \$65,000. Despite it being a broad field, this points to the field as a whole offering similar opportunities to students as they graduate.

There can be a very fine line between making the top 20 per cent and just missing out. Griffith was the last of the five-star universities in educational experience with 79.6 per cent, however ECU and Flinders are close behind with 79.3 per cent. Elsewhere, Wollongong scored 89.5 per cent and five stars in learner engagement, with Griffith and Newcastle both falling short on 89.4 per cent. This suggests that because a university misses out on five stars in a category doesn't mean it has achieved poor results and may speak to the competitiveness between universities in this field of study.

STUDENT PROFILE

Alec Jones — Bachelor of Engineering (Civil) (Honours)



Why did you choose to study civil engineering?

I have always had a passion for the design, construction, maintenance and management of man-made structures and so civil engineering was the first choice for me. At ECU,

there are so many opportunities to graduate with more than just an engineering degree. There is a strong connection between ECU and the industry, which allows students to network and engage with industry professionals. This allows graduates to create and maintain diverse relationships with the community an engineer will eventually be a member of.

What was the best thing about your course?

The Bachelor of Engineering (Civil) (Honours) course constantly offers opportunities for students to gain both knowledge and experience throughout their degree.

In lectures, you learn applicable information that is vital for your field. This information is then solidified through tutorials, laboratory classes and field work activities.

ECU also offers students opportunities to create their own adventure. I was fortunate enough to be given the opportunity to study in Tianjin/Beijing in China as an elective unit. The knowledge and experience that I gained from this was invaluable and something you can't just get out of a book.

Have you found work in your field?

The current economic conditions in Western Australia make securing employment slightly challenging, however this encourages students to challenge themselves while at university and this ultimately develops better quality engineers. I believe ECU facilitates the training of industry-ready engineers and I believe I will have the foundations necessary to start my engineering career upon graduation.

National average rate of retention

ATAR range	50-59	60-69	70-79	80-89	90-100	Non-ATAR criteria
ADELAIDE				69%	100%	
CANBERRA			83%			
CDU		20%	14%	80%	20%	
CQUni		67%	62%	88%	74%	44%
CURTIN			65%	86%	92%	84%
DEAKIN	72%	89%	78%	100%	89%	75%
ECU		71%	77%	70%		75%
FEDERATION						82%
FLINDERS		67%	77%	94%	83%	75%
GRIFFITH		62%	70%	85%	95%	70%
JCU		83%	65%	83%	94%	79%
MACQUARIE				87%	100%	100%
MURDOCH		88%	87%			20%
NEWCASTLE		88%	81%	94%	91%	88%
QUEENSLAND				88%	91%	88%
National average rate of retention by ATAR range	55%	75%	80%	85%	90%	80%

National average rate of retention (continued)

ATAR range	50-59	60-69	70-79	80-89	90-100	Non-ATAR criteria
QUT			100%	87%	93%	88%
RMIT		80%	82%	83%	100%	
SWINBURNE	17%	75%	75%	88%	89%	83%
SYDNEY				89%	94%	94%
TASMANIA		73%	83%	86%	85%	67%
UniSA			92%	95%	89%	84%
UNSW			67%	87%	96%	95%
USQ			83%	60%		20%
UTS			89%	91%	98%	82%
VU	61%	70%	67%			69%
WESTERN SYDNEY	75%	80%	100%	100%		65%
WOLLONGONG		92%	86%	92%	97%	95%
National average rate of retention by ATAR range	55%	75%	80%	85%	90%	80%

Non-ATAR criteria may include entry via direct application, audition and/or portfolio submission, or via an academic pathway.



FIVE-STAR UNIVERSITIES ENGINEERING

EDUCATIONAL EXPERIENCE

MURDOCH	92.9%
NEWCASTLE	86.6%
QUT	83.3%
SUNSHINE COAST	83.0%
QUEENSLAND	81.0%
GRIFFITH	79.6%

**NATIONAL
AVERAGE = 75.5%**

GRADUATE EMPLOYMENT

USQ	95.1%
CDU	91.7%
WOLLONGONG	88.1%
CQUni	82.7%
UNSW	79.5%
NEWCASTLE	79.1%

**NATIONAL
AVERAGE = 74.3%**

LEARNER ENGAGEMENT

CQUni	81.1%
QUEENSLAND	78.0%
QUT	76.3%
CDU	75.3%
MONASH	73.0%
ANU	72.9%

**NATIONAL
AVERAGE = 68.8%**

LEARNING RESOURCES

SUNSHINE COAST	96.3%
MURDOCH	92.2%
QUEENSLAND	92.0%
DEAKIN	91.4%
WESTERN SYDNEY	91.2%
WOLLONGONG	89.5%

**NATIONAL
AVERAGE = 84.7%**

MEDIAN GRAD STARTING SALARY

CQUni	\$78,600
USQ	\$75,100
MURDOCH	\$75,000
CDU	\$70,000
CURTIN	\$70,000
ECU	\$68,500

**NATIONAL
AVERAGE = \$62,500**

SKILLS DEVELOPMENT

QUT	84.1%
QUEENSLAND	83.7%
CQUni	82.3%
WOLLONGONG	82.3%
SUNSHINE COAST	81.9%
GRIFFITH	81.6%
MONASH	81.5%

**NATIONAL
AVERAGE = 78.5%**

STUDENT SUPPORT

SUNSHINE COAST	80.0%
JCU	77.8%
DEAKIN	77.6%
NEWCASTLE	77.5%
FLINDERS	77.0%
GRIFFITH	76.1%

**NATIONAL
AVERAGE = 68.3%**

TEACHING QUALITY

SUNSHINE COAST	84.7%
MURDOCH	83.8%
QUT	82.4%
NEWCASTLE	82.3%
QUEENSLAND	82.2%
LA TROBE	81.1%
FEDERATION	80.8%
GRIFFITH	80.8%

**NATIONAL
AVERAGE = 75.9%**

WHAT DO THESE NUMBERS MEAN?

The ratings above represent the top 20 per cent of results for each measure in this particular field of study. For overall institution results, see the ratings section at the front of the Guide.



HOW TO USE THIS GUIDE

The graphs compare institutions in the engineering field of study. If you are interested in this field of study you can see all the institutions that offer courses and how they compare.

Universities compared

The “Five-Star Universities” graphs show the institutions whose results place them in the top 20 per cent of universities in engineering.

Student experience measures

These ratings compare the performance of universities across six student experience categories. For each category, the percentage of students who were satisfied with the university’s performance in the area is noted. For example, if a university achieves 75 per cent for Teaching Quality, this indicates that 75 per cent of students at the university were satisfied with the quality of teaching they experienced.

Data has been sourced from the Quality Indicators for Learning and Teaching (QILT) and is based on the results of the Student Experience Survey. Please note that the QILT website provides confidence intervals that reflect the accuracy of these estimated values, which have not been included in this guide.

Graduate outcomes

Starting salary

This rating compares the median salary of graduates from different universities. Universities are awarded five stars if they fall within the top 20 per cent of all universities.

Full-time employment

This rating compares the employment rates of graduates from different universities. It looks at the proportion of graduates who were employed full time four months after completing their course. Universities are awarded five stars if they fall within the top 20 per cent of all universities.

Data has been sourced from the Quality Indicators for Learning and Teaching (QILT) and is based on the results of the Graduate Destination Survey. Please note that the QILT website provides confidence intervals that reflect the accuracy of these estimated values, which have not been included in this guide.

National average rate of retention

These tables show the rate of student retention at each university. The ability of students to complete their first year of study and progress to a second year may be affected by the tertiary entrance score they achieved in their final year of school. Often, students with high scores have higher rates of retention than students with low scores. These tables identify the rate at which students who achieved a tertiary entrance score within a specific band are retained through to a second year of study.

Non-ATAR criteria may include entry via direct application, audition and/or portfolio submission, or via an academic pathway.

Data published in these tables refers to the number of students who commenced studies in 2014 and were still enrolled at the same institution in 2015, as a proportion of all students who commenced in 2014 in engineering. This data refers specifically to students who commenced a bachelor degree in 2014 on the basis of a tertiary entrance score and who came directly from secondary school.

Remember that rankings and ratings are indicators only. They help but do not present a full picture. Research your choices carefully!