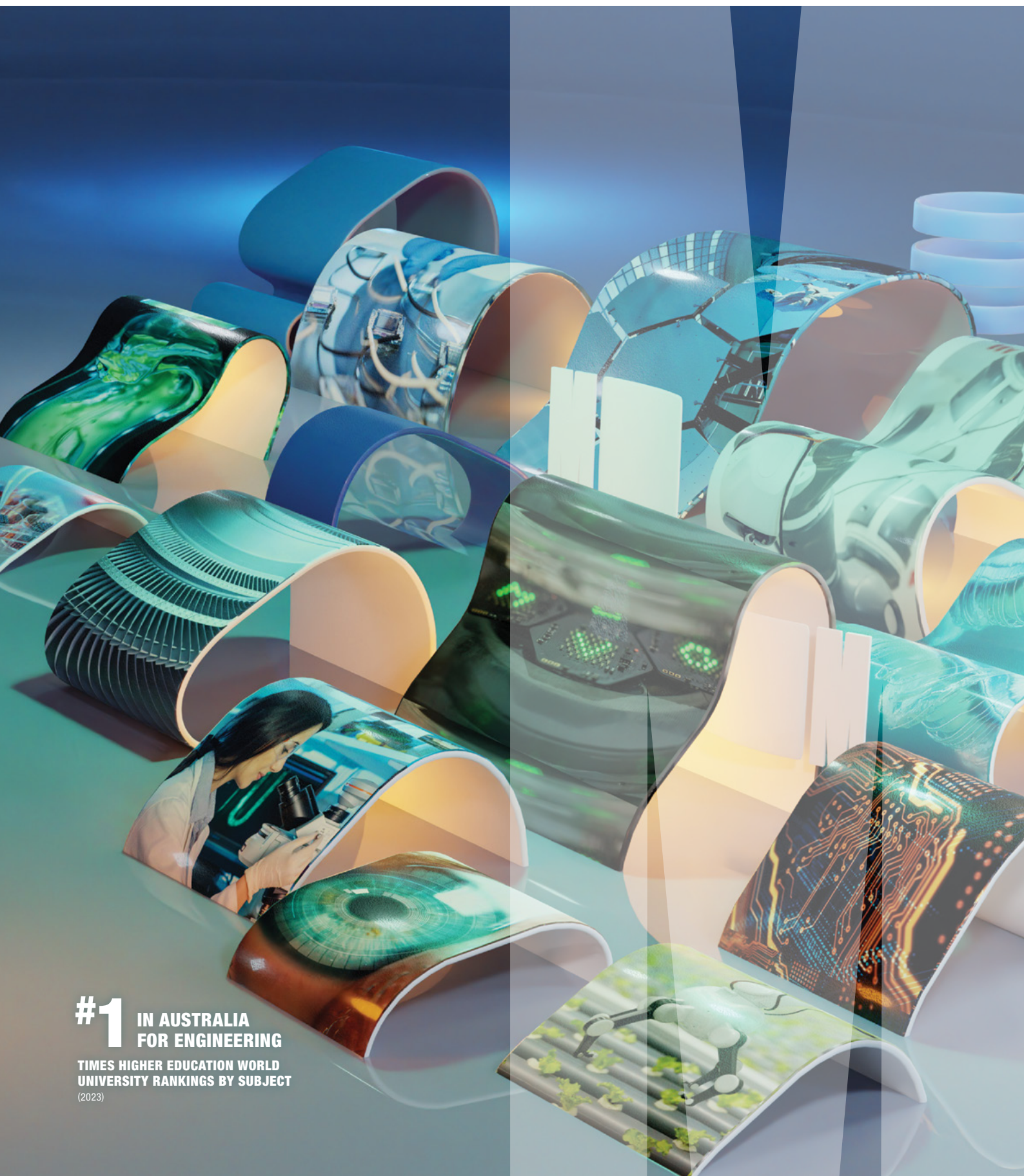


ENGINEERING

UNDERGRADUATE
COURSE GUIDE
2024

#1 IN AUSTRALIA
FOR ENGINEERING

TIMES HIGHER EDUCATION WORLD
UNIVERSITY RANKINGS BY SUBJECT
(2023)



MONASH ENGINEERS DESIGN THE FUTURE

Become part of a world-class team of engineers, driven by the passion and commitment to deliver sustainable solutions for today's global challenges – including climate, energy, transportation, water, health and communications.

Whether you aspire to change the world we live in, become a top CEO or dream of inventing the next big thing, at Monash Engineering you can shoot for the moon.

Kick-start your future at a global top 50 engineering school and graduate ready for a successful career.



MONASH UNIVERSITY recognises that its Australian campuses are located on the unceded lands of the people of the Kulin Nations, and pays its respects to their Elders, past and present.

WORLD RANKINGS

#44

IN THE WORLD
FOR ENGINEERING
AND TECHNOLOGY

Times Higher Education, 2023

#54

QS GLOBAL UNIVERSITY
EMPLOYABILITY
RANKINGS

2022

TOP 100

IN 15 ENGINEERING
SUBJECTS GLOBALLY

Academic Ranking of World Universities, 2022

A WORLDWIDE UNIVERSITY

9

CAMPUSES IN AUSTRALIA,
CHINA, INDIA, INDONESIA,
ITALY, MALAYSIA

100+

PARTNER UNIVERSITIES
ACROSS THE GLOBE

34K+

ENGINEERING
ALUMNI FROM MORE
THAN 75 COUNTRIES

2023

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Course information fast facts

Look for these icons on each course page for key information.

📍	Location
🕒	Duration
➡️	Intakes
📋	Requirements ¹
🎯	Specialist course

¹ Entry scores listed in the fast facts section are for domestic students only. For international entry requirements see page 30.

YOUR PATHWAY TO SUCCESS

Choose Monash Engineering and start engineering a successful future.

GET QUALIFIED

1

Our world class team of engineers will immerse you in engineering from day one. Become a fully accredited professional engineer in this four-year honours degree tailored to your future.

- Double degrees – earn two degrees with only one¹ extra year of study
- Common first year – giving you time to choose a specialisation²
- 10 engineering specialisations plus 10 minor study options
- Scholarships
- Professional accreditation

Find your voice, your squad, and your passion as you explore what's possible through teams, clubs, global exchange and research programs.

- Study abroad at one of our 100+ partner universities
- Join one of the 30+ student teams and clubs
- Mentor programs including peer mentors for all first year students
- Summer Research Program to get a taste for research
- Makerspaces and entrepreneurial programs – a place for innovation

2

FEED YOUR KNOWLEDGE, FUEL YOUR PASSION

Connect to our network of industry partners, alumni and leadership programs to secure your dream career.

- Co-op program – paid internships with industry partners
- Career ready series to help kick start your career
- Connections to our vast alumni network (34K+ across world)
- Monash Industry Team Initiative (MITI) – University-wide industry sponsored projects
- Work with industry on campus in the Industry Innovation Program

SECURE YOUR FUTURE

3

Be part of a global community, contribute to a better future.

change-it.monash.edu

¹ Additional 2.25 years for engineering and laws double degree.
² Biomedical engineering specialisation is selected from the first year

ENGINEER YOUR FUTURE

MAKE THE MOST OF YOUR OPTIONS AT MONASH

Engineering is a diverse profession with many options. That's why we've created an engineering degree that gives you maximum choice and flexibility.

Common first year

The Bachelor of Engineering (Honours) kicks off with a common first year², where you'll gain a better understanding of scientific and design fundamentals, and the interaction between engineering and society. You'll also get a taste of the ten engineering specialisations on offer before deciding which to pursue from the second year.

Double degrees

Many of our students study a double degree, combining engineering with another discipline area for flexibility and diversity. Whether it's architectural design, arts, biomedical science, commerce, computer science, design, information technology, law, pharmaceutical science or science, Monash allows you to study engineering while pursuing other interests.

Engineering minors

If you study a single degree, complement your specialisation with an engineering minor from a different discipline or emerging field of engineering. Explore your interests and expand your career opportunities.

Scholarships

Monash celebrates academic excellence and supports students who are disadvantaged. We offer a range of scholarships and awards to help ensure money and circumstances aren't barriers to you accessing a world leading engineering education.

For details and a full list of scholarships, bursaries and awards available, visit monash.edu/scholarships

Research experience

You can experience Monash Engineering's renowned research while studying your degree. Participate in innovative, interdisciplinary research through various student teams, such as Monash Motorsport, our undergraduate Summer Research Program, and in your final year project. You'll learn the latest concepts in engineering from lecturers who are leading researchers in their field.

Diversity and inclusion

Engineering is for everyone. Monash Engineering supports diversity and inclusion and provides a safe and supportive environment for all students to achieve their academic goals. Including offering mentoring and outreach programs for Indigenous students and a range of initiatives to empower girls to choose a career in engineering, there's events, mentor programs and a dedicated student team, Women Engineers at Monash (WEM).

Professional recognition

Monash Engineering degrees are accredited by various professional engineering bodies. Recognised by the Washington Accord, our graduates can work in any other signatory country including Canada, China, India, Japan, Singapore, UK and USA, without the need to requalify.

- Engineers Australia
- The Institution of Chemical Engineers (Bachelor of Chemical Engineering (Honours) only)
- Engineering Accreditation Council Malaysia (For programs offered in Monash Malaysia)
- Australian Computer Society (Bachelor of Software Engineering (Honours) only).

monash.edu/engineering/professional-accreditation



A CAREER IN ENGINEERING

Engineers are creative, imaginative, analytical and technical, with excellent teamwork skills. As an engineer, you'll apply science and mathematics in a practical way to design and develop new technologies and improve existing ones.

What do engineers do?

Consider a career in engineering if you:

- are curious about how things work
- have an interest in improving the quality of human life
- enjoy designing and building things
- like analysing and solving problems
- are interested in maths and science
- enjoy challenges
- are goal-oriented
- like working with lots of different people in multidisciplinary teams.

Engineers solve problems, figure out how things work and create solutions. They're key to the development of society and solving the challenges faced by our world, such as climate change, natural resource depletion, food shortages, supply of clean drinking water and increased demands on energy. Engineers possess a rare combination of skills and qualities that place them in demand in many industries. An engineer's career is diverse, interesting and can be anywhere in the world.

As a qualified engineer, you'll also be equipped to work in many areas outside of engineering, such as management, banking and consulting. Problem-solving and planning skills, combined with a focus on the future and continuous improvement, make engineers excellent business leaders.

Secure your future

An engineering degree from Monash University gives you a competitive edge. As a Monash Engineering graduate, you'll be a highly sought after industry professional when you first enter the workforce and throughout your career.

Career support

From day one, Monash sets you on the path to future career success. Access a range of programs, support and work-integrated learning experiences. Professional development and industry placements (internships) and multidisciplinary projects with leading companies means you'll graduate better prepared and work-ready.

Our Career Connect program gives you access to experienced coaches and industry based professionals. Take part in employability workshops, small group career conversations and, in your final year, one-on-one coaching.

Unlimited career options

Engineers design, build and test everything we use to create a liveable and sustainable world. Their unique skills are needed in nearly every industry. With hundreds of different types of engineering jobs the possibilities are endless.

Some of our graduates have gone on to successful careers as:

- Biomaterials and nanotechnology engineers in medical development companies
- Global development engineers for non-governmental organisations (NGOs)
- Chemical process engineers in the food and agriculture industry
- Project manager, consultant, and or industrial designer in building and construction
- Computer scientist and wireless network engineer in telecommunications
- Artificial Intelligence and software engineers in the defence force
- Capital works engineer in sustainability, water and energy field
- Executive Director of access and operations in a global mining company
- Robotics and avionics engineers for an international space agency
- Director of transport modelling and mapping for a government infrastructure authority
- Entrepreneur and business owner in a start-up tech company
- CEO and Chief Engineers in the automotive industry.

MONASH CARBON CAPTURE AND CONVERSION (MC³)

The MC³ student team are researching, innovating and designing carbon capture and conversion solutions in the fight against climate change. They won a US\$250K Student Award to help develop their concepts, competing in Elon Musk's XPRIZE For Carbon Removal.

\$118K

**AVERAGE AUSTRALIAN
ENGINEERING SALARY**

Adzuna Job Report, 2023.



**JOBS IN ENGINEERING ARE PREDICTED
TO GROW OVER THE NEXT FIVE YEARS
– TWICE AS FAST AS NON-STEM JOBS**

Employment Outlook – March 2022, Australian Government.

96.4%

**ENGINEERING GRADUATES ARE
IN FULL-TIME EMPLOYMENT
WITHIN FOUR MONTHS**

2022 Graduate Outcomes Survey – Longitudinal,
Quality Indicators for Learning and Teaching (QILT).





WORLD-CLASS FACILITIES

The engineering precinct at Monash University provides facilities that will enhance your personal learning experience.

Monash Makerspace

The Monash Makerspace provides a facility for our students, staff, alumni and industry partners to come together to build, design and create, and encourage entrepreneurial activities.

Linked to The Generator, our entrepreneurial platform, students have access to this creative, collaborative makerspace, allowing them to turn ideas into reality.

Woodside Building for Technology and Design

The Woodside Building for Technology and Design provides a world-class learning environment with the latest dynamic and interactive learning spaces, labs and technology. The five-storey, smart-technology enabled building is one of the world's most efficient and innovative teaching spaces and will foster innovation and collaboration – allowing students to explore, design, construct and investigate new technologies required for a sustainable energy future.

Monash Smart Manufacturing Hub

The Smart Manufacturing Hub is a co-creation ecosystem that brings together industry partners, researchers and students on campus, to deliver the future of manufacturing.

Some of the research facilities include:

- New Horizons Research Centre
- Monash Centre for Additive Manufacturing (MCAM)
- Woodside FutureLab
- The TITAN Microscope
- X-ray Analytical Platform
- Drone Discovery Platform
- National Drop Weight Impact Testing Facility.



Monash Makerspace is the home of our student teams initiative and the place for students to dream, design, make...and break.

monash.edu/engineering/makerspace

GRADUATE WORK-READY

At Monash we open your eyes to a world outside the classroom. Whether you want to unlock your leadership potential or start thinking like an entrepreneur, you'll have access to programs that leave you prepared for leadership, success and – most importantly – life.

Whilst academic capability is essential, employer's are looking for graduates who are highly-skilled, well-rounded individuals. Many place interpersonal and communication skills, critical reasoning and problem-solving, together with passion, at the top of their list.

Gain industry and professional experience, in the way that works best for you. Connect with industry on campus, undertake an internship with one of our partner organisations or collaborate on a real project for a company.

Co-operative Education Program

The Co-operative Education Program gives you a kick-start on your future engineering career. Undertake 3, 6 or 12 month full-time or part-time, paid internships with our industry partner organisations and gain practical, hands-on skills engineering skills that complement your studies. With Co-op internships you'll graduate job-ready with the skills, employment experience and a new professional network that sets you up for success.

🔗 monash.edu/engineering/coop

Career Ready Series

The Career Ready Series provides you with opportunities to extend your learning beyond the classroom, and stand out from the crowd as you move into the workforce. The Series provides a range of professional development events and activities that are focused on fine tuning your employability skills. It includes opportunities to engage with industry and alumni, and to participate in tailored workshops to maximise your graduate employment prospects.

🔗 monash.edu/engineering/career-ready-series

Continuous Professional Development

The Continuous Professional Development (CPD) unit is a compulsory requirement for our Engineering students. You'll create an online collection of all work, volunteering, and personal and professional development opportunities you experience throughout your time studying your degree. There are many opportunities to help you develop these skills and experiences and build your CPD hours to complete the minimum of 420 hours required. When you graduate, your CPD Completion Certificate makes an impressive addition to your CV, and it also supports Engineers Australia certification.

🔗 monash.edu/engineering/CPD

Summer Research Program

At Monash, we undertake innovative, multidisciplinary research addressing national and international priorities. As an undergraduate engineering student, you'll have the opportunity to complete 12 weeks of paid research training over the University's summer break, which counts towards your Continuous Professional Development requirements. You'll work closely with world-leading researchers and contribute to real research projects.

🔗 monash.edu/engineering/summer-research-program

Industry Innovation Program

The Industry Innovation Program (IIP) is a new scholarship-based industry training program that allows you to gain valuable work experience while staying on campus. You will work on an innovation project based at the Monash Smart Manufacturing Hub in collaboration with an industry partner. This flexible 6 or 12 month program provides a supportive environment to obtain real industry project experience and develop innovation, problem-solving and employability skills to further your career.

🔗 monash.edu/smart-manufacturing-hub/industry-innovation-program

Mentoring

Mentoring can offer support and encouragement to help you succeed, enjoy your studies and gain insights into a career in engineering. The Friends and Mentors in Engineering (FaME) group mentoring program helps new students settle into university, make friends and get the best out of study and life at Monash. The alumni group mentoring program is available in your final years of study. Meet successful industry alumni who've had a similar student journey as you, seek career advice and learn from their experiences.

🔗 monash.edu/engineering/mentoring

Monash Industry Team Initiative (MITI)

The MITI program provides an invaluable experience that'll equip you for life's challenges by offering insights into the business world, practical learning, leadership and teamwork opportunities. Working as part of a multidisciplinary team, you'll be placed alongside industry experts and given a challenging, well-defined real-world project to deliver, pushing you to use all of your problem-solving, innovation and design skills.

🔗 miti.monash.edu

Entrepreneurial programs

Creativity and entrepreneurialism are at the centre of engineering design education at Monash. You can access dedicated, collaborative design and build spaces to take an idea to reality. The University's entrepreneurial initiative, The Generator, provides experiential education, mentors and seed funding to support you and your startup or social enterprise on your entrepreneurial journey.

🔗 monash.edu/entrepreneurship

Study abroad and exchange

Spending part of your degree overseas on exchange* will expose you to new ways of learning and living. You'll build an international network, develop independence and enjoy a cross-cultural experience. Monash has exchange agreements with more than 150 universities in over 30 countries. You can also study at Monash Malaysia and students from Monash Malaysia can apply to spend a semester at Clayton, Australia. Or experience the transformative impact of Monash's flagship international study initiative, the Global Immersion Guarantee (GIG).

🔗 monash.edu/study-abroad/outbound

SET YOURSELF UP FOR SUCCESS WITH A CO-OP INTERNSHIP

Five Monash Engineering undergraduate students undertook a summer internship at Amazon Prime Air, in Seattle, USA. The interns worked with technical mentors, managers, and fellow interns to innovate and create solutions for Amazon's drone delivery service. They gained hands-on learning and experience working with cutting-edge technologies and tools unique to the multinational technology company.

Chris Yu, fifth year student studying Mechatronics Engineering (AI) and Computational Science, decided to do a Co-op internship to get a better understanding of what he wanted to do with his career.

"I worked on a project to securely log and compress video images from drone flights so they can be transferred over PCIEs and stored for future use. The stand out moment of my internship was producing my first demo. Following the research, I developed existing code and ran performance tests to identify and nominate a candidate solution. The proposed solution I produced was vital and will contribute to the final product in the next major release. After my time at Amazon, working alongside some incredible people, it has motivated me to strive for better – there's a lot I want to achieve in my lifetime."



The Monash students have worked and contributed to our perception system and how we code it, our flight safety calculations, and also our business system programs where Prime Air has to integrate into the Amazon ecosystem - not a simple thing. Their fresh view has been fantastic.

The feedback from our managers and leaders is: the students were able, with instruction, to bolt in and to work through projects and add value to us. And hopefully we added value to their experience along the way."

DAVID CARBON

Vice President
Prime Air at Amazon



98%

OF STUDENTS RECEIVE
JOB OFFERS FROM THEIR
CO-OP EMPLOYER



Discover more about our paid
Co-operative internship program at

monash.edu/engineering/coop

STUDENT TEAMS AND CLUBS

Student-led teams, clubs and societies give you the chance to get more out of your university experience. Gain a head start in your career through work-based learning. Develop hands-on skills, solve real problems and compete on the world stage. Form lasting friendships, industry connections, and develop your professional skills whilst pursuing areas you're passionate about.

Joining a student team will set you up for career success. It's how you distinguish yourself from the crowd and demonstrate to future employers that you can translate your study into practice. You'll get to experience authentic, real-world projects and challenges. Work in diverse, multi-disciplinary teams to deliver innovative products or drive change to make the world a better place.

Our student-run clubs and societies provide opportunities to connect with like-minded people, learn new skills and network with professional engineers to expand your circles – and your employment opportunities. Build strong links with the local engineering industry and make use of innovative facilities and leading research. Some of the groups available are:

Monash Engineering Students' Society (MESS)

MESS is a not-for-profit organisation that'll enrich your Monash experience through social, academic and industry experiences that are engaging and fun. MESS also produces an annual engineering careers guide – a useful resource to help you secure post study employment.

Monash Motorsport (MMS)

Join the MMS team and help conceive, design, build and race a formula-style racing car. The MMS team has a mission to create the most competitive and well-designed formula style race cars possible. They also developed Australia's first competition-ready Formula Student Driverless car.

Monash Nova Rover

Ranked #2 in the world, Monash Nova Rover compete in the University Rover Challenge against teams from around the world. The annual robotics competition held at the Mars Desert Research Station in the United States, challenges teams to design and build the next generation of Mars and Lunar rovers. The team is made up of students from Engineering, Science, IT, Law, Business and Medicine.

Monash Solar Decathlon Team

A multidisciplinary team of Engineering, Science and Art, Design and Architecture students whose mission is to create practical net-zero designs that give back to the environment and the community. The team has competed and won international competitions for their sustainable and innovative designs.

Robogals Monash

Robogals Monash is a not-for-profit organisation that aims to encourage more young women to pursue STEM career opportunities, with a focus on engineering. Robogals offers opportunities to strengthen your communication and leadership skills, and gives volunteers access to professional development opportunities within an international organisation.

Women in Engineering at Monash (WEM)

WEM supports, inspires and connects a network of women-identifying engineers at Monash. The society delivers a variety of events and industry guides to give you easy access to information that helps you make the most of your uni experience, and make a smooth transition into the workplace.

Other engineering clubs, teams and societies you can be involved with are:

- Engineers Without Borders
- Gay and Lesbian Engineers at Monash
- Materials Engineering and Science Society
- Mechatronics Engineering Clayton Club
- Monash Aerospace and Mechanical Engineering Club
- Monash Association of Civil Engineering Students
- Monash Boring, Excavation, Shovelling and Tunneling Team
- Monash BrewLab
- Monash Carbon Capture and Conversion (MC³)
- Monash Connected Autonomous Vehicle
- Monash DeepNeuron
- Monash Engineering and Pharmaceutical Science Society
- Monash Environmental Engineering Society
- Monash Forge
- Monash High Powered Rocketry
- Monash Human Power
- Monash Motorsport Malaysia
- Monash Pilot Processes
- Monash Uncrewed Aerial Systems
- Monash Young MedTech Innovators
- Precious Plastic Monash
- Shell Eco Marathon Team Monash
- Society of Monash Electrical Engineers
- Society of Monash University Chemical Engineers
- Sustainable Water Monash
- Transport Engineers at Monash.

MONASH HPR

Monash High Powered Rocketry (HPR) is a student team dedicated to the design, analysis and construction of high-powered rockets. They compete in the largest rocketry competition in the world, Spaceport America Cup.



For information on all of our student teams and clubs visit

monash.edu/engineering/student-experience/teams-and-clubs

OUR COURSES

Bachelor of Engineering (Honours) Degree

At Monash you can become a fully qualified and accredited engineer in just four years. Your degree kicks off with a common first year that allows you to explore the ten engineering disciplines¹ before specialising from second year. Complement your specialisation with a minor² in emerging engineering fields and expand your career opportunities. See page 27.

We also offer you the opportunity to broaden your options with a double degree, which can be completed in just one additional year. See page 14.

MASTER'S ACCELERATED PATHWAY

Bachelor of Engineering (Honours) and Master of Engineering

Graduate with a bachelor's degree plus an expert master's degree in just five years. This is an accelerated pathway program for high-achieving students to be on track to earn both a Bachelor of Engineering (Honours) and a Master of Engineering degree. You'll have an outstanding practical and theoretical preparation for a career in engineering, with a rich selection of specialist electives and strong links to industry.

The master's will extend your technical knowledge and provide you with advanced leadership and complex problem solving skills. Designed to foster innovative thinking, entrepreneurship and professional development. See page 26.

✓ monash.edu/engineering/masters-accelerated-pathway

OTHER GRADUATE STUDY OPTIONS

Whether you want to gain a professional edge, or are looking to explore your specialisation at an advanced level or pursue research interests, graduate study will take your qualification to the next level.

- Master of Engineering
- Master of Professional Engineering
- Master of Engineering Science by Research
- Graduate Research Degree (PhD)
- Industry Doctoral Program

For more information on all the graduate study options available visit:

✓ monash.edu/engineering/future-students

10 SPECIALISATIONS



Aerospace engineering



Civil engineering



Environmental engineering



Robotics and Mechatronics engineering



Biomedical engineering



Electrical and Computer Systems engineering



Materials engineering



Software engineering



Chemical engineering



Mechanical engineering

10 MINORS



Artificial intelligence in engineering



Environmental engineering



Mining engineering



Sustainable engineering



Civil engineering



Engineering entrepreneurship



Renewable energy engineering



Computational engineering



Micro and nano technologies



Smart manufacturing



¹ The common first year is not available for the biomedical engineering specialisation. Apply directly to the Bachelor of Biomedical Engineering if you intend to choose this specialisation.
² Minors are for single degree course only and not available in some specialisations.

DOUBLE YOUR CAREER OPTIONS

Earn two degrees with only one¹ extra year of study and broaden your career opportunities. Combining engineering with another degree gives you a distinct set of skills and helps you stand out in today’s competitive job market.

Employers often seek engineering graduates with expertise in other disciplines and are impressed by the breadth of knowledge and insight in double-degree graduates. Combine your engineering degree with commerce, information technology, science and more to pursue a career in either area, or to take up one of the many opportunities emerging at the intersection of disciplines. An engineering double degree offers diversity, more career choices and flexibility.

Architectural Design

The building industry needs engineering professionals with strong architectural knowledge. The combination of architectural design with civil engineering is an exploration of creative solutions to a wide variety of engineering and social problems.

You'll graduate with valuable skills for transforming the built environment, from the design of buildings or bridges to renovating existing structures to work more efficiently. The ability to provide solutions through creative thinking and realistic applications will make you attractive to architectural and engineering firms in Australia and overseas.



Arts

Combining an engineering degree with an arts degree provides complementary skills in technology and communications. You'll develop the transferable skills employers are looking for: communication, teamwork, research and critical thinking.

Arts at Monash provides your comprehensive gateway to about 40 areas of study across the arts, humanities and social sciences. With this dual degree you'll have a portfolio uniquely tailored to meet your interests and aspirations.



Biomedical Science

If you're eager to explore a career in biological/biomedical engineering, consider a double degree in engineering and biomedical science. Advances in biological sciences and demand for technological solutions are creating opportunities for engineers. In the coming years engineering will be transformed, as it parallels and fuses with developments in biomedical science.



Commerce

Do you dream of making it big in the business world? If so, engineering and commerce is a powerful combination. Many CEOs of major corporations have engineering qualifications. People with sound business skills and a strong technological background are consistently in demand across many industries and organisations.



Computer Science

Computer science provides solutions to the ever-increasing information challenges in the modern world. Industry needs people who can extract and analyse information from the massive datasets generated by engineering processes and devices. Big data is the new challenge and opportunity in engineering practice across industries from construction and manufacturing, to transport and the energy sector. This double degree integrates theoretical and practical skills to solve engineering problems and create innovative solutions across the IT spectrum, from hardware to software.



Design²

Have an eye for form and function? Like to build things? Consider combining mechanical engineering with design to become a product design engineer. Product design engineers design and develop manufactured products that are functional, ergonomic, beautiful and well-engineered.

This double degree integrates the technical and project management skills of an engineer with the creativity and manufacturing know-how of an industrial designer.



Information Technology

In an age of increasing technological advancements, the synergy between engineering and information technology (IT) will only become stronger. IT underpins engineering practice in all disciplines, and industry needs graduates with skills and expertise spanning both. You could do anything from designing a stunning visualisation of engineering data, to building an app for data collection, to setting up the business IT processes to deliver an engineering product via the internet. This double degree combines creative and problem-solving skills to use IT in engineering applications.



Laws (Honours)¹

An engineering and laws double degree bridges the gap between technological and legal issues. This double degree combination produces engineers who are sensitive to the legal, corporate and political implications of technology and its applications. As an engineering and law graduate, you're eligible to practise as a solicitor; alternatively, you might join the legal team of an engineering, manufacturing or technology firm.



Pharmaceutical Science³

There's an increasing demand for pharmaceutical scientists with the expertise to take products from the design and formulation stage through to manufacturing. Chemical engineers can design, run and troubleshoot production facilities, but their training typically excludes the skills to develop pharmaceutical and related products. Similarly, formulation scientists can invent and test products such as pharmaceuticals, food and cosmetics, but they lack the know-how to manage the product process beyond the laboratory stage. This double degree combines chemical engineering and pharmaceutical science to produce professionals capable of covering the full spectrum of the pharmaceutical product design and development processes.



Science

Engineering is concerned with the application of science; however many engineers are fascinated by scientific investigation and eager to enhance their understanding of the pure sciences. You may choose to combine engineering with food science or technology, or explore the fundamentals of the cosmos through astrophysics. Or you may be interested in the most fascinating machine of all – the human body.



For more information, visit monash.edu/engineering/double-degrees

DOUBLE DEGREE COMBINATIONS

The following table shows double degree combinations and the Engineering specialisations with which they're available:

	Architectural Design	Arts	Biomedical Science	Commerce	Computer Science	Design ²	IT	Laws (Honours) ¹	Pharmaceutical Science ³	Science
Aerospace		•		•				•		•
Chemical		•	•	•				•	•	•
Civil	•	•	•	•				•		•
Electrical and computer systems		•	•	•	•		•	•		•
Environmental		•		•						•
Materials		•	•	•				•		•
Mechanical		•	•	•		•		•		•
Robotics and Mechatronics		•		•						•
Software		•		•	•		•			•

1 Additional 2.25 years for engineering and laws double degree.
2 Industrial design only.
3 Formulation science only.



“

I chose to study engineering at Monash because it enabled me to complete a double degree in atmospheric science and software engineering. Graduating with two degrees gives me more flexibility to pursue a wider range of career opportunities.”

LLIO VERNON

Bachelor Software Engineering (Honours) and Bachelor of Science
Graduate Data Scientist, Asahi Beverages
Manager, Bio-Acoustic Monitoring, Monash DeepNeuron



	Clayton
	4 years full-time 8 years part-time
	February and July
	ATAR: 85 ¹
	IB: 31 ¹
	MG: 75
	Specialist

DEGREE AWARDED

Bachelor of Aerospace Engineering (Honours)

DOUBLE DEGREES

- Arts
- Commerce
- Laws (Honours)
- Science

MINORS

- Artificial intelligence in engineering
- Computational engineering
- Engineering entrepreneurship
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.

AEROSPACE ENGINEERING

Aerospace engineering is concerned with the design, airworthiness, development and maintenance of flight vehicles. It's a multidisciplinary combination of aerodynamics, aero-structures, avionics, propulsion, materials engineering and computational simulation.

As an aerospace engineer, you'll have the skills to tackle many of tomorrow's global challenges. You may be involved in the creation of a more environmentally-friendly aircraft, or even help build a vehicle capable of exploring our solar system and beyond. Project work includes the use of wind tunnels for aerodynamic testing, computational modelling for predicting structural behaviour, advanced manufacturing, and materials and structural testing.

Career options

When you graduate you could work in aircraft design and maintenance, aerospace control systems, aerodynamics, sustainable energy and conservation, lightweight materials, big data analytics, or new manufacturing techniques. You could join a large aerospace company or a manufacturer that contracts to the aerospace industry. Or work at an airline, a government aerospace laboratory or research centre. Formula One teams also employ aerospace engineers. With the establishment of the Australian Space Agency, you could work with one of the many new space launch or satellite startups in Australia. You could also follow in the footsteps of Monash aerospace alumni and work at an international space agency or multinational. Your training will also equip you to pursue a career in management, consulting or finance. Join a thrilling profession in the midst of developing the next generation of flight vehicles.

The Boeing 787 Dreamliner, the Falcon Heavy rocket, and the Mars Perseverance Rover are just some of the advances led by aerospace engineers. Career specialisations include:

- aircraft design and testing
- avionics and control systems
- airport operations and management
- aircraft fleet management
- satellite and launch systems engineering
- research and development
- defence industries
- renewable energy
- transportation aerodynamics
- building and structure design and testing.

BIOMEDICAL ENGINEERING

Biomedical engineers apply engineering design skills to medical and biological sciences for the purpose of improving people's health. X-rays, cardiac pacemakers, ventilators and artificial joints – these are just some of the critical technologies used everyday to save lives and promote better health outcomes, and were all designed by biomedical engineers.

As a biomedical engineer, you'll bridge the gap between medicine and technology to improve diagnostics, monitoring and therapy, and create new medical instruments and devices. Whether you design new 3D-printed prosthetics, use biomaterials to repair and regenerate cells, apply AI principles to advanced monitoring tools, or build your own start-up in the med-tech field, you'll make a powerful impact on patients' treatment, recovery and quality-of-life as a biomedical engineer.

At Monash, you'll be equipped with strong clinical, technical and regulatory foundations in professional biomedical engineering practice, taught by leading academics in physiology, anatomy, molecular biology, materials science, electrical, mechanical and chemical engineering.

With our network of industry partners, you'll have opportunities to build your career and gain practical experience before you graduate, while the Australian-first Victorian Heart Hospital, located on the Clayton campus offers exciting opportunities to pursue biomedical engineering research.

Play a leading role in transforming 21st century healthcare, and change millions of lives around the world for the better by studying biomedical engineering.

Career options

When you graduate as a biomedical engineer, you'll find exciting and rewarding opportunities in the following areas:

- medical equipment and device design and manufacturing
- medical and healthcare services
- pharmaceutical design and manufacturing
- biomedical instrumentation industries
- prosthetics
- research and development
- med-tech entrepreneurship
- engineering consultancy.



	Clayton
	4 years full-time 8 years part-time
	February
	ATAR: 85.85 ¹
	IB: 31.25
	MG: 75
	Specialist

DEGREE AWARDED

Bachelor of Biomedical Engineering (Honours)

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.



Discover more at
**[monash.edu/engineering/
specialisations/biomedical](https://monash.edu/engineering/specialisations/biomedical)**



Discover more at
**[monash.edu/engineering/
specialisations/aerospace](https://monash.edu/engineering/specialisations/aerospace)**



Being part of the Monash High Powered Rocketry team has impacted my university experience in many positive ways. It has provided me an opportunity to develop hands-on skills, work in multi-disciplinary teams to solve real problems and compete on the world stage. Further, it has allowed me to form life-long friendships, broaden my network, advance my professional skills and enhance my leadership skills."

ALEXANDER UNMACK

Bachelor of Aerospace Engineering (Honours) and
Bachelor of Commerce
Safety Officer, Monash High Powered Rocketry



I chose the Biomedical specialisation mainly for the balance between both my interests in biology and maths and the problem-solving aspect of engineering. It has always been a passion of mine to work in the health industry in the future and make a difference in people's lives through improving their quality of life, and it's exciting to know that when I graduate, I will be able to do exactly that."

CHARMAINE YEO

Bachelor of Biomedical Engineering (Honours)
HR Co-Lead and Business and Media team, Monash Nova Rover
Marketing Officer, Monash Young MedTech Innovators
Student Mentor, Access Monash Mentoring Program



📍	Clayton, Malaysia
🕒	4 years full-time 8 years part-time
➡️	February and July
📊	ATAR: 85 ¹
	IB: 31 ¹
	MG: 75
🎯	Specialist

DEGREE AWARDED

Bachelor of Chemical Engineering (Honours)

DOUBLE DEGREES

- Arts
- Biomedical Science
- Commerce
- Laws (Honours)
- Pharmaceutical Science
- Science

MINORS

- Artificial intelligence in engineering
- Computational engineering
- Engineering entrepreneurship
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

1 The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.
2 Refer to page 28 for Master's Accelerated Pathway entry requirements.



Discover more at
monash.edu/engineering/specialisations/chemical

CHEMICAL ENGINEERING

Chemical engineering blends chemistry with engineering and other fields including biological science, environmental science, nanotechnology, pharmaceutical science, mathematical modelling, artificial intelligence and digitalisation, mineral processing, management and economics. Many everyday items involve chemical engineering during some stage of their production: pharmaceuticals, computer chips, mobile phones, catalysts, food and water, and our fossil fuel and renewable energy sources, to name just a few.

Chemical engineers invent, develop, design and improve the sustainability of processes that convert raw materials and wastes into useful products, with minimal environmental impact. They're also involved with pollution control, energy generation and conservation, recovering energy from waste and renewable resources, and protection of the environment.

A selection of high-achieving students are given the opportunity to undertake integrated industrial training in their final year. You'll have the benefit of expert industry lecturers teaching several units in third and fourth year, in addition to frequent industry guest lecturers in all year levels. You can also take your studies further with the Master of Biological Engineering² accelerated pathway. Advance your skills and career opportunities with only one extra year of study.

Career options

As a chemical engineer, you can:

- develop alternative fuels and renewable sources for chemicals, pharmaceuticals and power production
- design, develop or improve industrial processes and equipment for large-scale chemical and biochemical manufacturing
- design processes to capture carbon to combat global warming
- plan and test methods of manufacturing
- improve energy efficiency or reduce water and resource consumption at manufacturing sites
- develop sustainable methods for the upcycling of byproducts and waste from manufacturing processes
- devise green production processes that are safe, efficient, profitable and environmentally sound
- research naturally-occurring chemical reactions so that these processes can be copied for human benefit
- conduct environmental impact studies
- develop and implement lower emission production technologies
- research and develop new processes and products including mathematical modelling, artificial intelligence and digitalisation
- design, develop and use advanced and renewable materials.



My studies have opened doors to a lot of new skills and opportunities. During my undergraduate degree I did an internship with the Monash Woodside Energy Partnership, which introduced me to research concepts and led me to commencing a PhD with industry.

I get the best of both worlds. I work with industry and academics at Monash. Everything that we've done is actually so hands-on and we get to see the result of our work much earlier. It's been great seeing commercial projects come to life."

ROMALYA RANASINGHE

Industry Doctoral Program (Industry PhD)
Bachelor of Chemical Engineering (Honours)
Vice President, Monash Pilot Processes team

CIVIL ENGINEERING

Civil engineers design and improve infrastructure systems and processes that allow humans and nature to coexist with minimal impact. Modern society couldn't function without them. We need civil engineers to design and build higher-capacity transportation systems. We need them to construct larger commercial and industrial complexes. We need them for water supply and pollution control.

We need efficient, cost-effective and innovative repair or replacement of civil infrastructure such as roads, bridges and buildings. At Monash we help you prepare for your civil engineering career early, learning the fundamentals and exploring emerging technologies, such as AI, 3D printing and robotics. You will also have the opportunity to gain industry experience in the major fields.

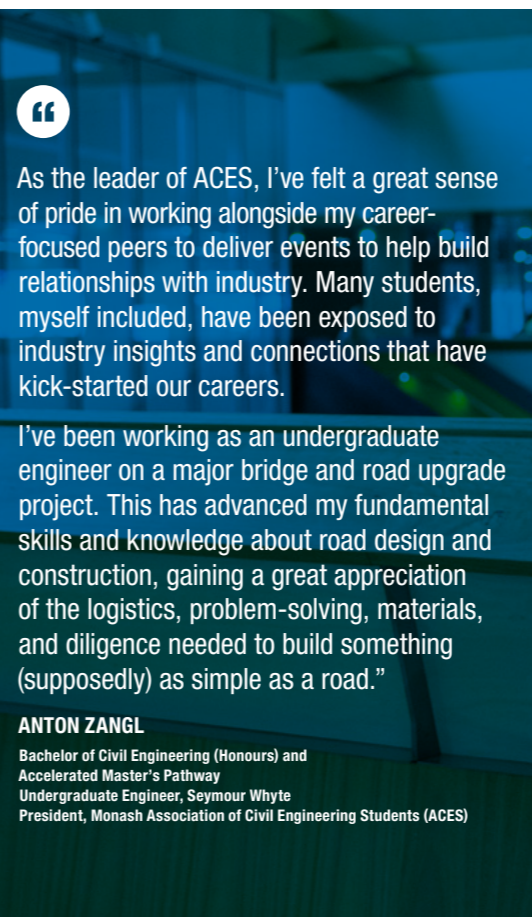
As a civil engineer, you can be involved in:

- **Structural** – design and oversee construction of buildings, bridges, airports, railways, commercial complexes, towers, offshore platforms, and tunnels. Ensure structures remain sound under extreme conditions such as heavy traffic, high winds and earthquakes.
- **Water** – plan and manage water supply and drainage systems for communities, agriculture, and industry. Develop projects to control flood waters, design dams, spillways, and pipe networks. Manage rivers and develop systems to collect and treat wastewater, and develop urban water systems.
- **Transport** – plan for the future travel needs of cities and rural areas. Investigate alternative and sustainable transport technologies including electric and autonomous connected vehicles to make existing road and traffic systems safer, more efficient, and user-focused.
- **Geomechanics** – design and analysis of foundations and support structures, slopes, waste containment facilities, dams and tunnels, as well as engineering of geomaterials for infrastructure projects.

Career options

Graduating as a civil engineer, you'll find challenging and rewarding opportunities in the following areas:

- private industry and government infrastructure
- humanitarian engineering and sustainable development
- construction and mining
- roads and traffic industries
- marine and resort developments property and land development consulting firms
- environmental and renewable energy sectors.



As the leader of ACES, I've felt a great sense of pride in working alongside my career-focused peers to deliver events to help build relationships with industry. Many students, myself included, have been exposed to industry insights and connections that have kick-started our careers.

I've been working as an undergraduate engineer on a major bridge and road upgrade project. This has advanced my fundamental skills and knowledge about road design and construction, gaining a great appreciation of the logistics, problem-solving, materials, and diligence needed to build something (supposedly) as simple as a road."

ANTON ZANGL

Bachelor of Civil Engineering (Honours) and Accelerated Master's Pathway
Undergraduate Engineer, Seymour Whyte
President, Monash Association of Civil Engineering Students (ACES)



📍	Clayton, Malaysia
🕒	4 years full-time 8 years part-time
➡️	February and July
📊	ATAR: 85 ¹
	IB: 31 ¹
	MG: 75
🎯	Specialist

DEGREE AWARDED

Bachelor of Civil Engineering (Honours)

DOUBLE DEGREES

- Architectural Design
- Arts
- Biomedical Science
- Commerce
- Laws (Honours)
- Science

MINORS

- Artificial intelligence in engineering
- Computational engineering
- Engineering entrepreneurship
- Environmental engineering
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

1 The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.



Discover more at
monash.edu/engineering/specialisations/civil

Clayton, Malaysia

4 years full-time
8 years part-time

February and July

ATAR: 85¹
IB: 31¹
MG: 75

Specialist

DEGREE AWARDED
Bachelor of Electrical and Computer Systems Engineering (Honours)

- DOUBLE DEGREES**
- Arts
 - Biomedical Science
 - Commerce
 - Computer Science
 - Information Technology
 - Laws (Honours)
 - Science

- MINORS**
- Artificial intelligence in engineering
 - Computational engineering
 - Engineering entrepreneurship
 - Micro and nano technologies
 - Mining engineering
 - Renewable energy engineering
 - Smart manufacturing
 - Sustainable engineering

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.

Discover more at monash.edu/engineering/specialisations/ecse

ELECTRICAL AND COMPUTER SYSTEMS ENGINEERING

Electrical and computer systems engineering is an extremely diverse field, encompassing biomedical, computer systems, electronics, electrical power, AI, robotics and telecommunications. Electrical and computer systems engineers investigate, plan, design, develop, construct, test, market and maintain a wide range of products and systems.

Monash will give you the hands-on training and theoretical insight you need for an exciting future as an electrical and computer systems engineer.

You'll experience industry-standard reprogrammable chips in the laboratories from first year onwards. By third year you'll be building miniaturised machines with very powerful processing on board. In fourth year you may apply this knowledge to a 'product' of your own.

Career options

As an electrical and computer systems engineer, you can design and develop digital products such as smartphones, virtual reality systems or computer games, or maybe robotic medical devices to assist in surgery and rehabilitation. Many Monash graduates work in large public and private telecommunications, manufacturing and electrical-power companies. Others work for defence and intelligence organisations. You could also work in banking and finance, or with any organisation that creates, stores, encodes and transmits big data or manages complex systems.

- You could work locally or internationally in a wide range of industries, including:
- power generation
 - industrial and power electronics
 - wireless communications
 - artificial intelligence
 - optical communications
 - the 'Internet of Things'
 - embedded systems
 - computer programming
 - robotics
 - healthcare.



Monash offers a lot more than just your degree. Make sure to get involved with the clubs and societies, summer research and check out the study abroad opportunities offered.

Going on exchange (twice) has been my favourite experience. It is an awesome opportunity. I really enjoyed being able to study abroad at the Monash Malaysia campus and The University of Colorado. Both gave me the opportunity to experience a different way of living, and I was able to study units that were not offered in my degree such as quantum computation."

SCOTT MOORE
Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Computer Science
Summer Research Program Scholarship

ENVIRONMENTAL ENGINEERING

Few branches of engineering have such a profound impact on our health, quality of life and the future wellbeing of the planet as environmental engineering. It's all about the implementation and management of solutions and programs in keeping with the principles of sustainable development and humanitarian engineering. It involves reducing energy and resource use and both minimising and managing waste and pollution, while providing the community with the development opportunities it needs to grow.

Environmental engineering encompasses water and air-pollution control, recycling, water supply, waste disposal, land management, transport and the built environment, process engineering and public health issues.

Career options

Environmental problems exist in all countries and industries, so your opportunities are broad and far-reaching. You could work in air-pollution control, water supply, land management, impact assessment, hazardous-waste management, energy production, stormwater and wastewater management, environmental management systems and much more.

Organisations employing environmental engineers include:

- power generation
- engineering consulting firms
- industries that need cleaner production systems
- private and municipal agencies that supply drinking water and treat wastewater
- companies treating and disposing of hazardous waste
- environmental agencies and companies responsible for mine-site rehabilitation
- organisations helping to account for carbon and implementing low-carbon solutions
- government agencies monitoring and regulating environmental issues
- universities that teach and conduct sustainability research
- not for profit and international agencies that aid developing nations.



I chose Environmental Engineering because I have a strong passion for sustainability. I enjoy working with natural environments and helping manage them to be in the best possible condition for our future generations. My degree exposed me to a wide range of disciplines including water scarcity, building science, contamination and environmental management systems. Researching and learning about these areas helped me discover my passion for hydrology.

The highlight of my course was getting to know my lecturers and peers because they all brought such a strong passion for sustainability, both inside and outside the classroom."

JULIA TAN
Bachelor of Environmental Engineering (Honours) and Bachelor of Science
Graduate Hydrologist, HARC
Access and Empathy Lead, Monash Solar Decathlon team



Clayton

4 years full-time
8 years part-time

February and July

ATAR: 85¹
IB: 31¹
MG: 75

Specialist

DEGREE AWARDED
Bachelor of Environmental Engineering (Honours)

- DOUBLE DEGREES**
- Arts
 - Commerce
 - Science

- MINORS**
- Artificial intelligence in engineering
 - Civil engineering
 - Computational engineering
 - Engineering entrepreneurship
 - Micro and nano technologies
 - Mining engineering
 - Renewable energy engineering
 - Smart manufacturing

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.

Discover more at monash.edu/engineering/specialisations/environmental



📍	Clayton
🕒	4 years full-time 8 years part-time
➡️	February and July
📊	ATAR: 85 ¹
	IB: 31 ¹
	MG: 75
🎯	Specialist

DEGREE AWARDED

Bachelor of Materials Engineering (Honours)

DOUBLE DEGREES

- Arts
- Biomedical Science
- Commerce
- Laws (Honours)
- Science

MINORS

- Artificial intelligence in engineering
- Computational engineering
- Engineering entrepreneurship
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

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Discover more at
monash.edu/engineering/specialisations/materials



Scan me or visit

monash.edu/engineering/change-makers/jefferson

MATERIALS ENGINEERING

Materials engineering is all about making new materials and improving existing ones. It's about making things stronger, lighter and more functional, sustainable and cost-effective. It underpins much of engineering – if we want to make things, we need to have materials with the right properties. Whether it's a next-generation jet engine, a biodegradable tissue scaffold to grow organs from stem cells, or new types of solar cells and batteries, the structure, properties and processing of materials are crucial to the final product.

Materials engineers work with everything from the thermal protection of space shuttles to high-tech artificial hip and cochlear implants, and nanoparticles that seek and destroy cancer. Materials engineering is truly interdisciplinary. It involves physics, mathematics, biology and chemistry, culminating in a groundbreaking research field and a thriving job market. As a materials engineer, your expertise will be sought after in the emerging fields of additive manufacturing, nanotechnology, biomedical materials, electronic materials, recycling and energy generation, the development of lightweight metal alloys and in traditional industries such as metallurgy, mining and infrastructure engineering.

Career options

Demand for materials engineers continues to outstrip supply, with Monash graduates receiving an exceptional response in the employment market. Working across a range of exciting industries including aerospace, biomedical, mining, future manufacturing, 3D printing and recycling, materials engineers become:

- biomedical engineers
- consultants
- technology managers
- metallurgists
- materials designers
- energy scientists and future renewable energy engineers
- forensic engineers, aircraft forensics and defence scientists
- materials selection specialists (aero, auto, structural)
- failure analysts
- process engineers
- corrosion or durability engineers
- research engineers.



I hope that my research, inspired by plants and their structures, will guide the next generation of solar panels, so they are more efficient, affordable, lightweight and durable. By probing into the surface structure of plant leaves and discovering how they handle light so efficiently while also being weather resistant, we can begin to replicate similar structures onto solar panels. I dream that one day I'll look out my window and see solar panels on rooftops, cars, and building facades, all thanks to my research efforts."

JEFFERSON LAM

PhD Student (Materials Science and Engineering)
Bachelor of Materials Engineering (Honours) and Bachelor of Science
Ezio Rizzardo Polymer Scholarship, Australian Academy of Technology and Engineering

MECHANICAL ENGINEERING

Mechanical engineering is about the intelligent and efficient use of motion and energy to create, manufacture and assemble designs, from the simplest to the most complex. It builds on physics, chemistry, materials, mathematics and biology. Growth industries include advanced manufacturing, smart buildings, renewable energy and medical engineering.

Mechanical engineers are increasingly engaged in the design and operation of devices that require skills that cross traditional discipline boundaries. As a mechanical engineer, you can build a career in industries including power generation, water distribution, biomedical, mass transportation and air travel.

You can use your skills to improve life on earth and in space. From designing sustainable living spaces to cost-effective products for the developing world. You could even create a safe and reliable human habitat to support future space exploration.

Career options

As a mechanical engineer you will discover countless opportunities in a wide range of industries in Australia and overseas. You could pursue one or more of these specialist areas:

- building systems engineering
- advanced manufacturing
- robotics and automation
- advanced engineering analyses
- food production
- medical device technologies
- advanced composite structures
- micro and nano technologies
- wind engineering
- sustainable engineering systems
- renewable energy systems.



Mechanical systems are involved in almost every field in industry, and the opportunities for mechanical engineers to branch out are endless. I have a strong interest in medical engineering and undertook a Summer Research Program Scholarship to gain experience working in the industry. I've come out with a greater understanding of a research topic, new skills and a network of like-minded people. Working in the CREATElab, and observing how people from so many disciplines are working on slightly different projects, but all geared towards the same goal of improving healthcare has been incredibly inspiring."

JUDY LI

Bachelor of Mechanical Engineering (Honours) and Bachelor of Biomedical Science
Summer Research intern, CREATElab
Principle Maglev Engineer, Monash Heart Hack team
HR Co-Lead Monash Nova Rover
Recruitment officer, Monash Young MedTech Innovators



📍	Clayton, Malaysia
🕒	4 years full-time 8 years part-time
➡️	February and July
📊	ATAR: 85 ¹
	IB: 31 ¹
	MG: 75
🎯	Specialist

DEGREE AWARDED

Bachelor of Mechanical Engineering (Honours)

DOUBLE DEGREES

- Arts
- Biomedical Science
- Commerce
- Design
- Laws (Honours)
- Science

MINORS

- Artificial intelligence in engineering
- Computational engineering
- Engineering entrepreneurship
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E). MG: Monash Guarantee.



Discover more at
monash.edu/engineering/specialisations/mechanical



Scan me or visit

monash.edu/engineering/change-makers/judy



Clayton, Malaysia

4 years full-time
8 years part-time

February and July

ATAR: 85¹

IB: 31¹

MG: 75

Specialist

DEGREE AWARDED

Bachelor of Robotics and
Mechatronics Engineering (Honours)

DOUBLE DEGREES

- Arts
- Commerce
- Science

MINORS

- Artificial intelligence in engineering²
- Computational engineering
- Engineering entrepreneurship
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing²
- Sustainable engineering

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E). MG: Monash Guarantee.

² Artificial Intelligence minor not available in Artificial Intelligence stream and Smart Manufacturing minor not available in Automation stream.

Discover more at
[monash.edu/engineering/
specialisations/robotics-
mechatronics](https://monash.edu/engineering/specialisations/robotics-mechatronics)



Scan me or visit

[monash.edu/engineering/
change-makers/chloe-
and-rebecca](https://monash.edu/engineering/change-makers/chloe-and-rebecca)

ROBOTICS AND MECHATRONICS ENGINEERING

Robotics and mechatronics is where mechanical and electrical engineering meet, employing computer science and control systems to make devices smarter and more efficient.

As a robotics and mechatronics engineer you could create rovers for planetary exploration or robots for precision manufacturing or to assist the elderly. Alternatively, you might convert a household product into a truly clever device, and create the programs that control it.

You'll learn how to handle vast amounts of data and extract critical information from data in real time so that a fully automated manufacturing facility can operate safely and efficiently, or a car can drive completely autonomously.

Robotics and mechatronics engineers are in high demand. Their expertise is required in many industries including advanced manufacturing, aerospace, medicine, defence, transportation and data analysis.

There are two streams available to choose from:

- **Artificial intelligence** covers neural networks and deep learning, advanced engineering design, computer vision systems, and intelligent robotics.
- **Automation** includes design of mechatronic systems, dynamics and control, robotics and sensing, and advanced manufacturing.

Career options

You'll be equipped with the knowledge and skills to design, develop, manufacture and operate the intelligent products and complex systems of today and tomorrow. There are also opportunities in consulting, management and finance. You may also pursue a career in research and development, in academia, research institutions or advanced industry sectors. Opportunities exist in:

- robotics and automation
- aerospace systems and flight control
- artificial intelligence
- bioengineering
- defence
- intelligent systems for motor vehicles
- manufacturing systems and processes
- telecommunications
- medical systems
- software engineering
- mining systems and processes
- nanotechnology.



We wanted to start conversations about women in STEM and change perceptions about who can and should be an engineer. The concept started from chats on social media and landed at turning the Monash Nova Rover competition space vehicle from the traditional grey and orange to a shade of shocking pink! So far the response has been incredible. We can't wait to roll out the pink rover at competition time and all our outreach events. We don't just build rovers but rovers that demand action."

CHLOE CHANG AND REBECCA LEITH

Bachelor of Robotics and Mechatronics Engineering (Honours)
Chief Executive Officer Co-Leads, Monash Nova Rover

SOFTWARE ENGINEERING

Software engineering is a field that's constantly evolving as new technologies emerge. As an engineer in this area, your skills will be critical across many functions – from dispensing life-saving medicine to controlling flight paths.

As a software engineer you'll use your expertise in computer science, engineering principles and programming languages to build intelligent software products that may involve artificial intelligence and machine learning components, develop games and run network control systems. You could design systems and applications tailored to specific users and their needs, and build the underlying systems that run the technology and control networks. Solve business challenges by delivering technical solutions and assess organisation's current systems and needs to create strategies for improvement.

You'll learn about core areas such as software processes and life-cycles, requirements analysis, software design and architecture, software development, quality assurance and testing. Work with modern, industry-strength programming languages, technologies and systems. Through collaborative learning, you'll hone your teamwork, problem solving, resource management, project coordination and communication skills.

You can choose from a wide range of IT electives from cyber security to games development to business information systems. You can apply for the highly-regarded IT Industry-Based Learning (IBL) program to do a half-year placement with a leading organisation. Placements count towards your course and are supported by \$19,000 scholarships.

The Bachelor of Software Engineering (Honours) is accredited by the Australian Computer Society and Engineers Australia.

Career options

In the age of digital transformation, new roles are constantly emerging and software engineering graduates are highly sought-after around the world. You could pursue a career as:

- software engineer or developer building products, games and network systems
- software architect or data engineer designing specific systems and databases
- block chain developer or engineer building software for digital identity, workforce management and data storage
- front end engineer writing the code for a website or app
- machine learning engineer writing personalised and predictive software
- network administrator or security engineer making systems secure and protect from threats.



Clayton, Malaysia

4 years full-time
8 years part-time

February and July

ATAR: 85¹

IB: 31¹

MG: 75

Specialist

DEGREE AWARDED

Bachelor of Software Engineering
(Honours)

DOUBLE DEGREES

- Arts
- Commerce
- Computer Science
- Information Technology
- Science

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E). MG: Monash Guarantee.

Discover more at
[monash.edu/engineering/
specialisations/software](https://monash.edu/engineering/specialisations/software)



My Co-op internship was at Amazon Prime Air in Seattle. I worked on a project to create software for drones to auto complete post-flight maintenance tasks. I've learned so many new things and my technical skills have greatly improved. This has been a really enlightening experience. The stand out has been interacting with my team. They're a great bunch of people and I love just going into the office. My career aspirations have grown and I can see a path forward to become a more senior expert in the software engineering industry."






DANESH HEWASIRIBADDANA

Bachelor of Software Engineering (Honours) and Bachelor of Science



Scan me or visit

[monash.edu/engineering/
change-makers/danesh](https://monash.edu/engineering/change-makers/danesh)

	Clayton
	5 years full-time 10 years part-time
	February and July
	ATAR: 90.05 ¹
	IB: 34
	MG: N/A
	Specialist and Expert master's

UNDERGRADUATE SPECIALISATIONS²

- Aerospace
- Chemical
- Civil
- Electrical and computer systems
- Environmental
- Materials
- Robotics and mechatronics
- Mechanical

CRICOS: 001722B

¹ The scores provided are to be used as a guide only, and are either the lowest selection rank to which an offer was made in 2023 or an estimate (E).
MG: Monash Guarantee.

² Refer to website for specialisations available in the master's degree.

Discover more at
[monash.edu/engineering/
masters-accelerated-pathway](https://monash.edu/engineering/masters-accelerated-pathway)

MASTER'S ACCELERATED PATHWAY

Be on the pathway to career success with a bachelor's degree and expert master's.

The Master's Accelerated Pathway is designed for high-achieving students to be on track to earn both a Bachelor of Engineering (Honours) and a Master of Engineering degree – in just five years. You'll receive an outstanding practical and theoretical preparation for a career in engineering, with a rich selection of specialist electives and strong links to industry.

Starting with the fully accredited engineering undergraduate degree, you'll have the choice and flexibility to explore your study options and follow your passions. The 'common first year' provides a solid foundation in a broad range of engineering disciplines and scientific and design fundamentals. You'll gain hands-on, practical experience through work-integrated learning opportunities, and connect with industry and alumni to build your professional networks.

The master's program builds on your undergraduate study and gives you the skills and confidence to pursue your dream career. Extending your technical knowledge and engineering capabilities to apply yourself through real-world projects and deliver sustainable solutions in your chosen specialisation area. You'll develop innovative thinking and entrepreneurial skills to lead and solve complex challenges. Become a strategic thinker, advance your leadership abilities, and engage with diverse stakeholders to enhance your future – and society's.

The Master's Accelerated Pathway offers generous scholarships to support eligible students while they study.

This undergraduate/graduate double degree gets you on a fast-track to a graduate qualification, saving you on fees and study time and improving your employment outcomes. With advanced technical knowledge and leadership capabilities, the master's pathway will set you apart from those with similar degrees and set you on the path to career success.

Career options

- Specialist engineer or consultant within your chosen professional field
- Engineering management role in private or public sector
- Entrepreneur or CEO of your own company.

ENGINEERING MINORS



Artificial intelligence in engineering

Artificial intelligence is used by engineers to develop driverless vehicles, meaningful human machine interaction and image recognition. Create new designs involving robotics, deep learning, computer vision and autonomous vehicles.



Civil engineering

Civil engineers design and improve systems and processes that allow humans and nature to coexist with minimal impact. They design and build high-capacity transportation systems; construct large commercial and industrial complexes; water supply and pollution control systems; and repair or replace roads, bridges and other structures.



Computational engineering

Computational engineering is a rapidly growing multidisciplinary field that simulates the physical world using computers to solve engineering design problems, develop new technologies and shape the world we live in. Biomedical devices, submarines and wind turbines are just a few examples where computer models are used to predict how new designs will behave in reality.



Engineering entrepreneurship

Developed with the Monash Business School for engineers interested in becoming entrepreneurs and innovators. Includes fundamentals of entrepreneurship such as idea creation, market validation, company structures, technology development, investment and go-to-market business models.



Environmental engineering

Environmental engineering involves the implementation and management of solutions that are in harmony with the principles of sustainable development. By improving the knowledge on air, water and land quality, environmental engineers help restore the environment and protect our natural world.



Micro and nano technologies

Micro and nano technologies form the basis of any modern miniaturised system including electronic devices, sensors and actuators in smartphones and vehicles and diagnostic systems, biomedical devices and devices for environmental monitoring. Explore how the design properties of nanostructured materials may be exploited for everyday applications, ranging from food packaging and sunscreens, to sensors and energy-related areas.



Mining engineering

Mining engineering involves environmentally-safe extraction and processing of natural minerals from the earth. Mining engineers supply critical materials like copper, iron, lithium and gold, that are essential for modern society and the world's economy. Automation and digital technologies are modernising the mining industry and transforming mining careers.



Renewable energy engineering

Renewable energy engineering focuses on the fundamental conversion of solar radiation, wind, hydro, and bioenergy resources into electricity by designing, building and operating energy plants such as wind farms, solar farms and hydro power facilities. Renewable energy engineers run the large-scale energy system incorporating renewables, and provide expert advice in the development of energy policy.



Smart manufacturing

Smart manufacturing is the core of Industry 4.0 which includes cyber-physical systems, Internet of Things, and augmented reality. This minor equips engineers with the knowledge of modern systems of telecommunication, mechatronics, cyber-physics, and manufacturing for the new era of industry.



Sustainable engineering

The Sustainable engineering minor provides the knowledge and skills to understand the interplay between the environment and human activities. A growing multidisciplinary field of engineering, you'll be introduced to life-cycle analysis, sustainability in the built environments including passive and active technologies, and the political, social and environmental background to materials usage.

Discover more at
monash.edu/engineering/minors

DOMESTIC ADMISSIONS AND ENTRY REQUIREMENTS

ATARS AND PREREQUISITES FOR SINGLE AND DOUBLE DEGREES

Academic prerequisite subjects

The table below outlines the requirements, and the course listing tells you which categories apply to each course. Make sure you check if this applies to your course of choice in this guide.

	English		Mathematics			Science
	■ Level 1	■ Level 2	■ Level 1	■ Level 2	■ Level 3	
VCE	Units 3 and 4: a study score of at least 30 in English (EAL) or 25 in English other than EAL.	Units 3 and 4: a study score of at least 35 in English (EAL) or 30 in English other than EAL.	Units 1 and 2: satisfactory completion in two units (any combination) of General Mathematics or Mathematical Methods or Specialist Mathematics.	Units 3 and 4: a study score of at least 22 in Mathematical Methods (any) or Specialist Mathematics, or a score of at least 25 in Further Mathematics.	Units 3 and 4: a study score of at least 25 in one of Mathematical Methods (any) or Specialist Mathematics.	Units 3 and 4: a study score of at least 25 in Chemistry or Physics.
IB	At least 4 in one of the following SL subjects: <ul style="list-style-type: none">English A: Literature, orEnglish A: Language and Literature, orLiterature and Performance, <i>OR</i> At least 3 in one of the following HL subjects: <ul style="list-style-type: none">English A: Literature, orEnglish A: Language and Literature, <i>OR</i> At least 5 in one of the following SL subjects: <ul style="list-style-type: none">English AB, orEnglish B, <i>OR</i> At least 4 in the following HL subject: <ul style="list-style-type: none">English B.	At least 5 in one of the following SL subjects: <ul style="list-style-type: none">English A: Literature, orEnglish A: Language and Literature, orLiterature and Performance, <i>OR</i> At least 4 in one of the following HL subjects: <ul style="list-style-type: none">English A: Literature, orEnglish A: Language and Literature, <i>OR</i> At least 6 in one of the following SL subjects: <ul style="list-style-type: none">English AB, orEnglish B, <i>OR</i> At least 5 in the following HL subject: <ul style="list-style-type: none">English B.	At least 3 in any mathematics subject at SL or HL level.	At least 4 in one of the following SL subjects: <ul style="list-style-type: none">Math Studies, orMathematics: Applications and Interpretations, orMathematics, orMathematics: Analysis and Approaches, <i>OR</i> At least 3 in one of the following HL subjects: <ul style="list-style-type: none">Mathematics: Applications and Interpretations, orMathematics, orFurther Mathematics, orMathematics: Analysis and Approaches	At least 4 in one of the following SL subjects: <ul style="list-style-type: none">Mathematics, orMathematics: Analysis and Approaches, <i>OR</i> At least 3 in one of the following HL subjects: <ul style="list-style-type: none">Mathematics: Applications and Interpretations, orMathematics, orFurther Mathematics, orMathematics: Analysis and Approaches.	At least 4 at Chemistry SL or Physics SL or 3 at HL in Chemistry or Physics.

Single degree courses at a glance

Course	Duration (years) ¹	Prerequisites (Refer to table above)			Degree awarded	Location	Indicative ² ATAR	Indicative ² IB score	Monash Guarantee
		English		Mathematics					
		Level 1	Level 2	Level 3	Specified				
Engineering M	4	■		■	Chemistry or Physics	CL	85.85	31.25	75
	5	■		■	Chemistry or Physics	CL	90.05	34	N/A

Double degree courses at a glance

Course	Duration (years) ¹	Prerequisites (refer to table on page 28)			Degree awarded	Location	Indicative ² ATAR	Indicative ² IB score	Monash Guarantee
		English		Mathematics					
		Level 1	Level 2	Level 3	Specified				
Architectural Design	5	■		■	Chemistry or Physics	CL CA	85.40	31.25	75
Arts ⁴	5	■		■	Chemistry or Physics	CL	87.90	32.75	78
Biomedical Science	5	■		■	Chemistry	CL	89.95	33.75	88
Commerce	5	■		■	Chemistry or Physics	CL	87.25	32.25	77
Computer Science	5	■		■	Chemistry or Physics	CL	86.15	31.75	76
Design	5	■		■	Chemistry or Physics	CL CA	85.20	31.25	75
Information Technology	5	■		■	Chemistry or Physics	CL	85.20	31.25	75
Laws (Honours)	6.25 ⁵	■		■	Chemistry or Physics	CL	97.20	39.75	87
Pharmaceutical Science	5	■		■	Chemistry	CL PA	85.90	31.50	76
Science	5	■		■	Chemistry or Physics	CL	86	31.75	76

M Master's Accelerated Pathway | CL –Clayton | CA – Caulfield | PA – Parkville

1 Duration is based on a standard full-time load of 48 credit points per annum.
2 Indicative – The provided score is the 2023 lowest ATAR to which an offer was made or an estimate (E), and is to be used as a guide only.
3 Master's Accelerated Pathway is only available to school leavers and is not offered with biomedical, environmental or software engineering specialisations.
4 Depending on your Arts major, you may take the Arts component at Clayton or Caulfield.
5 This course is an accelerated course where you'll be required to undertake more than the standard annual load of 48 credit points in year two and/or year three in order to complete the course in six years.

INTERNATIONAL ENTRY REQUIREMENTS

ENTRY REQUIREMENTS

COURSE	DEGREE AWARDED	Duration (years) ¹	Monash code	Location	Intake ² (semester)	English language level (see below)	2023 fee p.a. ³ (\$)	Prerequisites (see page 28)				2024 ATAR for international students	UNSW Foundation Studies	University Of Melbourne Trinity College Foundati Studies	GCE A Level	Ontario Secondary School Diploma – Grade 12	Gao Kao	International Baccalaure (IB) Diploma	Hong Kong Diploma of Secondary Education	All India Sealer School d Certificate	Indian School Certificat Examination	SMA3	STPM	UEC	College Scholastic Ability Test (CSAT)	High School Diploma	Advanced Placement	SAT (Total score out of 1600)	High School Diploma	Foundation Year (commencing MUFY in 2024)	Monash College	
								English		Mathematics	Science																				Diploma Part 1 ⁵	Diploma Part 2 ⁵
								Level 1	Level 2	Level 3	Specified																					
Engineering	Bachelor of Aerospace Engineering (Honours)	4	E3001	CL	Feb July	A	\$50,200			Chemistry or Physics		87.50	8.25	83%	11	86.30%	75%	31	20	81%	76%	8.75	9.4	3	345	83%	7	1270	8.49	76.25%	80%	60%
	Bachelor of Biomedical Engineering (Honours)																															
	Bachelor of Chemical Engineering (Honours)																															
	Bachelor of Civil Engineering (Honours)																															
	Bachelor of Electrical and Computer Systems Engineering (Honours)																															
	Bachelor of Environmental Engineering (Honours)																															
	Bachelor of Materials Engineering (Honours)																															
	Bachelor of Mechanical Engineering (Honours)																															
	Bachelor of Robotics and Mechatronics Engineering (Honours)																															
	Bachelor of Software Engineering (Honours)																															
Bachelor of Engineering (Honours) / Master's Accelerated Pathway ⁴	5					Chemistry or Physics		95	N/A	N/A	14	91%	80%	36	23	85%	80%	9	10.3	1.8	365	90%	9	1360	8.7	88.75%	N/A					

ACADEMIC ENTRY REQUIREMENTS

All Monash undergraduate courses require you to have successfully completed a minimum of an Australian Year 12 qualification (or equivalent) and achieve the required academic entry score. The table above outlines the academic entry scores for the listed qualifications that apply to each undergraduate course applicable to international students only. Entry scores for the listed qualification in this guide are calculated as follows:

COUNTRY	QUALIFICATION	AWARDING BODY	HOW TO CALCULATE YOUR ENTRY SCORE
AUSTRALIA	Australian Year 12 qualifications listed below (refer to the '2024 ATAR for international students' column)		
	Australian Year 12 qualifications		Final ATAR as awarded by the relevant Australian state Year 12 authority.
	Monash University Foundation Year (MUFY)	Monash College Pty Ltd	The undergraduate entry requirements published in this brochure are for students who commence the MUFY program in 2024. Refer to monashcollege.edu.au/courses/fy/dd
	Monash College Diploma Part 1 and Part 2		The Monash College Diploma Part 1 & Part 2 entry requirements published in this guide are for students commencing their undergraduate destination degree in 2025. Refer to monashcollege.edu.au/courses/dips/dd
	Trinity College Foundation Studies	Trinity College, The University of Melbourne	Overall average of the best four subjects (excluding English for Academic Purposes).
	UNSW Foundation Studies	University of New South Wales	Final grade point average.
CANADA	Ontario Secondary School Diploma – Grade 12	Ontario Ministry of Education	Overall average of the best six academic Grade 12 subjects ⁶ (excluding workplace preparation courses and open courses). Students must achieve a minimum total of 30 credits and complete Community Involvement. 6 The grade 12 subjects must be taken from the most recent completed Ontario Student Transcript issued by the Ontario Ministry of Education.
CHINA	Gaokao	Department of Education in China	The total score achieved in the Gaokao examination will be converted into a 100% scale by dividing the total score achieved with the 2023 Gaokao maximum score ⁷ published by the Department of Education in China for each Chinese province. 7 For example: If you achieved a total score of 555 in your Gaokao examination and the 2023 Gaokao maximum score for Guangdong is 750, then the percentage score on a 100% scale converted by Monash University will be 74%.
GLOBAL	GCE A Levels	<ul style="list-style-type: none"> Cambridge International Pearson Edexcel Council for the Curriculum, Examinations and Assessment Oxford, Cambridge and RSA Examinations Welsh Joint Education Committee Assessment and Qualifications Alliance 	<p>Total score by achieving either:</p> <ul style="list-style-type: none"> A maximum of the best three A Level subjects completed within two years⁸. In the event where only one A Level subject has been completed (and no other A Level subjects have been completed), two AS Level subjects can be counted in place of one A Level subject however the AS Level subject must not be in the same subject area as the A Level subjects included in the calculation. <p>OR</p> <ul style="list-style-type: none"> A minimum of the best two A Level subjects completed within two years⁸ plus the best two AS Level subjects. The AS Level subjects however must not be in the same subject area as the A Level subjects included in the calculation. <p>Additional guidelines / Score grades as follows:</p> <ul style="list-style-type: none"> A Level subjects: A*(a*) = 5, A(a) = 5, B(b) = 4, C(c) = 3, D(d) = 2, E(e) = 1, U = 0. AS Level subjects: a(a) = 2.5, b(b) = 2, c(c) = 1.5, d(d) = 1, e(e) = 0.5, U = 0. N (Narrow failure) and U (Unclassified) results are not to be included in the calculation. A maximum of one bonus point is offered when achieving A* in an A Level Subject. <p>8 Subject examinations taken within two years may include more than one sitting. For example, subject examinations in June 2021 until June 2023 are acceptable.</p>
	International Baccalaureate (IB) Diploma Programme	International Baccalaureate Organization	Total points as awarded on the IB Diploma Programme results.
GLOBAL (continued)	American Admission Tests⁹		
	<ul style="list-style-type: none"> Advanced Placement (AP) 	The College Board	<p>Total of the best two AP examinations as awarded on the Student Score Report¹⁰ issued by the College Board. Minimum accepted score in each AP examination is 3.</p> <p>9 If you have completed multiple American Admission Tests (i.e. SAT, AP or ACT), the test with the highest achieved scores will be used to determine if the academic entry requirement has been satisfied</p> <p>10 All AP examinations submitted to Monash University will be considered when calculating the entry score.</p>
	<ul style="list-style-type: none"> Scholastic Aptitude Test (SAT) – total score out of 1600 		<p>Total score by adding the best section scores achieved in 'Evidence Based Reading and Writing' and 'Math' as awarded on the SAT Score Report¹¹ issued by the College Board.</p> <p>9 If you have completed multiple American Admission Tests (i.e. SAT, AP or ACT), the test with the highest achieved scores will be used to determine if the academic entry requirement has been satisfied.</p> <p>11 All SAT examinations submitted to Monash University will be considered when calculating the entry score, provided the SAT is marked out of 1600.</p>

AUSTRALIA-INTERSTATE			BRITAIN (GLOBAL)	CANADA	CHINA	FRANCE	HONG KONG	INDIA		INDONESIA	MALAYSIA		REPUBLIC OF KOREA		USA		VIETNAM	MONASH COLLEGE		
2024 ATAR for international students	UNSW Foundation Studies	University Of Melbourne, Trinity College Foundation Studies	GCE A Level	Ontario Secondary School Diploma – Grade 12	Gao Kao	International Baccalaureate (IB) Diploma	Hong Kong Diploma of Secondary Education	All India Sealer School of Certificate	Indian School Certificate Examination	SMA3	STPM	UEC	College Scholastic Ability Test (CSAT)	High School Diploma	Advanced Placement	SAT (Total score out of 1600)	High School Diploma	Foundation Year (commencing MUZY in 2024)	Monash College	
																			Diploma Part 1 ^s	Diploma Part 2 ^s
87.50	8.25	83%	11	86.30%	75%	31	20	81%	76%	8.75	9.4	3	345	83%	7	1270	8.49	76.25%	80%	60%
95	N/A	N/A	14	91%	80%	36	23	85%	80%	9	10.3	1.8	365	90%	9	1360	8.7	88.75%	N/A	

HONG KONG (continued)	Hong Kong Diploma of Secondary Education (HKDSE)	Hong Kong Examinations and Assessment Authority	<ul style="list-style-type: none"> • Total score of the best five subjects¹² (Category A and C only). • Scores graded as follows: Level 1=1, Level 2=2, Level 3=3, Level 4=4, Level 5=5 or A=5, B=4, C=3, D=2, E=1. • A maximum of 1 bonus point is offered when achieving Level 5** or Level 5* in a HKDSE Category A subject. <p>12 The highest grade will be used in the calculation in the event where individual subject examinations have been sat in multiple sittings.</p>
INDIA	All India Senior School Certificate	Central Board of Secondary Education	Overall average of the best four academic subjects (excluding Physical Education) and results indicated as 'pass'.
	Indian School Certificate Examination	Council for the Indian School Certificate Examinations	Overall average of the best four academic subjects (excluding Physical Education) and results indicated as 'pass certificate awarded'.
INDONESIA	SMA3	Ministry of Education, Culture, Research and Technology	<p>Overall average of all Semester 1 and Semester 2 Grade 12 results.</p> <p>Note: Monash University undergraduate entry scores vary for SMA3 qualifications that are marked on differing grading scales.</p>
MALAYSIA	STPM	Malaysian Examinations Council (Majlis Peperiksaan Malaysia)	Total of the best three subjects, excluding Pengajian Am (General Studies).
	UEC	United Chinese School Committees Association of Malaysia	<ul style="list-style-type: none"> • Overall average of the best five subjects. • Only grades A1, A2, B3, B4, B5 and B6 to be included in calculation. C7, C8 and F9 cannot be included in the calculation. • Five subjects must be included in the calculation with a score of B6 grade or higher in each subject. • Score grades as follows: A1=1, A2=2, B3=3, B4=4, B5=5, B6=6. • It should be noted that a score of A1 is the highest score.
REPUBLIC OF KOREA	College Scholastic Ability Test	Korea Institute for Curriculum and Evaluation	<p>Total score of the best four subjects (including Language Arts and Mathematics)^{13,14}</p> <p>13 Korean History, English and vocational education stream subjects can not be included in the calculation.</p> <p>14 If you have completed both the College Scholastic Ability Test and South Korean High School Diploma, the qualification with the highest achieved score will be used to determine if the academic entry requirement has been satisfied.</p>
	High School Diploma, Republic of Korea	Ministry of Education, Science & Technology	<p>Overall average of academic subjects including fails (excluding non-academic subjects such as Moral Education, Home Science, Physical and Health Education, Civil Ethics, Ethics and Thought, Home Living, and Chinese Characters)¹⁵.</p> <p>15 If you have completed both the College Scholastic Ability Test and South Korean High School Diploma, the qualification with the highest achieved score will be used to determine if the academic entry requirement has been satisfied.</p>
VIETNAM	High School Diploma (Bằng Tốt Nghiệp Trung Học Phổ Thông)	Ministry of Education and Training, Socialist Republic of Vietnam	Overall average of all Grade 12 subjects.
If your qualification cannot be located in the above table refer to monash.edu/prior-study			

PREREQUISITE SUBJECTS AND ADDITIONAL REQUIREMENTS

In addition to meeting English entry requirements, some Monash University undergraduate courses may require you to satisfy other prerequisite subjects and additional selection and/or extra requirements.

Please note that all entry requirements for Monash University and Monash College are subject to change.

MINIMUM AGE REQUIREMENTS

You must be at least 17 years of age to enrol in a Monash University undergraduate course. Some exemptions may apply. Refer to monash.edu/admissions/age-requirements

ENGLISH ENTRY REQUIREMENTS

When you apply for a Monash University undergraduate course you must satisfy English entry requirements.

	Overall band score	Listening	Reading	Speaking	Writing	Total score	Listening	Reading	Speaking	Writing	Overall score	Listening	Reading	Speaking	Writing
Level	Academic IELTS					Internet Based TOEFL					Pearson Test of English (Academic)				
A	6.5	6.0	6.0	6.0	6.0	79	12	13	18	21	58	50	50	50	50

1 Duration is based on a standard full-time load of 48 credit points per annum.
2 Please refer to [monash.edu/study](https://www.monash.edu/study) for further details on semester intake availability for individual specialisations.
3 Fees are quoted in Australian dollars; each is the annual average fee per 48 credit points of study in this course for 2023. Fees are adjusted annually. Please see [monash.edu/fees/course-fee-types/international-full-fee](https://www.monash.edu/fees/course-fee-types/international-full-fee) for updates.
4 Master's Accelerated Pathway is only available to school leavers and is not offered with biomedical, environmental or software engineering specialisations.
5 The Monash College Diploma Part 1 and 2 entry requirements are for students commencing their undergraduate degree in 2023.

COURSE STRUCTURE

Here's an indicative course map showing what your studies could look like if you selected Mechanical Engineering.



View all engineering specialisation course maps

monash.edu/engineering/course-maps

YEAR 1¹

Semester 1	Engineering methods	Engineering mathematics	Engineering numerical analysis	Elective
Semester 2	Engineering design	Engineering smart systems	Level 1 Engineering technical elective	Elective

YEAR 2

Semester 1	Mechanics of materials	Dynamics 1	Design methods	Level 1, 2 or 3 elective or engineering technical elective
Semester 2	Advanced engineering mathematics	Mechanics of fluids	Thermodynamics	Level 1, 2 or 3 elective or engineering technical elective

YEAR 3

Semester 1	Solid mechanics	Fluid mechanics 2	Engineering computational mechanics	Level 3 or 4 technical or engineering minor elective unit	
Semester 2	Dynamics 2	Machine design	Systems and control	Level 3 or 4 technical or engineering minor elective unit	Industrial Training ³

YEAR 4

Semester 1	Final year project A	Professional practice	Thermodynamics and heat transfer	Level 3, 4 or 5 technical or engineering minor elective unit	Continuous Professional Development ²
Semester 2	Final year project B	Design project	Computer-aided design	Level 3, 4 or 5 technical or engineering minor elective unit	

Engineering fundamentals and foundation skills Level 1 elective study Engineering design
Engineers Australia professional accreditation requirement Free elective Discipline core unit Discipline technical elective or minor unit

1 If no foundation units are required.
2 Clayton campus students.
3 Malaysia campus students.

HOW TO APPLY

DOMESTIC STUDENTS

Apply through VTAC

If you're an Australian or New Zealand citizen or an Australian permanent resident, apply through the Victorian Tertiary Admissions Centre (VTAC). Visit www.vtac.edu.au

Prerequisites

Please check that you meet the prerequisites for your chosen course before submitting your application. Prerequisite details for each course can be found in the admissions table beginning on page 28.

Scholarships

For more information, and to apply for scholarships, visit monash.edu/scholarships

Fees

To estimate your course fees, visit monash.edu/fees

Commonwealth Supported Places

Australian citizens, New Zealand citizens, Australian permanent residents and permanent humanitarian visa holders are eligible to apply for a Commonwealth Supported Place (CSP). A CSP is a subsidised enrolment where the government pays for part of your course and you only have to pay the Student Contribution Amount (SCA). Eligible CSP students may use a HECS-HELP loan to pay for all or part of the SCA. Visit monash.edu/enrolments/government-loans/commonwealth-supported-place

INTERNATIONAL STUDENTS

All international students must apply for a Monash University course online or through an accredited Monash agent. Visit monash.edu/study/how-to-apply for details.

Note: International students who are undertaking an Australian Year 12 qualification (for example, VCE or equivalent) in Australia or overseas, International Baccalaureate (IB) Diploma in Australia or New Zealand, or National Certificate of Educational Achievement (NCEA) Level 3 in New Zealand must apply through the Victorian Tertiary Admissions Centre (VTAC). Visit www.vtac.edu.au

Fees

A\$50,200, annual average fee per 48 credit points of study in this course for 2023. Further information on fees for each course can be found at monash.edu/fees

Monash College

Monash College is the preferred pathway for students who aspire to study engineering at Monash University but who narrowly miss the academic requirements for direct entry. The course you choose depends on your current level of study and future career plans.

For more information on Monash College academic pathways, visit monashcollege.edu.au/courses

LIVING IN MELBOURNE

Melbourne is a vibrant, multicultural city that offers an abundance of cultural festivities, international sporting events, cafés and restaurants with cuisines from around the world, beautiful parks and beaches, and an eclectic mix of music and arts. As one of the world's most liveable cities¹, you can expect excellence in public transport and healthcare, as well as opportunities for casual work while studying.

Cost of living

Before you begin your studies at Monash, it's a good idea to plan and prepare a budget. Your tuition and study fees do not include personal costs such as accommodation, food and miscellaneous items. For information on budgeting for your lifestyle, visit monash.edu/cost-of-living

Student accommodation

Living on-campus is a great way to experience university life and make connections while you study. On-campus accommodation is available at the Clayton campus and our Residential Services support team is available to help you through the application and transition process. If you prefer a little more independence, there is plenty of off-campus accommodation available. For more information on accommodation, visit monash.edu/accommodation

STUDENT LIFE AT MONASH

Clayton campus

Twenty kilometres from the centre of Melbourne, Monash's Clayton campus combines a vibrant research, technology, and manufacturing precinct with first-rate sporting facilities, shops, a student centre, libraries, a post office, banks, medical services, and religious centres.

Visit monash.edu/study/student-life

Support services

University study takes commitment and drive, especially if you're moving to a new city or country. We can help you settle into university life by providing an extensive range of support programs and services including:

- Academic support
- Campus security
- Careers counselling
- Disability support services
- e-Research services
- Family support
- Monash Connect
- Skills Essentials seminars
- Wellbeing

Orientation

Our orientation service incorporates a series of programs to help students adjust to a new country and the Monash University environment.

1 Economist Intelligence Unit 2011-2018.



Southbank



Australian native wildlife (Penguins)



Chadstone Shopping Centre

Great Ocean Road

JOIN MONASH ENGINEERING GIRLS (MEG)

Join MEG and gain access to exclusive events and discover the possibilities a career in engineering can offer. Our MEG program is open to secondary school girls in Years 9–12.

For more information or to sign up, visit monash.edu/engineering/meg



youtu.be/_W5dbZowJyI



DISCOVER MORE

Join us at one of our events to experience Monash Engineering first-hand.

- Monash Information Evenings
- Discover Monash Engineering
- Engineering Campus tours
- Monash Engineering Girls (MEG) program
- Open Day

monash.edu/engineering/events



MONASH ENGINEERING

monash.edu/engineering

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MONASH UNIVERSITY

monash.edu

FIND A COURSE

monash.edu/study

FUTURE STUDENT ENQUIRIES

Australian citizens, permanent residents
and New Zealand citizens

monash.edu/study/contact

International students

T Australia freecall: 1800 MONASH (666 274)

T +61 3 9903 4788 (outside Australia)

E study@monash.edu



Monash is proud to have the following industry partners who support our students through scholarships, prizes, the Engineering Career Ready Series and Co-operative Education Internship Program:



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