



Curtin University

2022 UNDERGRADUATE
COURSE GUIDE

Engineering

Make tomorrow better.

study.curtin.edu.au



YOUR CURTIN GUIDE

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CURTIN PERTH ACADEMIC CALENDAR

	SEMESTER 2, 2021	SEMESTER 1, 2022	SEMESTER 2, 2022
Applications close*	Two weeks before orientation		
Orientation Week	19–23 July	21–25 February	18–22 July
Semester starts	26 July	28 February	25 July
Semester ends	12 November	17 June	11 November

* Application closing dates and orientation dates are subject to change and may vary depending on the course. Dates are for Curtin Perth only. Contact other campuses directly for details.

Visit curtin.edu.au/calendar for all study periods for 2022.

Visit curtin.edu.au/deadlines for application deadlines.

Indigenous acknowledgement

Curtin University acknowledges the traditional owners of the land on which Curtin Perth is located, the Whadjuk people of the Nyungar Nation; and on Curtin Kalgoorlie, the Wongutha people of the North-Eastern Goldfields.

Let's make tomorrow better, together

Curtin is a vibrant, future-focused university where ideas and cultures combine to create a place of enthusiasm, endeavour and achievement.

When you join Curtin, you join a community of more than 240,000 alumni around the globe, many of whom have made a significant impact in their field.

Studying at Curtin is the beginning of a lifelong journey. We look forward to helping you begin yours.

Engineer a better future

Engineering offers a diversity of interesting careers. At Curtin, you can specialise in chemical, civil and construction, electrical and electronic, industrial and systems, mechanical, mechatronic, metallurgical, mining or petroleum engineering.

If you are unsure which field to choose, Curtin's award-winning Engineering Foundation Year allows you to sample different majors before deciding which one to pursue in your second year of study.

As a Curtin engineering student, you will develop problem-solving skills and learn how to design, construct and test machines, systems, structures, materials and processes to improve the lives of people and communities worldwide.

Importantly, your course will focus on engineering for sustainable development. Modern engineering will play a critical role in solving global challenges like climate change, renewable energy options, environmental impacts of engineering and resource management in a world with a growing population but only finite resources.

You'll undertake 480 hours' exposure to professional engineering practice, and you can start building international experience through our cross-campus study options.

By studying at Curtin, you can start work as a professional engineering graduate in only four years. Our Bachelor of Engineering (Honours) degree is recognised by Engineers Australia – which ensures our programs meet international standards, like the Washington Accord, and recognises that Curtin graduates have the skills to practise as professional engineers.





Curtin is ranked in the top one per cent of universities worldwide

Academic Ranking of World Universities 2020



We're ranked number one in Australia for mineral and mining engineering (and second in the world!)

QS World University Rankings by Subject 2021



Top 30 in the world for civil engineering

NTU Ranking

Get the Curtin edge

We design our courses in close collaboration with industry experts to ensure you gain the skills that employers want.



This is real-world learning

Our engineering courses provide you with excellent opportunities to apply your learning in an industry environment before you graduate.

During your course you will complete 480 hours of exposure to professional engineering practice (EPEP), which is a requirement for professional recognition by Engineers Australia.

EPEP helps to consolidate the knowledge you've gained in your studies and gives you valuable insights into the industry. It can include engineering vacation work, part-time employment, site visits, technical presentations, volunteering and professional development. It can be paid or unpaid, and be undertaken locally, nationally or internationally.

We will help you source EPEP opportunities and provide your host organisation with the required documentation.

Making industry connections

At Curtin, we encourage you to begin building your industry network while studying. Our engineering courses feature industry advisory panel discussions, site visits and guest lectures – all of which help you to engage and connect with your industry's top employers.

In your final year you could work on an industry research project directly connected with the needs of a particular employer. This will enhance your career opportunities upon graduation.

Curtin has strong partnerships with numerous industry leaders, including:

- Alcoa
- Arup
- Ausenco
- BHP
- Chevron
- Cisco
- Clough
- CPB Contractors
- Institute of Biomedical Science
- KBR
- Lockheed Martin
- Lycopodium
- Monadelphous
- Optus
- Public Transport Authority of Western Australia
- Rio Tinto
- Woodside.

Don't call them soft skills!

Some skills you can't learn in class. Critical thinking, collaboration and effective communication are examples of 'transferable' professional skills that are important to employers. Curtin provides free leadership and volunteering programs that can build your interpersonal abilities and your confidence.

Leadership skills

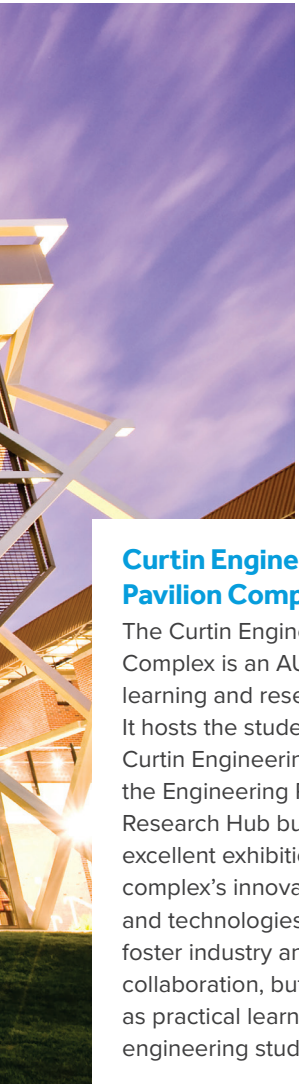
At the Curtin Leadership Centre, you can grow your skills in public speaking, teamwork, project management and self-awareness, and apply them to projects at Curtin and in the community.

curtin.edu/curtinleadership

Volunteering opportunities

If you like helping others, Curtin Volunteers! offers volunteering programs that will enrich your student experience and develop your interpersonal abilities while benefiting communities in Western Australia.

curtin.edu/volunteering



Curtin Engineering Pavilion Complex

The Curtin Engineering Pavilion Complex is an AUD\$32 million learning and research facility. It hosts the student-centred Curtin Engineering Pavilion, the Engineering Postgraduate Research Hub buildings and an excellent exhibition plaza. The complex's innovative design and technologies not only foster industry and research collaboration, but also double as practical learning tools for engineering students.



The Green Electric Energy Park

The Green Electric Energy Park laboratory is a space where Curtin students can conduct advanced experiments and research projects on renewable energy sources. Serving as a model for renewable energy laboratories, our Energy Park's technology and facilities have set a benchmark in Australia.

#1

Starting salary

Curtin is the top-ranked WA university for graduate starting salary.

Good Universities Guide 2021



Curtin Resources and Chemistry Precinct

The Curtin Resources and Chemistry Precinct is designed to educate and train the next generation of science and engineering innovators. The AUD\$116 million facility has four floors of laboratories, workspaces, and teaching and meeting rooms that encourage interactive learning, networking and collaboration.

Curtin Malaysia

At Curtin Malaysia, our four-storey Faculty of Engineering and Science building is a signature work of architecture and a landmark for the Skylark Precinct of the campus. The RM20 million building has learning spaces equipped with advanced technologies for active learning, including two-way activities with Curtin Perth.



Welcome to your global community

Our global learning network offers you experiences that can lead to international careers.

Cross-campus

Our academic programs are the same across all Curtin campuses, so if your course is available at a different location, you can study there for a semester with no interruption to your progress. Each course included in this guide shows the locations where you can study it.

Exchange and study abroad

You can choose to go on a short-term program, undertake an international internship, engage in a volunteer program or challenge yourself by going on an exchange to one of our many partner universities in Africa, Asia, Europe, North America or South America.

Financial assistance

You may have access to travel grants and loans, including scholarships, travel bursaries and Commonwealth grants, to help with your travel costs.

curtin.edu/goglobal

Dubai

Our Dubai campus gives you the opportunity to study in the heart of Middle Eastern banking, tourism and trade. Its rich culture and economic growth can complement your study in arts, commerce, engineering, or IT and computing.

Mauritius

Curtin Mauritius is our newest campus offering courses in design, communications, commerce and IT. It delivers a world-class education in a tropical island nation that blends cultures from Europe, Africa and Asia.

● These are our partner universities across the globe!

Singapore

Curtin Singapore is located in one of Asia's major economic hubs, connecting it to the world of international business, and making it the ideal campus to study your commerce degree. You can also study a communications degree and health degrees, including nursing.

Malaysia

Located on the island of Borneo, our Malaysian campus is modern and vibrant, featuring lush greenery and lakes. You can study a range of Curtin degrees here, including commerce, engineering, science and arts.

Kalgoorlie

Our Kalgoorlie campus is located in Western Australia's historic gold mining region. You can study our renowned engineering and science degrees here, as well as online courses in business, education and health.

Perth


Our largest campus is just six kilometres from Perth city. It is a place of inspiration, technology-rich learning spaces, high impact research and exciting activities. Curtin Law School and other Curtin locations in central Perth strengthen our links with the legal profession and the commercial heart of Western Australia. All Curtin courses are available at our Perth campus.



Experience Perth

Located on the beautiful west coast of Australia, Perth is multicultural, prosperous and safe – an ideal destination for students and tourists alike.

Perth weather
Perth has a Mediterranean climate.



	High / Low (°C)	
Summer (December to February)	30 °	17.5 °
Autumn (March to May)	26 °	13.7 °
Winter (June to August)	19 °	8 °
Spring (September to November)	23 °	11.7 °

source: australia.com

Perth timezone



Perth
GMT+8



Getting around

The metropolitan area is serviced with an extensive road network and easy-to-use public transport.

Western Australia's best food

Try some of the city's best food at Yagan Square, and find gourmet food producers in the Swan Valley.



(Photo: StudyPerth)

Shopping and culture

Perth is home to Elizabeth Quay, Forrest Place, Murray Street Mall and numerous galleries. The historic port city of Fremantle is only 15 kilometres from Perth, where the Swan River meets the Indian Ocean.



Close to campus

To the north, the suburb of Victoria Park is buzzing with a vibrant array of restaurants, pubs, beautiful parks and recreation areas.

To the south, the Canning River is home to dolphins, pelicans, swans and many other bird species. It's ideal for walking, picnicking and kayaking.



(Photo: StudyPerth)

A natural beauty

There are many magnificent parks and gardens in and around Perth. Kings Park, which is larger than New York's Central Park, showcases more than 3,000 species of WA's unique flora. Caversham Wildlife Park has many Australian animals, including kangaroos you can handfeed.



Be by the beach!

Perth's coast features breath-taking beaches and scenery. Don't forget to visit Rottnest Island – a famous holiday destination near Perth that is home to the friendly quokka.

Your student life

There is a sense of community both in and out of the classroom, with collaborative learning spaces and outdoor leisure areas to enjoy between classes.



Events

Market days, multicultural week and the Guild Ball are just a few of the amazing events on campus hosted by Curtin's Student Guild – a group of students chosen to represent and advocate your needs throughout the year.

Buy your essentials on campus

Shops on campus stock a variety of textbooks, stationery, magazines, novels, cards, art and computer equipment. There's a dry-cleaning outlet and self-serve printing and binding.





Food, glorious food

Whether you need coffee or kombucha, a quick sandwich or a hearty hot meal, you can get it on campus. We have great cafés and a variety of food trucks!



Technological convenience

Wi-fi can be accessed across the campus and there's a number of places on campus where you can recharge your devices. We also have several computer labs equipped with printing stations, scanners, graphic workstations, smart boards and current software.



Live on campus

Curtin has on-campus accommodation in Perth and Kalgoorlie. Living on campus is our recommended option and helps you make the most of your uni experience – life is more convenient, you'll save time, make great friends and enjoy your independence, all in a safe, supportive and connected environment.

curtin.edu/studentaccom



Get fit, make friends

Curtin Stadium is the home of sport and fitness on campus, with a main gym, women's gym, large group fitness area, indoor cycling studio, sports hall and multi-purpose courts available for hire.

There are 21 affiliated sports clubs that cater for all skill levels and social sports offering women's, men's and mixed competitions.

Curtin Stadium also organises Curtin Experiences, a range of social activities that include surfing, hip-hop dance, Pilates and Muay Thai kickboxing. Jump in and try something new!

stadium.curtin.edu.au

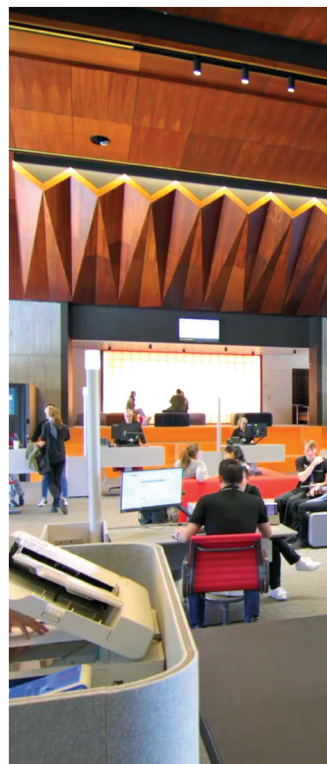




We're here to help

Studying can be challenging. Know you are always supported with our range of health and wellbeing services based conveniently on-campus. These include a physiotherapy clinic, and a medical centre where you can see a doctor, occupational therapist, psychologist, counsellor or social worker.

Our Student Wellbeing Advisory service offers free and confidential support for any issue that may be affecting you, no matter how big or small.



New Curtin Perth accommodation

We're expanding our student accommodation options at Curtin Perth in 2022, with the addition of St Catherine's College and Twin Dolphin Hall, operated by UniLodge.

All our accommodation options are located within a five-to-ten minute walk from the centre of campus, all are fully furnished with utilities included in weekly rent and it's free to apply.



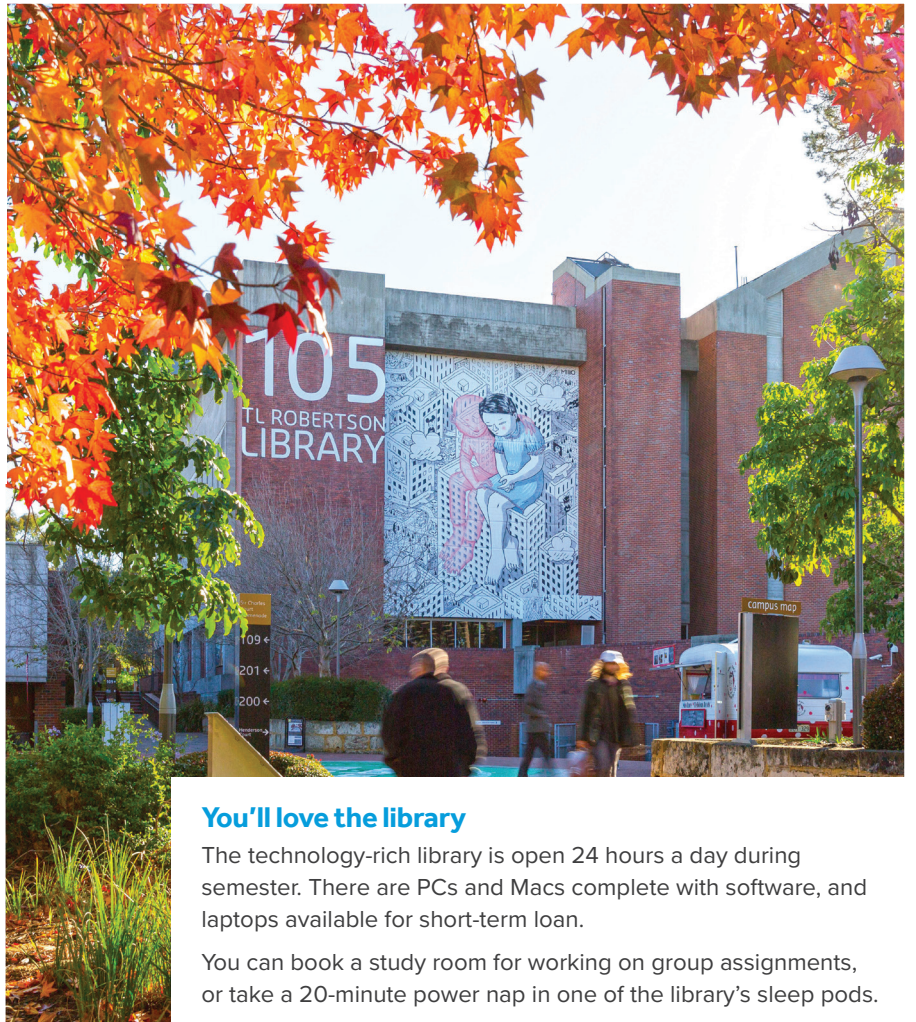
Settling in

You'll start your course with Orientation Week, where you will receive lots of support from Curtin Connect and student advisors.



Get the course advice you need

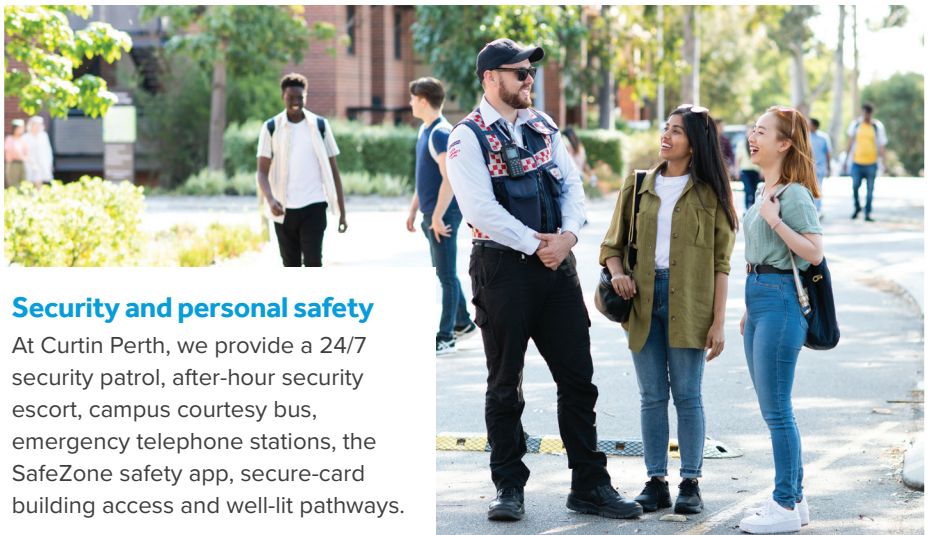
Head to Building 102 Curtin Connect for advice on courses, applications, enrolment, getting your ID card and organising your timetable.



You'll love the library

The technology-rich library is open 24 hours a day during semester. There are PCs and Macs complete with software, and laptops available for short-term loan.

You can book a study room for working on group assignments, or take a 20-minute power nap in one of the library's sleep pods.



Security and personal safety

At Curtin Perth, we provide a 24/7 security patrol, after-hour security escort, campus courtesy bus, emergency telephone stations, the SafeZone safety app, secure-card building access and well-lit pathways.

Find the course for you

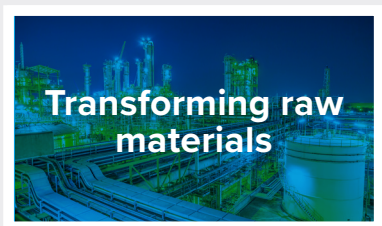
The next few pages show some of the careers that a Curtin degree can lead to, but there are many more.

Technological advancement means the jobs of tomorrow might differ to the jobs of today, but don't worry, Curtin degrees are designed to prepare you for a range of industries and careers – even those that don't exist yet!

The most important thing is to study subjects you're interested in and capable of doing. Let your interests and passions guide you.



What are your interests?



Transforming raw materials

You may like

▶ Chemical Engineering (page 20).



Designing or building

You may like

▶ Civil and Construction Engineering (page 21).



Electronics or digital tech

You may like

▶ Electrical and Electronic Engineering (page 22).



Energy and fuels

You may like

▶ Petroleum Engineering (page 28).



Management or production



▶ Industrial and Systems Engineering (page 23).



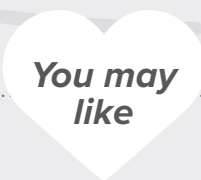
Machines and mechanical systems



▶ Mechanical Engineering (page 24).



Minerals and metals



▶ Metallurgical Engineering (page 26)
▶ Mining Engineering (page 27).



Robotics and control systems



▶ Mechatronic Engineering (page 25).

Improve your career choices with a double degree

A double degree increases your skills and knowledge across two complementary learning areas, giving you more career choices and the flexibility to adapt to changing employment trends.

The condensed program structure of a double degree means it may take only 12 to 18 months longer than a single degree.

When you study a double degree, you specialise in a major within each degree. A major comprises eight units in a particular subject, although you will study more units from the degree that is listed first in the course title. You are awarded with two degrees upon successful completion of your course.



Engineering and Commerce

DEGREE

Bachelor of Engineering (Hons) and Bachelor of Commerce

GUARANTEED ATAR

80

PREREQUISITES

Mathematics Methods ATAR and at least one of Physics ATAR, Chemistry ATAR or Engineering Studies ATAR, or equivalent

DESIRABLE

Mathematics: Specialist ATAR, or equivalent

STAT

May be used to demonstrate English proficiency only

PORTFOLIO ENTRY

Not accepted

INTAKE

Semester 1, semester 2

STUDY MODE

Full-time, part-time

DURATION

5.5 years full-time

LOCATION

Perth

CRICOS CODE

066675M

This double degree will expand your career opportunities both as an engineer and in the corporate environment.

You will gain the understanding of economics and finance needed to lead large engineering projects in your engineering speciality.

Engineering majors available:

- ▷ Chemical Engineering
- ▷ Civil and Construction Engineering
- ▷ Mechanical Engineering
- ▷ Metallurgical Engineering
- ▷ Mining Engineering.

Commerce majors available:

- ▷ Accounting
- ▷ Economics
- ▷ Finance
- ▷ Management.

Engineering and Science

DEGREE

Bachelor of Engineering (Hons) and Bachelor of Science

GUARANTEED ATAR

80

PREREQUISITES

Mathematics Methods ATAR and at least one of Physics ATAR, Chemistry ATAR, Engineering Studies ATAR, or equivalent

DESIRABLE

Mathematics Specialist ATAR, or equivalent

STAT

May be used to demonstrate English proficiency only

PORTFOLIO ENTRY

Not accepted

INTAKE

Semester 1, semester 2

STUDY MODE

Full-time, part-time

DURATION

5 years full-time

LOCATION

Perth

CRICOS CODE

095950A

This double degree will give you a competitive edge to your career through an advanced understanding of the science that underpins practical engineering.

Major combinations available:

- ▷ Mechatronic Engineering and Computer Science
- ▷ Electrical and Electronic Engineering and Computer Science
- ▷ Electrical and Electronic Engineering and Data Science
- ▷ Electrical and Electronic Engineering and Physics.

Chemical Engineering and Chemistry

DEGREE

Bachelor of Engineering (Chemical Engineering) (Hons) and Bachelor of Science (Chemistry)

GUARANTEED ATAR

80

PREREQUISITES

Mathematics Methods ATAR and Chemistry ATAR, and at least one of Physics ATAR or Engineering Studies ATAR, or equivalent

DESIRABLE

Mathematics Specialist ATAR, or equivalent

STAT

May be used to demonstrate English proficiency only

PORTFOLIO ENTRY

Not accepted

INTAKE

Semester 1, semester 2

STUDY MODE

Full-time, part-time

DURATION

5 years full-time

LOCATION

Perth

CRICOS CODE

050336F

An in-depth knowledge of chemistry unlocks more opportunities for chemical engineers.

In this double degree you will specialise in biosystems engineering, chemical engineering or oil and gas.

You'll explore the development, design and operation of processes for the extraction, conversion and recovery of materials. You'll also develop the skills for a career in a modern analytical or industrial laboratory.

Chemical Engineering and Extractive Metallurgy

DEGREE

Bachelor of Engineering (Chemical Engineering) (Hons) and Bachelor of Science (Extractive Metallurgy)

GUARANTEED ATAR

80

PREREQUISITES

Mathematics Methods ATAR and at least one of Physics ATAR, Chemistry ATAR or Engineering Studies ATAR, or equivalent

DESIRABLE

Mathematics Specialist ATAR, or equivalent

STAT

May be used to demonstrate English proficiency only

PORTFOLIO ENTRY

Not accepted

INTAKE

Semester 1

STUDY MODE

Full-time, part-time

DURATION

5 years full-time

LOCATION

Perth

CRICOS CODE

043753C

Grounded in geology, chemistry and environmental science, this double degree will give you comprehensive skills in improving industrial procedures in the mining sector.

You'll also learn environmental considerations, and graduate ready to take a leading role in developing processes that extract, convert and recover materials and metals.

Civil and Construction Engineering and Mining

DEGREE

Bachelor of Engineering (Civil and Construction Engineering) (Hons) and Bachelor of Science (Mining)

GUARANTEED ATAR

80

PREREQUISITES

Mathematics Methods ATAR and at least one of Physics ATAR, Chemistry ATAR or Engineering Studies ATAR, or equivalent

DESIRABLE

Mathematics Specialist ATAR or equivalent

STAT

May be used to demonstrate English proficiency only

PORTFOLIO ENTRY

Not accepted

INTAKE

Semester 1, semester 2

STUDY MODE

Full-time, part-time

DURATION

5 years full-time

LOCATION

Perth

CRICOS CODE

050568A

Adding a mining specialisation to a major in Civil and Construction Engineering will give you an in-depth understanding of mining industry operations.

You'll also learn aspects of environmental conservation, health and safety, and management of people and resources – an ideal skill set for careers in mine-site design, construction and maintenance.

Engineering

Access outstanding, purpose-built facilities and start work as a professional engineering graduate in just four years.

DEGREE

Bachelor of Engineering (Honours)

GUARANTEED ATAR

80

PREREQUISITES

Mathematics Methods ATAR and at least one of the following: Physics ATAR, Chemistry ATAR, Engineering Studies ATAR, or equivalent.

DESIRABLE

Mathematics Specialist ATAR or equivalent

STAT

May be used to demonstrate English proficiency only

PORTFOLIO

Not accepted

INTAKE

Semester 1, semester 2

STUDY MODES

Full-time, part-time

DURATION

4 years full-time

LOCATION*

Perth, Kalgoorlie, Dubai, Malaysia

CRICOS CODE

072467B

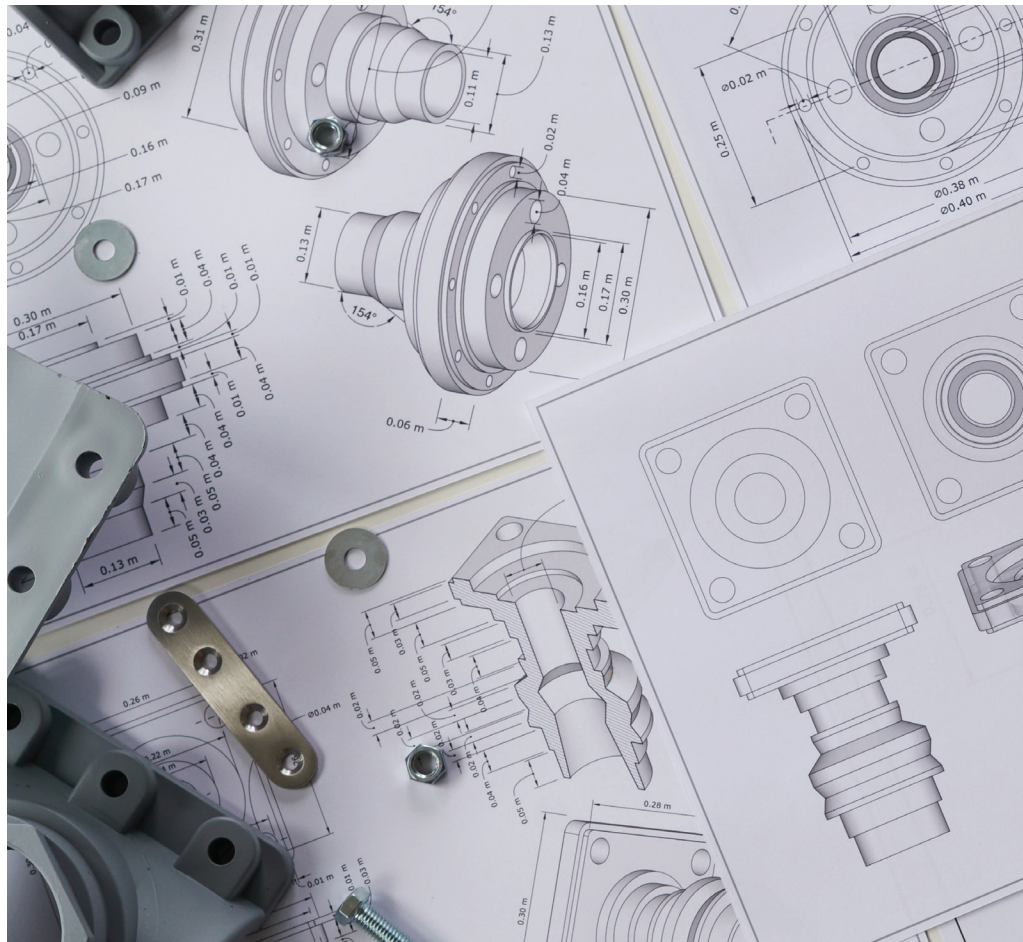
LEARN MORE

curtin.edu/bach-engr

* Majors offered may vary between locations

Curtin's Bachelor of Engineering (Honours) offers you an industry-connected education experience in which you will learn how to provide solutions to complex societal challenges and improve the quality of life for people all around the world.

Your study will begin with the Engineering Foundation Year (EFY). You will learn the fundamental concepts and develop the required skills common to all areas of engineering – giving you the opportunity to explore our range of engineering majors before choosing the major you will study from your second year.



Our engineering majors are:

- ▷ Chemical Engineering
- ▷ Civil and Construction Engineering
- ▷ Electrical and Electronic Engineering
- ▷ Industrial and Systems Engineering
- ▷ Mechanical Engineering
- ▷ Mechatronic Engineering
- ▷ Metallurgical Engineering
- ▷ Mining Engineering
- ▷ Petroleum Engineering

Engineering Foundation Year

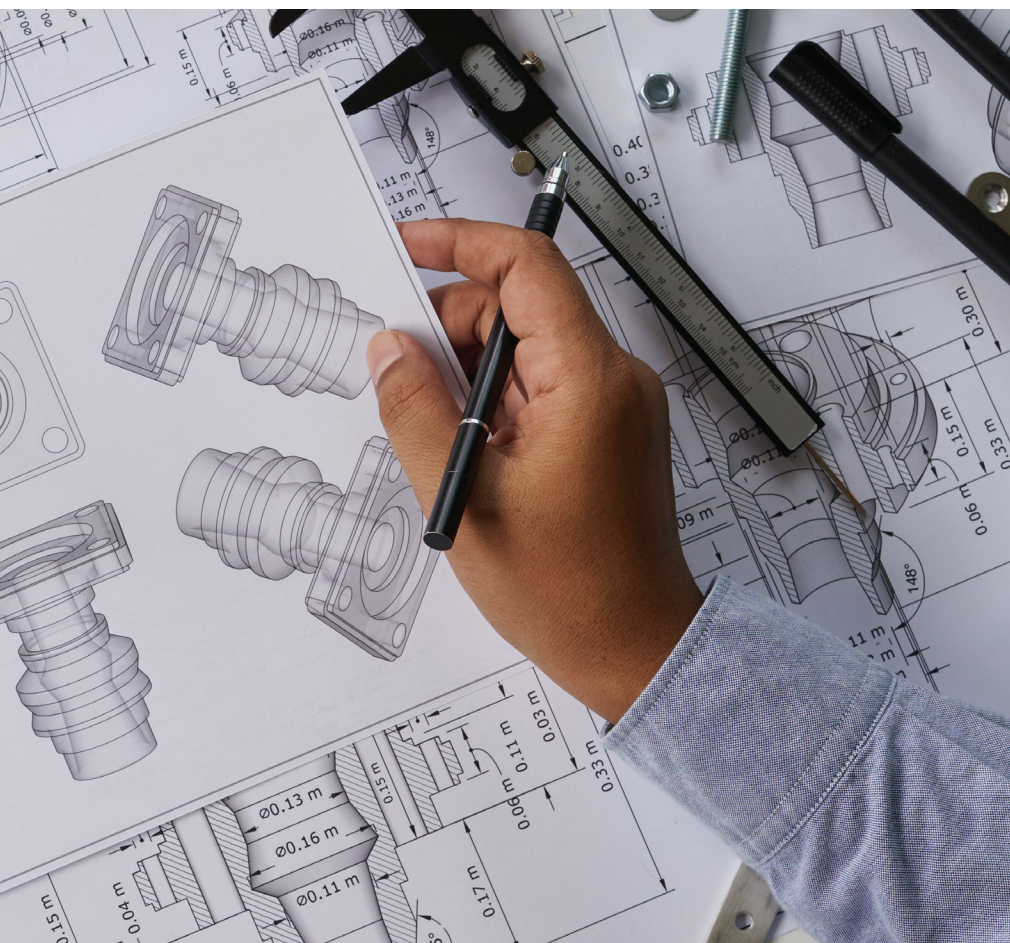
Developed in partnership with industry, our award-winning EFY program and its purpose-built first-year studios encourage learning by doing.

The EFY's cross-disciplinary curriculum was developed as a base for all Curtin engineering disciplines, to ensure you graduate with a solid theoretical grounding, strong practical experience and cultural awareness.

The program and its support services will help you progress smoothly into your area of specialisation and graduate as a sought-after and career-ready engineer.

The EFY includes:

- full-class lectures
- small group tutorials
- hands-on laboratory work
- team-based design and simulation projects
- web-based learning resources, bulletin boards, online tutorials and quizzes
- portfolio development, with an emphasis on reflection and self-evaluation
- participation by industry representatives, exposing students to professional practice.



First-year studio

The first-year studio and project rooms reflect the modern working environment, enabling you to familiarise yourself with the layout of a professional career setting.

The studio is also a hub to develop social and academic networks. It comprises:

- an open-plan office
- computing, electrical and mechanics laboratories
- one-on-one learning assistance Engineering Tutor Access Points (ETAPs)
- project meeting rooms.

Years 2–4

In years 2 and 3 of your engineering degree you will study units relevant to your chosen major.

In year 4 you will undertake an honours-level, independent research project. Structured across two units of study, the project will give you an in-depth

understanding on your thesis topic. It will demonstrate to potential employers your skills in planning and undertaking a complex body of work within deadlines.

Professional practice

To graduate from this course you must have completed 480 hours of exposure to professional engineering practice and completed senior first-aid training.

Professional practice can comprise a combination of real-world experiences. Examples include paid and voluntary work placements, university-based experience in industrial projects, attending extra-curricular technical lectures and workshops, and industry site visits in Australia and/or overseas.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.



“Curtin has strong capabilities across many engineering research areas including energy, data analytics, communication, resources and infrastructure, giving our students exposure to cutting-edge and practical engineering research.

“Many of the classroom and assessment tasks require students to work in teams, which allows them to develop teamwork skills and also harness their leadership abilities.

“This mix of fundamental and applied skills coupled with a strong sense of community and environmental stewardship enable graduates to lead the ongoing digital revolution and our response to climate change – to make our world a better place, and secure a future for the coming generations.”

John Curtin Distinguished Professor

Vishnu Pareek
Dean of Engineering

Chemical Engineering



Open up a diverse range of career options in the process engineering industry.

DEGREE

Bachelor of Engineering (Chemical Engineering) (Hons)

LEARN MORE

curtin.edu/bach-cheng

Chemical or 'process' engineering involves finding the best sequence of chemical and physical processing operations, plus the right operating conditions, to convert raw materials into higher-value products.

Chemical engineering covers the development, design and management of processes and equipment for the extraction, conversion and upgrading of materials, using physical, chemical and biological operations.

There are numerous process industries serving a range of societal needs.

You will select either the Chemical Engineering or Oil and Gas streams to study.

Chemical Engineering

In this general stream, you will examine processes for a range of materials.

You'll explore the theory and applications of fluid flow, energy transfer, and separation and chemical reaction for the synthesis, design, control and optimisation of general chemical processes.

Oil and Gas

In addition to learning chemical engineering fundamentals, you will gain detailed knowledge of the exploration and development of oil and gas resources.

You'll explore the behaviour of hydrocarbon reservoirs, offshore drilling and production, the refining of crude oil and processing of natural gas.

Double degree

You can study this course as part of a double degree. See page 16-17 for double degree combinations.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.

Career information

Careers

- Chemical engineer
- Process engineer
- Production/operations engineer
- Risk and safety manager.

Industries

- Oil and gas
- Bioengineering and biotechnology
- Aerospace and automotive
- Agrochemical
- Food processing
- Mineral and material processing
- Pharmaceutical
- Semiconductor
- Biomass and sugar refining
- Cement and lime production
- Industrial and fine chemical production
- Petrochemical and polymer production
- Paper and board manufacture
- Water and wastewater treatment.

Civil and Construction Engineering

Design and construct the infrastructure of tomorrow.

DEGREE

Bachelor of Engineering (Civil and Construction Engineering) (Hons)

LEARN MORE

curtin.edu/bach-ccoeng

Civil and construction engineers are key members of teams involved in the design and construction of buildings, bridges, roads and highways, harbours, dams, irrigation and water supplies, municipal infrastructure and other large structures and projects.

As our built environment becomes increasingly complicated, ambitious construction projects can only be completed by teams of people with different skills, working together. The civil engineer is central to this process.

In this course, you will develop basic scientific, mathematical and practical skills. You'll learn how to use these skills to solve engineering problems and then to develop your civil engineering capabilities.

You'll learn to apply these skills in structural analysis and design, geotechnical engineering, transportation engineering, hydraulics, construction and professional practice.

In your final year, you'll integrate your design, construction and management skills in large civil engineering projects; undertake a major civil engineering research project; and select units from specialty options in the areas of structural, geotechnical, transportation, water resources and environmental engineering.

To satisfy professional requirements, you'll complete at least 12 weeks (or equivalent) of exposure to professional engineering practice. This requirement can be met through appropriate work experience or a combination of technical and non-technical activities.

You can study the third and fourth year of this course in Sri Lanka.



Double degree

You can study this course as part of a double degree. See page 16-17 for double degree combinations.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.

Career information

Careers

- Civil engineer
- Construction engineer
- Geotechnical engineer
- Mining engineer
- Site engineer
- Structural engineer.

Industries

- Construction
- Consulting
- Contracting
- Government
- Mining
- Transportation
- Water supply.



"Curtin University's civil and construction engineering course has a fantastic reputation in industry for offering students a balanced mix of engineering foundations, practical experience and most importantly, engineering communication skills. Curtin has equipped me with the necessary skills and knowledge to work on real engineering problems from day one as a graduate engineer."

Kassia Ralston

Project Manager, METRONET
Bachelor of Engineering (Civil and Construction Engineering) (Hons)

Electrical and Electronic Engineering

Gain a thorough understanding of the fundamentals of electrical and electronic engineering before focusing on the stream that interests you.

DEGREE

Bachelor of Engineering (Electrical and Electronic Engineering) (Hons)

LEARN MORE

curtin.edu/bach-eleeng

Rapid advances in electronic communication, the 'internet of things', and renewable and sustainable energy offer abundant career opportunities in electrical and electronic engineering.

You'll gain a thorough understanding of the concepts that underpin electrical and electronic engineering, before choosing one of the specialisations below.

In your final year you'll undertake a major research or design project and complete 12 weeks of professional practice.

You can study the third and fourth year of this course in Sri Lanka.

Electronics and Communications

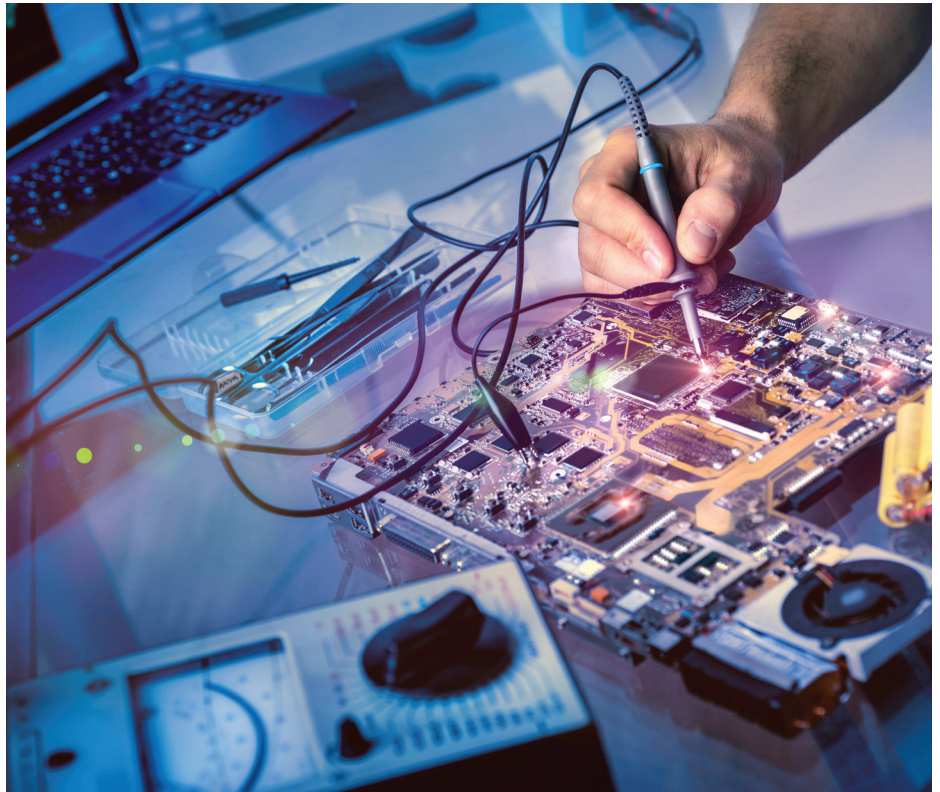
Society has an increasing demand for intelligent transportation systems, mobile broadband access, remote operations and tactile internet – the next evolution of the internet of things.

This stream will help you address challenges facing telecommunication systems, to enable fast and reliable communication anywhere and anytime.

Embedded Systems

Our world is increasingly characterised by intelligent devices that contain embedded systems. These systems enable a computer to control another computer, monitor it or provide it with sophisticated functionality.

In this stream, you will learn the theoretical and practical aspects of embedded systems, sensors and electronic design.



Power Systems

With fossil fuels being a finite resource, it is vital that we harness alternative sources of electrical energy, such as solar and wind.

This stream will help you address the challenges in the generation, transmission and distribution of electricity. It covers topics such as smart grids, distribution systems and the integration of renewable energy.

Double degree

You can study this course as part of a double degree. See page 16 for double degree combinations.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.

Career information

Careers

- Electrical engineer
- Electrical power engineer
- Electronics engineer
- Communications engineer
- Embedded systems engineer
- Medical systems engineer
- Network controller
- Power systems engineer
- Systems engineer.

Industries

- Application engineering
- Computer hardware design
- Electronic systems
- Fibre optics and mobile communications
- Manufacturing
- Robotics
- Software development
- Solar and renewable energy.

Industrial and Systems Engineering



Use your analytical and problem solving skills to optimise complex systems and processes.

DEGREE

Bachelor of Engineering (Industrial and Systems Engineering) (Hons)

LEARN MORE

curtin.edu/bach-indsyseng

Industrial and systems engineering focuses on the design and optimisation of a whole system rather than individual components. Industrial and system engineers explore problems in their entirety to create holistic solutions and processes for complex projects.

In this engineering major you will learn how to use your analytical and problem-solving skills to make systems more efficient, safe and cost effective.

You'll learn knowledge and skills in related engineering fields including mechanical and mechatronics, as well as industrial, applied and financial mathematics.

You'll also develop specialised theoretical knowledge and practical skills in key areas of mechanical design, manufacturing, system control, operations research, modelling, simulation and optimisation of industrial processes.

As a graduate, you'll be equipped to play an integral role in business and industry where the continual improvement of complex systems and processes is key to success.

Professional recognition

This major has received provisional accreditation from Engineers Australia.

Career information

Careers

- Manufacturing engineer
- Production engineer
- Data modeller
- Logistics specialist
- Material handling, maintenance or scheduling specialist
- Plant manager
- Process control analyst
- Process improvement specialist
- Quality controller.

Industries

- Banking
- Communications
- Defence
- Healthcare
- Hospitality
- Minerals and energy
- Retail
- Space exploration.

Mechanical Engineering



Analyse and develop machines and moving systems.

DEGREE

Bachelor of Engineering (Mechanical Engineering) (Hons)

LEARN MORE

curtin.edu/bach-mceng

Mechanical engineers analyse and develop technological systems that involve motion. They help society harness the energy and forces that exist in nature.

Mechanical engineering is a discipline that is recognised worldwide. As one of the broadest engineering disciplines, it will provide you with versatile skills for numerous career options.

System conception, design, manufacturing, maintenance and management are all within the scope of mechanical engineering. These systems include micromechanical devices, power-generating turbines, thermal power generation, and air and transport systems.

In particular, you'll appreciate applying your multidisciplinary problem-solving skills across a spectrum of science and engineering endeavours that extend through to biomedical engineering.

In your final year you'll undertake an individual design or research project.

You can study the third and fourth year of this course in Sri Lanka.

Double degree

You can study this course as part of a double degree. See page 16 for double degree combinations.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.

Career information

Careers

- Mechanical engineer
- Aeronautical engineer
- Mechatronic engineer.

Industries

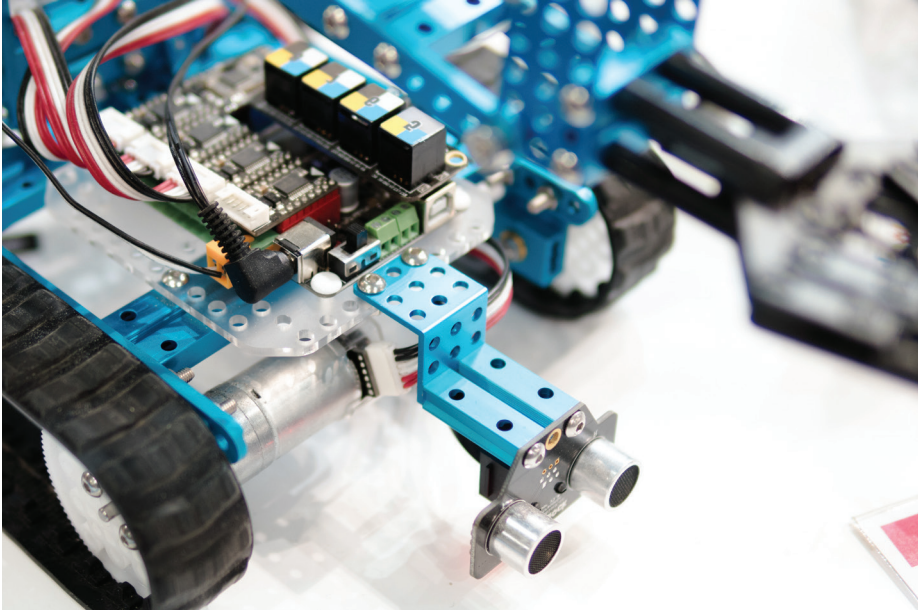
- Aerospace
- Automotive
- Manufacturing
- Marine engineering
- Mining
- Mineral and material processing
- Plant operation and maintenance
- Power generation
- Robotics
- System design
- Transportation
- Water supply.

"The basic technical understanding and engineering principles are the obvious benefits of the course, but one of the most underrated parts of the process is immersion, discussion, and debates with other people in the field, from students to lecturers. These are critical to building the attitudes and passion for engineering required to excel in industry."

Ahmad Fleyfel

Technical Manager, Conveyor Products and Solutions
Bachelor of Engineering (Mechanical Engineering) (Hons)

Mechatronic Engineering



As the world becomes increasingly automated, the opportunities for mechatronic engineers are growing.

DEGREE

Bachelor of Engineering (Mechatronic Engineering) (Hons)

LEARN MORE

curtin.edu/bach-mxeng

Mechatronic engineers work at the interface of mechanical devices and electronic control systems.

With the ever-increasing reach of robotics and autonomous systems, mechatronic engineers are found in diverse industries including aerospace, agriculture, biotechnology mining and energy resources.

As the number of industries that are innovating through digital technologies grows, so do the opportunities for mechatronic engineers. Rapid advances in automation applications – such as self-driving vehicles and mine-site automation – are driving an increased need for mechatronic engineers with expertise in mechanical, electronic and computer systems engineering.

Numerous industries, including mining, transportation, agriculture and biomedical engineering, also require mechatronic engineers to work towards solutions for some of society's most pressing problems.

As a mechatronic engineering student, you will develop sound theoretical knowledge in the key disciplines of mechanics, electronics, computer systems and control. You'll apply this knowledge and develop practical skills through a series of projects on topics including mobile robot communications and automation, pneumatic automation systems and machine control.

In your final year of study, you'll undertake a major research or design project.

Double degree

You can study this course as part of a double degree with Computer Science. See page 16.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.

Career information

Careers

- Mechatronic engineer
- Mechanical engineer
- Automation engineer
- Computer systems engineer
- Data scientist.

Industries

- Aerospace
- Agritechology
- Autonomous vehicle
- Biosensors and security
- Biotechnology and biomechanics
- Manufacturing
- Mining and resources
- Oil and gas
- Renewable energy
- Robotics
- Subsea engineering.



"I've always enjoyed design and technology, so mechatronics was the perfect choice for me. You're working on group projects right from the start of your degree, and the opportunities to develop networking skills are really useful."

Gio Iwansantoso
Bachelor of Engineering
(Mechatronic Engineering) (Hons)

Metallurgical Engineering

Learn to design and manage plant processing operations to create mineral and metal products.

DEGREE

Bachelor of Engineering (Metallurgical Engineering) (Hons)

LEARN MORE

curtin.edu/bach-mteng

Metallurgical engineers mostly work in converting raw metals and minerals into more useable formats, such as converting iron ore and coal into steel. They extract, refine and recycle metals and minerals that are used in many areas of everyday life, including energy production, food production, housing and transportation.

In this major you will learn to design, develop, optimise and manage the operation of metallurgical processing plants that transform low-value raw materials into useful, high-value mineral and metal products – and in an economical and environmentally responsible way.

You'll gain a thorough grounding in chemical and physical engineering, economic, environmental and sustainable principles, and the extraction of metals from ores. This course also includes a strong management component.

Following your Engineering Foundation Year (EFY) at Curtin Perth, you can go directly to Curtin Kalgoorlie, or study your second year in Perth before completing your third and fourth years in Kalgoorlie. Studying in Kalgoorlie will provide you with meaningful exposure to the mining industry.

Double degree

You can study this course as part of a double degree. See page 16 for double degree combinations.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.



Career information

Careers

- Metallurgist
- Hydrometallurgist
- Metallurgical engineer
- Minerals engineer
- Process control specialist
- Process engineer
- Process mineralogy specialist
- Pyrometallurgy specialist.

Industries

- Banking and finance
- Engineering
- Equipment design and sales
- Food production
- Housing
- Mining and minerals processing
- Research and development
- Transportation.



"You get to know your lecturers really well. Any time I've had an issue I've gone to see them and spoken to them directly about how to figure out a problem."

Victoria Arrowsmith

2018 WA School of Mines Gold Medal Recipient
Bachelor of Engineering
(Metallurgical Engineering) (Hons)

Mining Engineering



Develop the skills you need to extract minerals from underground or open-pit mines.

DEGREE

Bachelor of Engineering (Mining Engineering) (Hons)

LEARN MORE

curtin.edu/bach-mineng

Mining engineering is where the latest technology is used to extract minerals from the earth safely and efficiently.

It's a profession defined by rapid scientific advancement, and, as a Curtin student, you'll be at the cutting edge.

In this major you will learn about emerging mining technology such as robotics, data analytics and additive manufacturing. You'll delve into mining economics, gain understanding and consideration of working with Indigenous cultures, and discover how to make a positive contribution to sustainable development.

You can broaden your learning and enhance your employability by studying elective units.

The degree is tailored to guide your transition from the classroom to a job in the global resources sector, fully equipped to handle the technological developments that are transforming the industry.

In your first year, you'll study the Engineering Foundation Year (EFY), learning the fundamental concepts and develop the skills common to all areas of engineering.

Following this, you can go directly to Curtin Kalgoorlie, or study for a second year in Perth before completing your third and final years in Kalgoorlie.

Studying in Kalgoorlie will provide you with meaningful exposure to the mining industry.

As you progress, emphasis will be placed on mining science and technology, which involves the study of soil and rock mechanics, explosives and rock breakage, materials transport, mining methods, mine planning, project evaluation and the environment. In your final year, you'll undertake a major research project and a team design project.

Double degree

You can study this course as part of a double degree. See page 16-17 for double degree combinations.

Career information

Careers

- Mining engineer
- Management consultant
- Mine manager
- Mine planner and designer
- Mining company director
- Operations manager.

Industries

- Government
- Mining and resources
- Research and development
- Risk analysis and investment.

Petroleum Engineering



Learn how to evaluate, drill, develop and mine oil and gas reserves.

DEGREE

Bachelor of Engineering (Petroleum Engineering) (Hons)

LEARN MORE

curtin.edu/bach-pteng

Petroleum engineers extract oil and gas from deposits below the Earth's surface. They collaborate with other professionals to understand the geological and geophysical characteristics of particular reservoirs, before designing, testing and implementing the most effective and profitable extraction method.

Reservoirs currently yield a maximum of 30 per cent of their oil; petroleum engineers are therefore needed to develop methods that increase oil and gas production. These engineers are also needed to help develop offshore gas fields.

In this major you will learn how to evaluate, drill, develop and mine oil and gas reserves. You'll study chemical engineering, drilling, fluid flow through reservoirs, formation evaluation, geology, hydrocarbon phase behaviour, oil and gas field development, petroleum production technology, thermodynamics and well completions engineering.

You will undertake practical study in fluid and reservoir rock and drilling laboratories, and gain industry exposure through field trips to service company offices, government offices, and drilling, exploration and production operation sites.

You'll also gain an understanding of global economic trends and corporate profit margins through the study of economics, risk and project management.

In your final year, you'll undertake a major research project, as well as a field development planning and design project.

Professional recognition

Graduates fulfil the stage one competencies required by Engineers Australia for a professional engineer.

Career information

Careers

- Petroleum engineer
- Drilling engineer
- Field operation engineer
- Production engineer
- Reservoir engineer
- Subsurface engineer
- Well completions engineer.

Industries

- Environmental management
- Government
- Health and safety
- Oil and gas
- Research and development
- Water treatment.



“Engineering is all about solving problems, and petroleum engineering in particular is an area where projects require innovation. Curtin’s petroleum engineering degree provides lots of practical experiences, covers a wide range of subjects and teaches you to use technology relevant to your field.”

Emily James
Petroleum Engineering Major

How to apply

1. Find a course

Find your course in this guide or at study.curtin.edu.au.

2. Check the admission criteria

Admission is usually based on graduating from high school and achieving the following:

✓ ATAR or cut-off score

Domestic students: You need to achieve the minimum or guaranteed ATAR for your chosen course.

International students: Cut-off scores for most countries are shown against each course at study.curtin.edu.au.

✓ English

Domestic students: You need a scaled score of at least 50 in English ATAR, Literature ATAR or English as an Additional Language/Dialect ATAR.

International students: See curtin.edu/english-criteria for your country's equivalent English competency criteria.

✓ Prerequisites

Some courses require completion of certain high school subjects. These are called prerequisites.

Domestic students: You need a scaled score of at least 50 in these subjects.

International students: You'll need your country's equivalent pass mark in these subjects.

Other criteria

Some courses have additional requirements, like the submission of a portfolio.



THERE ARE MANY PATHWAYS TO CURTIN!

If you don't think you'll meet one or more of the criteria, there are many other pathways to Curtin.

See page 31 for enabling programs and other pathways.

3. Apply

Domestic students

To apply, visit curtin.edu/apply.

International students

First, you'll need to get certified copies of your qualifications and English language proficiency documents.

Applying through an agent: You may prefer to submit an application through a registered Curtin agent. To find an agent in your country, see curtin.edu/agents.

Applying online: If you'd rather not apply through an agent, find your course at study.curtin.edu.au and click APPLY NOW. From here, you can begin the online application process. Make sure your certified documents are ready to upload.

Applying by email or mail: Download the application form from curtin.edu/int-apply and post or email your completed application to the address specified on the form.

Most applications will be assessed within two weeks of submission.

Successful applicants will receive an offer package, which explains how to accept Curtin's offer and how to enrol. When your enrolment has been completed, you'll receive your Confirmation of Enrolment.

Your student visa

Apply for your student visa after you receive your Confirmation of Enrolment. If you will be under the age of 18 when you start your Curtin course, you must nominate a guardian.

Getting ready to go!

We want to make your transition to study in Australia as smooth as possible. Use our pre-departure resources to help you prepare for your move to Perth.

international.curtin.edu.au/pre-departure

WE'RE HERE TO HELP

If you have any questions about admission, our team can help you.

Domestic students

Tel: 1300 222 888

FAQ: future.connect.curtin.edu.au

Web: study.curtin.edu.au

International students

Tel: +61 8 9266 5888

Email: study@curtin.edu.au

FAQ: future.connect.curtin.edu.au

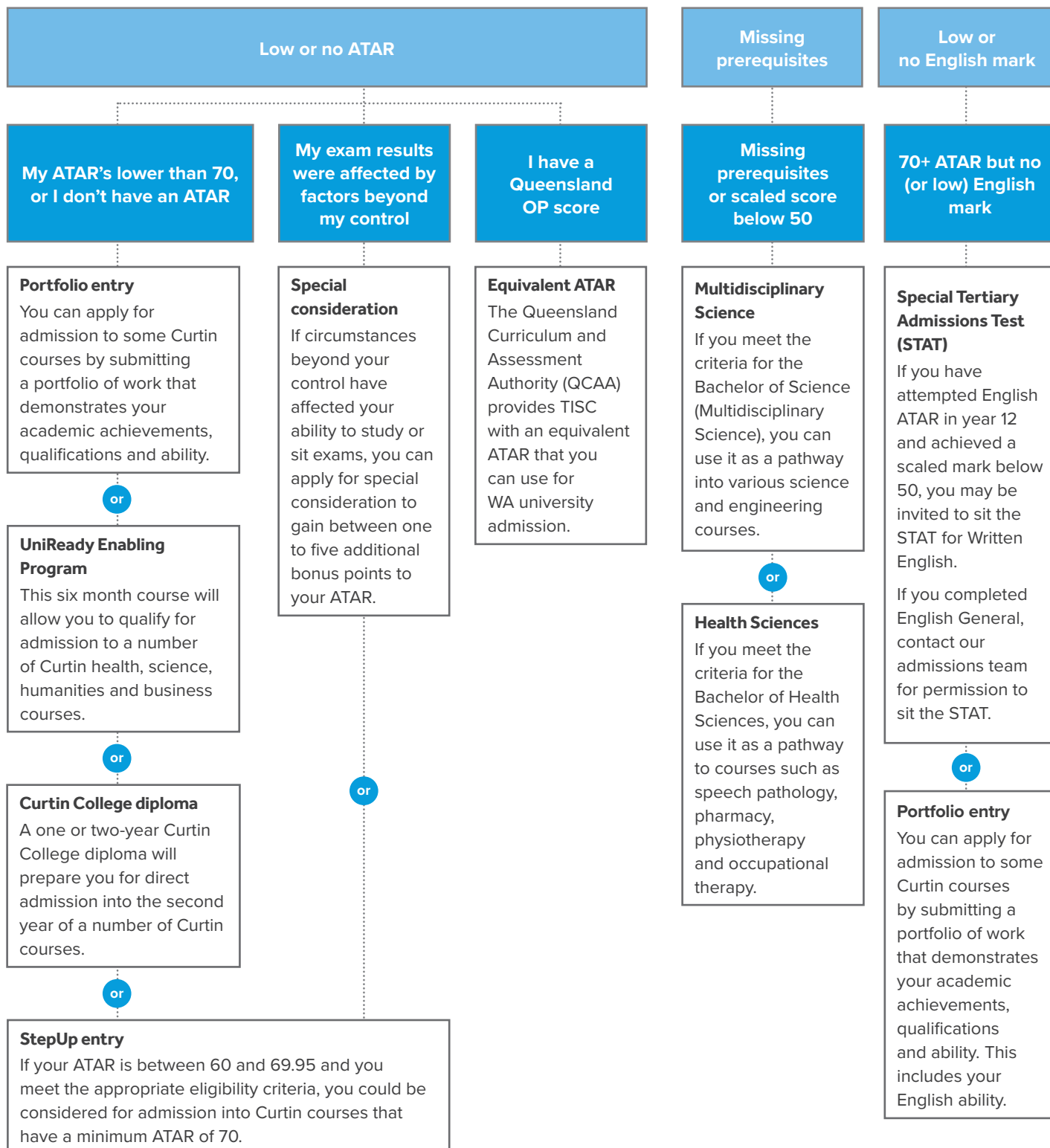
Web: international.curtin.edu.au

Pathways

There's more than one way to get into a Curtin course.

This diagram shows some common pathways that students take, but there are more.

Visit curtin.edu/pathways for all the ways you can gain entry to Curtin.



Common uni words

Course types

Bachelor degree

The standard university award recognised worldwide for successfully completing an undergraduate course.

- **Double degree:** Studying two complementary bachelor degrees concurrently. For example, Bachelor of Laws and Bachelor of Arts.
- **Honours:** Additional research and coursework at an advanced level.

Postgraduate degree

A higher degree qualification and subject specialisation that can be studied once you have completed a bachelor degree.

Undergraduate study

Education that leads to your first qualification from a university, usually a bachelor degree.

Course structure

Major

A series of more than eight units in the same area within a bachelor degree. A major includes at least two units at final-year level.

- **Double major:** Studying two majors within a degree course. For example, Bachelor of Commerce (Economics and Finance).

Minor or specialisation

A minor or specialisation is a set of four units in the same discipline. It may complement your bachelor degree or major, and can be from the same discipline as your bachelor degree or a different discipline. For example, you may study a Bachelor of Arts (Journalism) and complement this with a commerce specialisation such as Public Relations.

Professional placement/internship

Working in a professional environment to extend your knowledge and practical skills.

Stream

A series of six units in the same discipline.

Unit

A component of a course that covers one subject area in detail. A unit may comprise lectures, tutorials, class presentations, group work, computer lab sessions, case studies, workplace assignments and exams.

- **Core unit:** A compulsory unit, which is specified in the course outline.
- **Elective unit:** A unit that can be chosen from any discipline as long as you meet the prerequisites.
- **Optional unit:** A unit that you choose from a specified list provided in the course outline.

Course essentials

ATAR

The Australian Tertiary Admission Rank, used for allocating places in university courses.

- **Guaranteed ATAR:** A rank that guarantees you a place on the course provided you meet the course prerequisites and English proficiency requirements.
- **Minimum ATAR:** The lowest rank you need to be considered for entry to a course.

Desirable

A non-essential but recommended subject completed before starting a course.

Duration

The time it will take to complete the course if you study full-time.

Intake

The semester or trimester when you can begin studying the course.

Location

Curtin campuses that offer the course.

Prerequisite

A subject or unit you must complete before starting a course or taking a higher-level unit.

STAT

The Special Tertiary Admissions Test (STAT) is a national test for those who don't meet university admission criteria.

STAT can be used to meet entry criteria for some courses, or as a way to satisfy Curtin's English proficiency requirements if you haven't done so through year 12.

Visit tisc.edu.au/static/guide/stat.tisc.

Study mode

How much study you undertake in a semester or a trimester.

- **Domestic students:** Full-time study is three or four units per semester. Part-time study is one or two units per semester. Studying part-time reduces your weekly workload but extends the duration of your course.
- **International students:** International students studying in Australia on a student visa must study four units per semester for most courses. A small number of courses allow a study load of three units.

Other university terms

Advanced standing / credit for recognised learning

Recognition of any previous study or work experience you have that may exempt you from having to study some units of your degree.

Faculty

A teaching area comprising university schools and disciplines.

OUA

Open Universities Australia.

Semester

A 16-week study period. There are two semesters per calendar year.

TISC

The Tertiary Institutions Service Centre processes university applications on behalf of the four public Western Australian universities. It also administers STAT.

Trimester

A 14-week study period. There are three trimesters per calendar year.

WACE

Western Australian Certificate of Education.

Your scholarship options



A scholarship at Curtin can provide you with financial, academic and career support, giving you more opportunities to gain new skills and expand your horizons.

A scholarship is a sum of money or other financial assistance awarded to students to support their study. Scholarships are not loans – the money does not have to be repaid, provided you fulfil requirements such as academic performance.

Each scholarship has particular eligibility criteria, application procedures and closing dates. You can subscribe to receive email alerts when scholarships that match your criteria are open for applications.

Domestic students

There is a variety of scholarships available from Curtin. Some scholarships are offered for academic achievement, while others are designed to make university possible for students who face financial hardship.

scholarships.curtin.edu.au

International students

International students can access a range of merit-based and need-based scholarships including the Australia Awards Scholarships.

curtin.edu/schol-int

For more information

Curtin University

Kent St, Bentley
Western Australia 6102

Postal Address

GPO Box U1987
Perth Western Australia 6845

Domestic students

Tel: 1300 222 888
FAQ: future.connect.curtin.edu.au
Web: study.curtin.edu.au

International students

Tel: +61 8 9266 5888
FAQ: future.connect.curtin.edu.au
Email: study@curtin.edu.au
Web: international.curtin.edu.au

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youtube.com/curtinuniversity

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Some information in this publication may not apply to international applicants. International students studying in Australia on a student visa must study full-time and meet other entry requirements, and are

subject to international student fees. Domestic and international students studying outside Australia may have the choice of full-time, part-time and external study, depending on course availability and in-country requirements. Visit international.curtin.edu.au for more information.

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