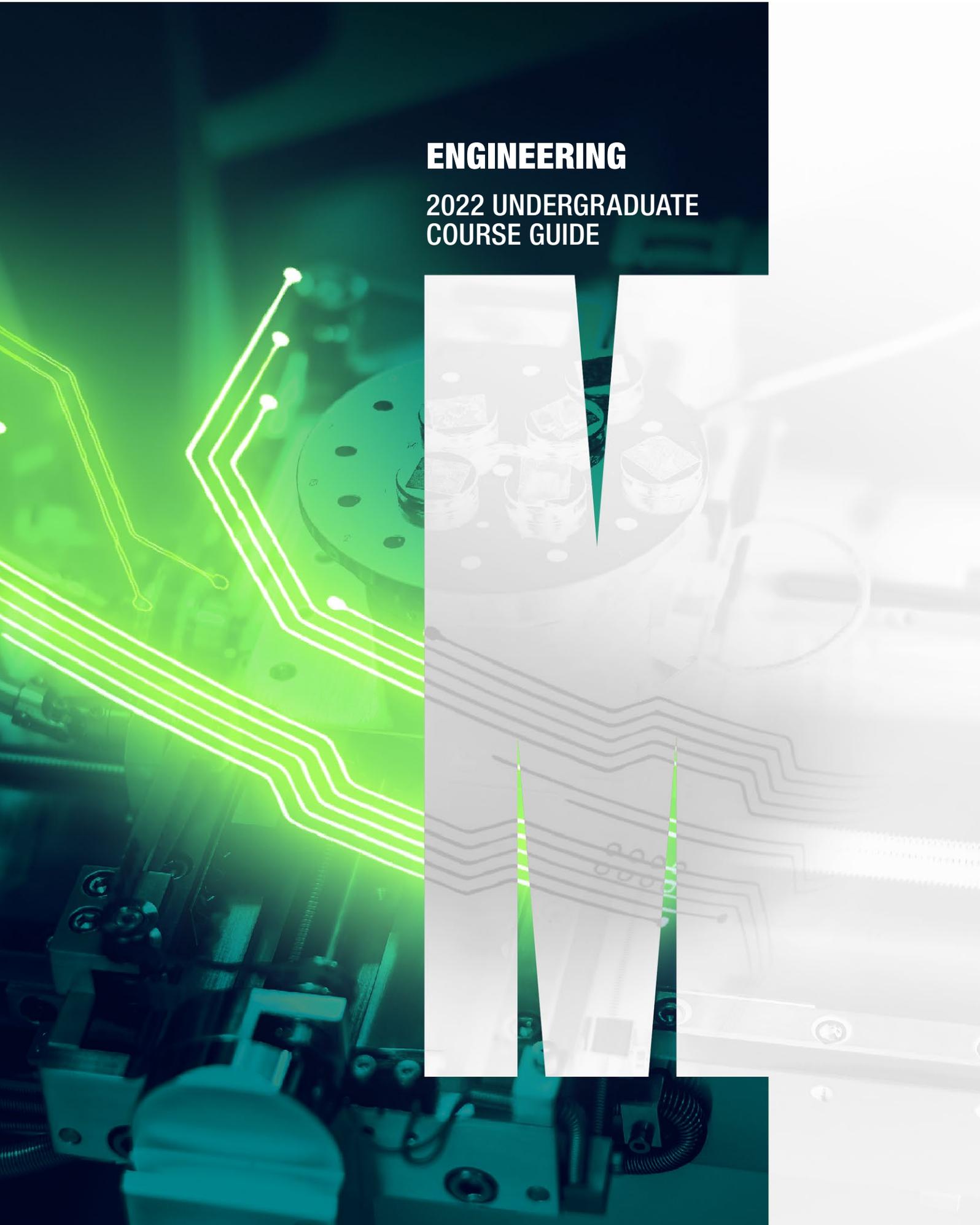




MONASH
University

ENGINEERING

2022 UNDERGRADUATE COURSE GUIDE



MONASH ENGINEERING

A GLOBAL LEADER



As a Monash Engineering student you'll become part of a world-class team of engineers, driven by the passion and commitment to deliver sustainable solutions for the wellbeing and prosperity of society – including climate, energy, transportation, water, health and communications.



MONASH NOVA ROVER

A team of students from Engineering, Science, Law, Business and Medicine, with a keen interest in space exploration and the design of robotic systems, who put their skills to the test.

WORLD RANKINGS

#54

**IN THE WORLD FOR
ENGINEERING AND
TECHNOLOGY**

(QS World University Rankings 2020)

#66

**QS GLOBAL UNIVERSITY
EMPLOYABILITY RANKINGS**

(2020)

TOP 100

**IN 11 ENGINEERING
SUBJECTS GLOBALLY**

(Academic Ranking of World Universities, 2020)

We offer ten engineering specialisations, minors in emerging engineering fields, double degree options and a range of programs and experiences for you to pursue your dreams and set you on the path to future career success. Our graduates are dynamic, highly competent and in-demand leaders across the breadth of engineering disciplines and beyond.

You'll have access to some of the world's finest facilities and a learning environment that fosters your development as a collaborative and creative problem-solver. We're here with you all the way with the tools, support and experiences to prepare you for success and to become a well-rounded engineer.

PROFESSOR ELIZABETH CROFT

Dean, Faculty of Engineering



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Course information fast facts

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

-  Location
-  Duration
-  Intakes
-  Requirements*
-  Specialist course

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

A WORLDWIDE UNIVERSITY

9

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

100+

PARTNER UNIVERSITIES ACROSS THE GLOBE

29K+

ENGINEERING ALUMNI FROM MORE THAN 75 COUNTRIES

(2020)

YOUR PATHWAY TO SUCCESS

Choose Monash Engineering and start engineering a successful future.

1 GET QUALIFIED

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 9 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

3 SECURE YOUR FUTURE

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

- Co-op program – paid internships with industry partners
- Leadership programs
- Connections to our vast alumni network (29K+ across world)
- Career connect for support and training
- Monash Industry Team Initiative (MITI) – University wide industry sponsored projects

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

¹ Additional 2.25 years for engineering and laws double degree.

² Biomedical engineering specialisation is selected from the first year

ENGINEER YOUR FUTURE

WHY CHOOSE ENGINEERING 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.

The 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, Female Engineers at Monash (FEM).

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, without the need to re qualify.

- Engineers Australia
- The Institution of Chemical Engineers (Bachelor of Chemical Engineering (Honours only))
- Engineering Accreditation Council Malaysia (Malaysian Engineering degrees only)
- 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. 34 of the top 100 CEOs in the world are engineers[^]. 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 a:

- Biomaterials or nanotechnology engineer in a medical development company
- Global development engineer for a non-governmental organisation (NGO)
- Chemical process engineer in the food and agriculture industry
- Project manager, consultant or industrial designer in building and construction
- Computer scientist or wireless network engineer in telecommunications
- Artificial Intelligence or software engineer 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 or avionics engineer 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 or Chief Engineer in the automotive industry.



STRONG JOBS GROWTH IS PROJECTED IN MOST ENGINEERING FIELDS OVER THE NEXT FIVE YEARS

Job Outlook, Australian Government 2019.

82.9%

ENGINEERING GRADUATES ARE IN FULL-TIME EMPLOYMENT WITHIN FOUR MONTHS

2020 Graduate Outcomes Survey (GOS) report, Quality Indicators for Learning and Teaching (QILT).

\$114K

AVERAGE AUSTRALIAN ENGINEERING SALARY

Adzuna Job Report, 2020.

34

OF THE TOP 100 CEOs IN THE WORLD ARE ENGINEERS

[^]Harvard Business Review, The Best-Performing CEOs in the World 2018.



DELIVERING GRADUATE CAREER OUTCOMES

Michael Strauss completed a 12-week Co-op program internship at AMOG Consulting which led to being offered a part-time position at the company while finishing his degree. While at AMOG, Michael completed a business development project building an Internet of Things demonstrator device to show Industry 4.0 capabilities to prospective clients.

Studying a double degree in Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Commerce and working as an undergraduate engineer at AMOG, Michael has also found the time to explore his entrepreneurial side. Selected for The Generator's Accelerator program, Michael and his co-founder, a fellow engineering student, created Jeffrey AI, a successful virtual personal assistant on Facebook Messenger that helps university students stay on top of their workload.



Taking students in before they've completed their undergraduate studies gives us and them the opportunity to work together and see whether there is a good fit between our business and their areas of study and interest."

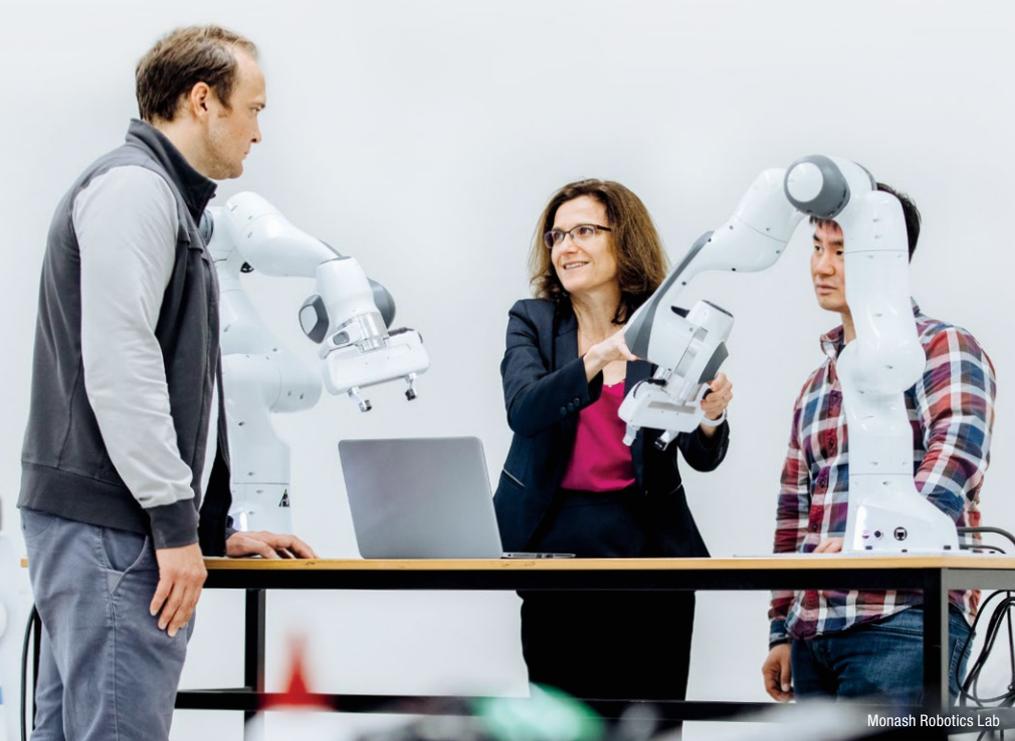
ANDREW THOMSON

General Manager, AMOG Consulting



Discover more about our paid internship Co-operative Education Program at

monash.edu/engineering/coop



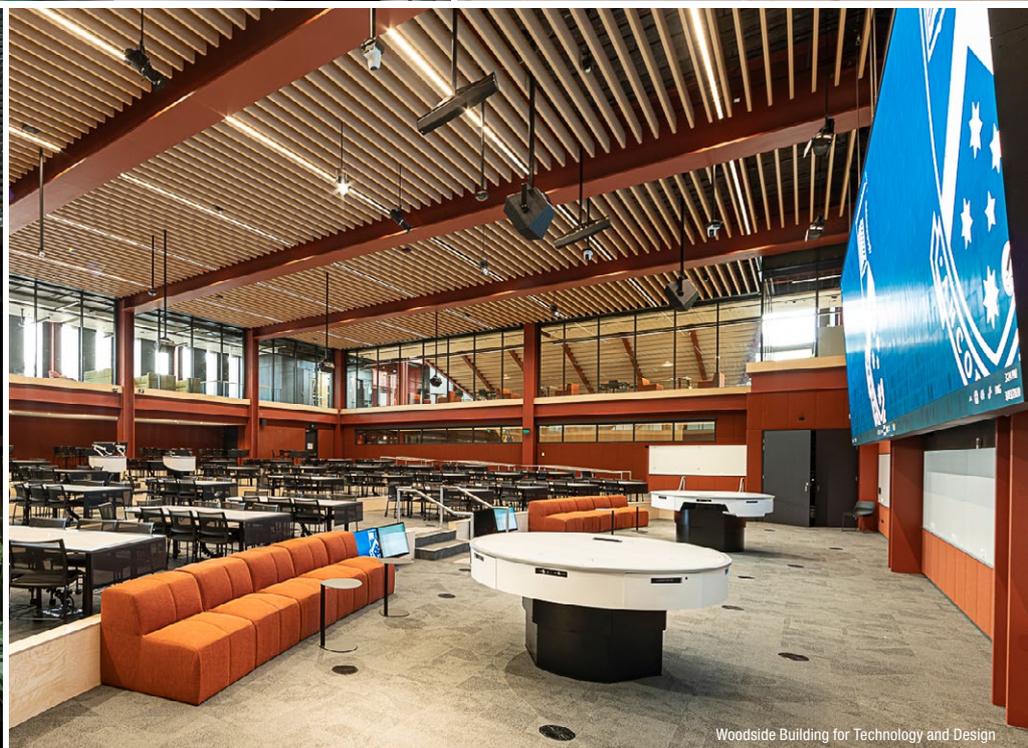
Monash Robotics Lab



New Horizons Research Centre



Living Laboratory



Woodside Building for Technology and Design



Monash Makerspace:
a state-of-the-art facility
where students develop skills
for future manufacturing

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 new 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.

New Horizons Centre

The \$175 million facility brings Monash and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) together to research the future in renewable energy, biological engineering and so much more.

Some of the research facilities include:

- Monash Centre for Additive Manufacturing (MCAM)
- Woodside FutureLab
- The TITAN Microscope
- Monash Wind Tunnel
- Multi-modal Australian ScienceS Imaging and Visualisation Environment (MASSIVE)
- X-ray Analytical Platform
- Drone Discovery Platform
- National Drop Weight Impact Testing Facility



SECURE YOUR FUTURE

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 extra curricular 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. There are many different programs and activities that you can get involved in while studying that will give you practical skills and help you to become work-ready.

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, 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

Engineering Leadership Program

The Monash Engineering Leadership Program is a development program that prepares you to be an engineering leader. It's an opportunity to engage with industry professionals from the private sector, with seminars, interactive workshops and industry site visits. Through the program you'll establish valuable networks and develop 'soft skills' such as communication, leadership and teamwork, that are highly regarded by employers and gives you a competitive edge. Students in the program may also be eligible to apply for a generous scholarship thanks to the support of industry partners and donors.

monash.edu/engineering/leadership-program

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. Students are competitively selected from a range of fields to form multidisciplinary teams. Working as part of a 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. This may even be in a company based overseas.

miti.monash.edu

MONASH HIGH POWERED ROCKETRY (HPR)

Linlin, Claire and Nicole are from Monash HPR, a student team dedicated to shooting for the stars, or at least 30,000 feet, with the design and construction of high-powered rockets. The team compete in the international and local events, like the Australian Universities Rocket Competition (AURC) and SpacePort America Cup.



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 program also provides FaME peer mentors the opportunity to develop leadership and other valuable skills.

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

Continuous Professional Development

The Continuous Professional Development (CPD) Program is a compulsory requirement for all undergraduate Monash Engineering students. It's an online collection of all work, volunteering, and personal and professional development opportunities you experience throughout your time studying your degree. There are numerous 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, by demonstrating highly sought-after attributes in the professional world. It also supports Engineers Australia certification.

monash.edu/engineering/CPD

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

Summer Research Program

At Monash, we undertake innovative, multidisciplinary research addressing national and international priorities. Monash Engineering has a highly-regarded research profile with extensive links to both industry and the research community worldwide. 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 academic staff on a broad range of fascinating research projects.

monash.edu/engineering/summer-research-program

Study abroad and exchange

Spending part of your engineering degree overseas on exchange* will expose you to new ways of learning and living. You'll also 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. While you're overseas your studies are credited towards your degree. As an engineering student, you'll also have the chance to study at Monash Malaysia. Students from Monash Malaysia can also apply to spend a semester at Clayton.

monash.edu/study-abroad/outbound



Scan me or visit

monash.edu/engineering/change-makers/nicole

* programs subject to travel restrictions

STUDENT TEAMS AND CLUBS

Student-led teams, clubs and societies give you the chance to get more out of your uni experience. Develop hands-on skills, solve real problems and compete on the world stage. Form lasting friendships and networks, develop your professional skills and pursue areas you're passionate about.

In a student team you'll get hands on with authentic, real-world projects and challenges. Work together 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 engage with industry to broaden your networks. Some of the groups available are:

Female Engineers at Monash (FEM)

FEM supports, inspires and connects female engineering students with women working in the faculty and the profession. The society delivers 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.

Monash Engineering Students' Society (MESS)

MESS is a not-for-profit organisation that'll enrich your Monash experience through social and academic 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, ranked 1st in the world in 2020, 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. Build strong links with the local engineering industry and make use of innovative facilities and leading research.



MONASH MOTORSPORT

Ranked #1 in the world in 2020, Monash Motorsport is a highly competitive student-run team with over 100 engineering, science and commerce students.

Monash Nova Rover

Monash Nova Rover was the first Australian student team to be selected to compete in The Mars Society University Rover Challenge. The annual robotics competition held at the Mars Desert Research Station in the United States, challenges teams to design and build a rover to be used by explorers on Mars. The team was made up of students from Engineering, Science, Law, Business and Medicine. They were placed top 10 in the world.

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. Competing against teams from around the world, they won first place in the US Department of Energy Solar Decathlon Design Challenge for their sustainable design for a suburban single-family home located in a bushfire prone outer-suburban fringe development.

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.

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

- Engineers Without Borders
- Gay and Lesbian Engineers at Monash
- Materials Engineering Society
- Mechatronics Engineering Clayton Club
- Monash Aerospace and Mechanical Engineering Club
- Monash Association of Civil Engineering Students
- Monash BorrowCup
- Monash BrewLab
- Monash Connected Autonomous Vehicle
- Monash DeepNeuron
- Monash Engineering and Pharmaceutical Science Society
- Monash Environmental Engineering Society
- Monash Forge
- Monash Fuel from Waste
- Monash High Powered Rocketry
- Monash Human Power
- Monash Unmanned Aerial Systems
- Monash Young MedTech Innovators
- Precious Plastic Monash
- Resources Engineering Student Society
- Society of Monash Electrical Engineers
- Society of Monash University Chemical Engineers
- Transport Engineers at Monash



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 26.

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.

TAKE YOUR STUDIES FURTHER

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.

Engineering (Honours) and Masters Degree Package

This is pathway program for high-achieving students to be on track to earn, in just five years, both a Bachelor of Engineering (Honours) and an expert master's degree in engineering. The Masters Accelerated Pathway program allows you to gain practical and theoretical skills for a career in engineering. There's a rich selection of specialist electives to choose from, and the course offers strong links to industry and a focus on leadership skills to strengthen your critical reasoning and strategic thinking skills.

monash.edu/engineering/masters-accelerated-pathway

Master of Engineering

The Master of Engineering is an inspiring study experience, designed to take everything you've achieved in your undergraduate degree to the next level. The expert master's program will extend your technical knowledge in your chosen specialisation and advance your leadership and complex problem-solving skills in a cross cultural environment. Designed to foster innovative thinking, entrepreneurship and professional development, you will be well-positioned to lead and deliver sustainable engineering solutions.

monash.edu/engineering/masters

Other graduate study options

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

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

monash.edu/engineering/future-students

10 SPECIALISATIONS



Aerospace engineering



Biomedical engineering



Chemical engineering

9 MINORS



Artificial intelligence in engineering



Civil engineering



Computational engineering

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.





Civil engineering



Environmental engineering



Robotics and Mechatronics engineering



Electrical and Computer Systems engineering



Materials engineering



Software engineering



Mechanical engineering



Environmental engineering



Renewable energy engineering



Micro and nano technologies



Smart manufacturing



Mining engineering



Sustainable engineering



DOUBLE YOUR CAREER OPTIONS

Earn two degrees with only one* 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.



Design[^]

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.



* Additional 2.25 years for engineering and laws double degree.

[^] Industrial design only.

† Formulation science only.

Laws (Honours)*

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 Science†

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*	IT	Laws (Honours)*	Pharmaceutical Science†	Science
Aerospace		•		•				•		•
Chemical		•	•	•				•	•	•
Civil	•	•	•	•				•		•
Electrical and computer systems		•	•	•	•		•	•		•
Environmental		•		•						•
Materials		•	•	•				•		•
Mechanical		•	•	•		•		•		•
Robotics and Mechatronics		•		•						•
Software		•		•	•		•			•



Priya chose to study Environmental Engineering and Commerce. She thought this would give her the best of both worlds, enabling her to view crucial issues from environmental, technical and commercial perspectives. She also knew the double degree would offer her a range of career opportunities.

“I was attracted to Environmental Engineering in particular because sustainability is one of the key issues facing the world. I think we all have a responsibility to try and make a difference in areas we're passionate about.”

PRIYA AGARWAL

Consultant, Risk Advisory, EY
Bachelor of Environmental Engineering (Honours) and Bachelor of Commerce



Scan me or visit

monash.edu/engineering/change-makers/priya



	Clayton
	4 years full-time 8 years part-time
	February, July and November
	ATAR: 87*
	IB: 31*
	MG: 86
	Specialist

DEGREE AWARDED

Bachelor of Aerospace Engineering (Honours)

DOUBLE DEGREES

- Arts
- Commerce
- Laws (Honours)
- Science

MINORS

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

CRICOS: 001722B

* 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 2021 or an estimate (E).
MG: Monash Guarantee.



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



I am passionate about space exploration and engineering is the closest I can get to working with cutting-edge technology to pioneer new ways to discover the universe.

There are many benefits to being in a student team, you hear about work-related opportunities or internships and you can further apply the skills from your studies in a real-life team environment.”

SHEFIN MARIYA JOJU

Bachelor of Aerospace Engineering (Honours) and Bachelor of Science - Majoring in Astrophysics Operations Team, Monash Nova Rover

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 and opening in 2022, will offer 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:** 87*

IB: 31*

MG: 86

🎯 Specialist

DEGREE AWARDED

Bachelor of Biomedical Engineering (Honours)

CRICOS: 001722B

* 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 2021 or an estimate (E).
MG: Monash Guarantee.



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



Through my research, I've been able to work on ensuring biomaterials are compatible with the human body. We've designed new materials which encourage bone growth, designed new implant shapes and been able to manufacture both the new material and new implant first-hand. Using your research to help someone achieve a better quality of life is fantastic and truly rewarding."

ERIN BRODIE

SIEF Ross Metcalf STEM+ Business Research Fellow, Monash University
Doctor of Philosophy (PhD)





📍 Clayton, Malaysia

🕒 4 years full-time
8 years part-time

➔ February, July and November

📊 **ATAR:** 87*

IB: 31*

MG: 86

🎯 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
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

* 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 2021 or an estimate (E).

MG: Monash Guarantee.

^ See page 28 for Masters 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. Take your studies further with the new Master of Biological Engineering[^] 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
- 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.



Working for Tesla has made me excited for the future, because you really see how each individual can have an impact on a greater goal. Global impact requires direction towards a common goal, aligning the resources and knowledge needed to reach it, and commitment to making positive change stick."

DANIEL WIELECHOWSKI

Manufacturing Engineer, TESLA
Bachelor of Chemical Engineering (Honours) and
Bachelor of Science (Chemistry)
Master of Environment and Sustainability.



[^] See page 28 for Masters Accelerated Pathway entry requirements

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, with a focus on the fundamentals and a taste of industry experience through opportunities 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 transport technologies 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
- construction and mining
- roads and traffic industries
- marine and resort developments property and land development consulting firms
- environmental and renewable energy sectors.



As part of my degree I went on exchange to study engineering in Sweden. Expanding my knowledge and understanding of different cultures, the program increased my future employability by advancing my knowledge of different regions, transport systems and engineering practices.

I am now working as a design engineer. My 5-year plan is to learn as much as I can and gain experience in many different areas and work my way to a project lead engineer.”

THOMAS BARBOUR

Design Engineer, Marshal Melbourne
Bachelor of Civil Engineering (Honours) and Bachelor of Commerce



📍 Clayton, Malaysia

🕒 4 years full-time
8 years part-time

➔ February, July and November

📋 **ATAR:** 87*

IB: 31*

MG: 86

🎯 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
- Environmental engineering
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

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MG: Monash Guarantee.



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



📍 Clayton, Malaysia

🕒 4 years full-time
8 years part-time

➔ February, July and November

📊 **ATAR:** 87*

IB: 31*

MG: 86

🎯 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
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

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MG: Monash Guarantee.



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



I hope to run my own engineering start-up that focuses on developing creative solutions to tackle real-world problems. Participating in the Monash Engineering's Leadership Program has led me to further career development opportunities. This included the Telstra Engineering Leadership Scholarship at Monash University and a 12 week summer internship opportunity in the Telstra Summer Vacation Program. Doing engineering has been such a rewarding and enjoyable experience."

EMILY QIAO

Bachelor of Electrical and Computer Science Engineering (Honours) and Bachelor of Commerce
Chief Operating Officer, Robogals Global

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.

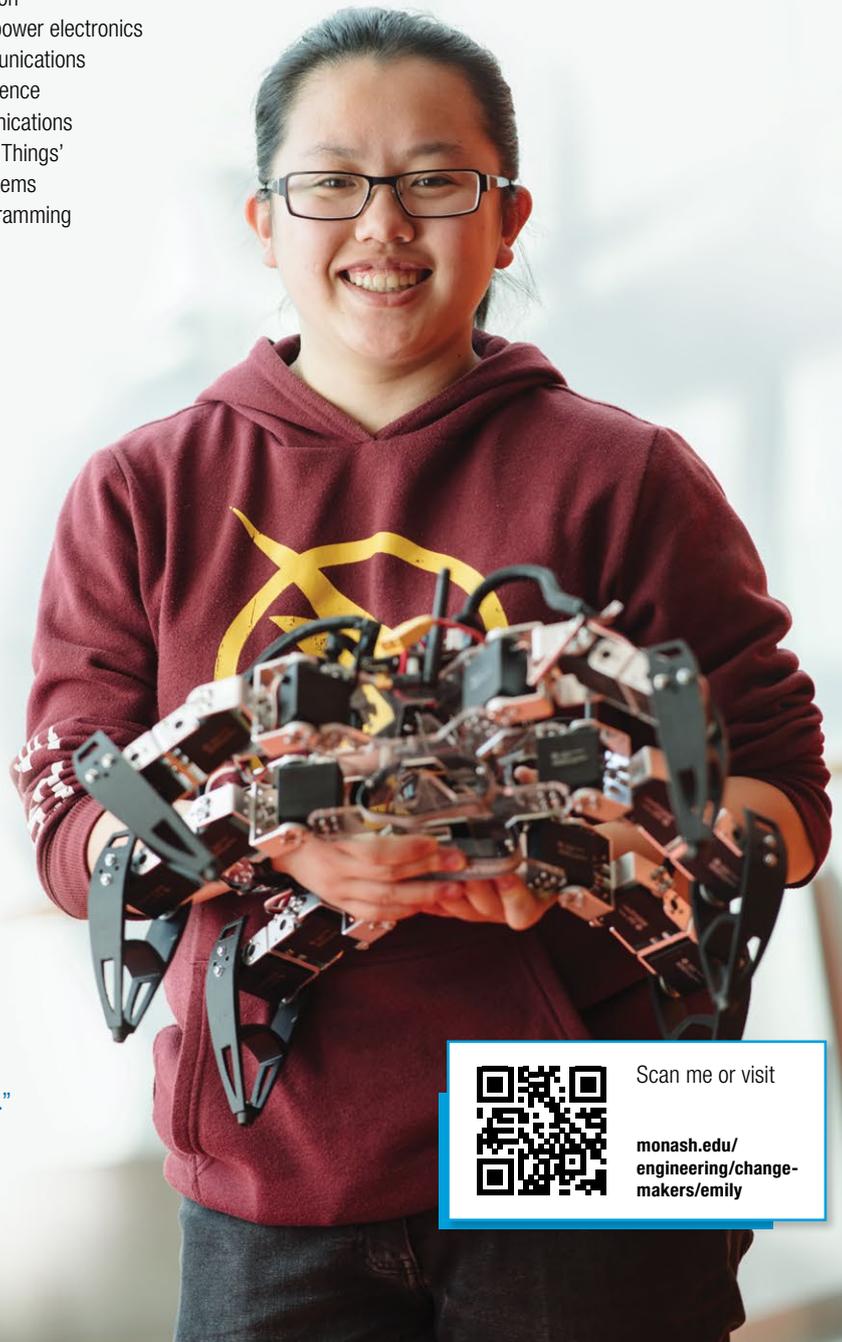
Monash will give you the hands-on training and theoretical insight you need for an exciting future as an electrical and computer systems engineer.

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.



Scan me or visit

monash.edu/engineering/change-makers/emily

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. 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
- international agencies that aid developing nations.



📍 Clayton

🕒 4 years full-time
8 years part-time

➔ February, July and November

☰ **ATAR:** 87*

IB: 31*

MG: 86

🎯 Specialist

DEGREE AWARDED

Bachelor of Environmental Engineering (Honours)

DOUBLE DEGREES

- Arts
- Commerce
- Science

MINORS

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

CRICOS: 001722B

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MG: Monash Guarantee.



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



Scan me or visit

monash.edu/engineering/change-makers/simone



I'd love to see other students inspired by BorrowCup. The university is a living laboratory for testing ideas to make our society more sustainable. If you're like me and you like solving problems, or want to make the world a better place, or think about society and how you could change it, then engineering could be for you."

SIMONE PIANKO

Bachelor of Environmental Engineering (Honours)
and Bachelor of Commerce
Founder of BorrowCup
Sustainability and Resilience Intern, AECOM



	Clayton
	4 years full-time 8 years part-time
	February, July and November
	ATAR: 87*
	IB: 31*
	MG: 86
	Specialist

DEGREE AWARDED

Bachelor of Materials Engineering (Honours)

DOUBLE DEGREES

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

MINORS

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

CRICOS: 001722B

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MG: Monash Guarantee.

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 and mining.

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.



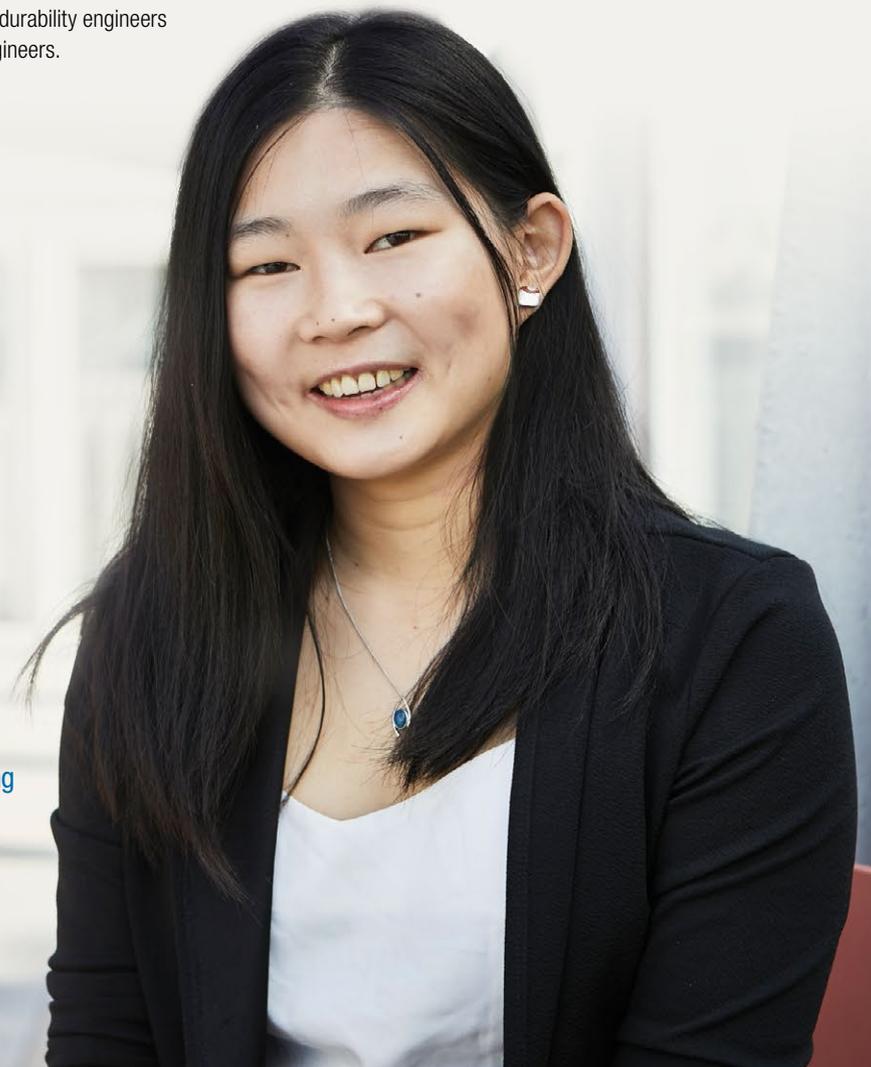
Discover more at monash.edu/engineering/specialisations/materials



As part of the Co-operative Education Program, I participated in a summer internship with John Holland Building Team, working on the Flinders Gate Project. At the end of the three-month term, I was invited to continue working part-time while I continued my studies. It has been a very enriching experience. You get a sense of pride when you walk past the building knowing you've helped build it in your own small way."

SEII CHEN

Bachelor of Materials Engineering (Honours)
Engineering intern, Duratec Australia



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.



📍 Clayton, Malaysia

🕒 4 years full-time
8 years part-time

➔ February, July and November

📊 **ATAR:** 87*

IB: 31*

MG: 86

🎯 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
- Micro and nano technologies
- Mining engineering
- Renewable energy engineering
- Smart manufacturing
- Sustainable engineering

CRICOS: 001722B

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MG: Monash Guarantee.



My passion for car racing made mechanical engineering the obvious choice. Joining the Monash Motorsport team has increased my engineering knowledge in vehicle dynamics, and helped me develop my engineering hands on skills. Being able to design, build and race formula cars as part of my degree has brought me so much enjoyment as well as allowing me to work with my best mates through the team.”

JACK BELL

Bachelor of Mechanical Engineering (Honours)
Head of Dynamics & Driver, Monash Motorsport
Australian National Karting Champion



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



Scan me or visit

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



📍 Clayton, Malaysia

🕒 4 years full-time
8 years part-time

➔ February, July and November

📊 **ATAR:** 87*

IB: 31*

MG: 86

🎯 Specialist

DEGREE AWARDED

Bachelor of Robotics and Mechatronics Engineering (Honours)

DOUBLE DEGREES

- Arts
- Commerce
- Science

MINORS

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

CRICOS: 001722B

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MG: Monash Guarantee.



Discover more at monash.edu/engineering/specialisations/robotics-mechatronics



It's been an exciting and rewarding experience leading the build of Monash Motorsport's driverless race car, the M19-D. I've not only gained hands-on engineering experience, but also the strong leadership skills required to excel in my career and lead a team effectively. I've also created strong industry connections through networking with Monash alumni, partners and sponsors that will best prepare me for today's workforce."

ARYAMAN PANDAV

Bachelor of Mechatronics Engineering (Honours) and Bachelor of Science
Electrical Systems Engineer, Monash Motorsport

ROBOTICS & 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 (AI) and automation.

- **Artificial intelligence** covers neural networks and deep learning, advanced engineering design, computer vision systems, and intelligent robotics
- **Automation** covers 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.



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 software products, 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, the mathematical foundations of software engineering, requirements analysis and software development. 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 \$18,000 scholarships.

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

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, July
and November

☰ **ATAR:** 87*

IB: 31*

MG: 86

🎯 Specialist

DEGREE AWARDED

Bachelor of Software Engineering
(Honours)

DOUBLE DEGREES

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

CRICOS: 001722B

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MG: Monash Guarantee.



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



My experiences at uni were immensely valuable in getting my career started on the right track. The Industry-Based Learning program allowed me to work with an amazing team at startup REALas within ANZ Bank and by the end of my placement I was a significantly more capable developer and team member.

It's been an amazing start to my career and I've just moved interstate to work at one of Australia's biggest tech companies. I'm looking forward to the opportunity to have an impact on products which are used by hundreds of thousands of businesses."

CALEB JOSEPH

Software Developer, Atlassian
Bachelor of Software Engineering



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



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.



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



MONASH BREWLAB

Australia's first student led brewing team focuses on the chemical engineering and science of brewing, providing students an opportunity to learn, design, and operate a nano-scale brewery on campus.



Scan me or visit

youtu.be/s1f1Z7ayt-c

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 design: lighter, faster, stronger	Engineering mathematics	Computing for engineers	Elective or minor unit
Semester 2	Engineering design: cleaner, safer, smarter	Engineering mobile apps	Level one engineering elective unit	Elective or minor unit

YEAR 2

Semester 1	Mechanics of materials	Dynamics 1	Engineering design 1	Elective, technical elective or minor unit	
Semester 2	Advanced engineering mathematics	Mechanics of fluids	Thermodynamics	Elective, technical elective or minor unit	Continuous Professional Development ² or Industrial Training ³

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	Engineering design 2	Systems and control	Level 3 or 4 technical or engineering minor elective unit	Continuous Professional Development ² or Industrial Training ³

YEAR 4

Semester 1	Final year project	Professional practice	Thermodynamics and heat transfer	Level 3 or 4 technical or engineering minor elective unit	Continuous Professional Development ² or Industrial Training ³
Semester 2	Final year project – Thesis	Engineering design 3	Computer-aided design	Level 3 or 4 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/study

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). Visit monash.edu/enrolments/government-loans/commonwealth-supported-place

HECS-HELP/FEE-HELP

Loan options for eligible applicants. Visit monash.edu/enrolments/government-loans/domestic-full-fee

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

\$46,000, annual average fee per 48 credit points of study in this course for 2021 (A\$). Further information on fees for each course can be found at monash.edu/study

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

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 27 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, or English A: Language and Literature, or Literature and Performance, <i>OR</i> At least 3 in one of the following HL subjects: <ul style="list-style-type: none"> English A: Literature, or English 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, or English 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, or English A: Language and Literature, or Literature and Performance, <i>OR</i> At least 4 in one of the following HL subjects: <ul style="list-style-type: none"> English A: Literature, or English 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, or English 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, or Mathematics: Applications and Interpretations, or Mathematics, or Mathematics: 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, or Mathematics, or Further Mathematics, or Mathematics: Analysis and Approaches 	At least 4 in one of the following SL subjects: <ul style="list-style-type: none"> Mathematics, or Mathematics: 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, or Mathematics, or Further Mathematics, or Mathematics: 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	Science					
		Level 1	Level 2	Level 3	Specified					
Engineering M	4	■		■	Chemistry or Physics	Bachelor of Aerospace Engineering (Honours)	CL	87	31	86
						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)				
	5	■		■	Chemistry or Physics		94.1	40	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	Science					
		Level 1	Level 2	Level 3	Specified					
Engineering and										
Architectural Design	5	■		■	Chemistry or Physics	Bachelor of Civil Engineering (Honours) and Bachelor of Architectural Design	CL CA	90.05	31	86
Arts⁴	5	■		■	Chemistry or Physics	Bachelor of Aerospace Engineering (Honours) and Bachelor of Arts	CL	90.0	31	86
						Bachelor of Chemical Engineering (Honours) and Bachelor of Arts				
						Bachelor of Civil Engineering (Honours) and Bachelor of Arts				
						Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Arts				
						Bachelor of Environmental Engineering (Honours) and Bachelor of Arts				
						Bachelor of Materials Engineering (Honours) and Bachelor of Arts				
						Bachelor of Mechanical Engineering (Honours) and Bachelor of Arts				
						Bachelor of Robotics and Mechatronics Engineering (Honours) and Bachelor of Arts				
Bachelor of Software Engineering (Honours) and Bachelor of Arts										
Biomedical Science	5	■		■	Chemistry	Bachelor of Chemical Engineering (Honours) and Bachelor of Biomedical Science	CL	92.2	33	88
						Bachelor of Civil Engineering (Honours) and Bachelor of Biomedical Science				
						Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Biomedical Science				
						Bachelor of Mechanical Engineering (Honours) and Bachelor of Biomedical Science				
Commerce	5	■		■	Chemistry or Physics	Bachelor of Aerospace Engineering (Honours) and Bachelor of Commerce	CL	90.75	33	88
						Bachelor of Chemical Engineering (Honours) and Bachelor of Commerce				
						Bachelor of Civil Engineering (Honours) and Bachelor of Commerce				
						Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Commerce				
						Bachelor of Environmental Engineering (Honours) and Bachelor of Commerce				
						Bachelor of Materials Engineering (Honours) and Bachelor of Commerce				
						Bachelor of Mechanical Engineering (Honours) and Bachelor of Commerce				
						Bachelor of Robotics and Mechatronics Engineering (Honours) and Bachelor of Commerce				
Bachelor of Software Engineering (Honours) and Bachelor of Commerce										
Computer Science	5	■		■	Chemistry or Physics	Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Computer Science	CL	90.05	33	88
						Bachelor of Software Engineering (Honours) and Bachelor of Computer Science				
Design	5	■		■	Chemistry or Physics	Bachelor of Mechanical Engineering (Honours) and Bachelor of Industrial Design	CL CA	90.4	31	86
Information Technology	5	■		■	Chemistry or Physics	Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Information Technology	CL	88.8	31	86
						Bachelor of Software Engineering (Honours) and Bachelor of Information Technology				
Laws (Honours)	6.25 ⁵	■		■	Chemistry or Physics	Bachelor of Laws (Honours) and Bachelor of Aerospace Engineering (Honours)	CL	97.05	36	94
						Bachelor of Laws (Honours) and Bachelor of Chemical Engineering (Honours)				
						Bachelor of Laws (Honours) and Bachelor of Civil Engineering (Honours)				
						Bachelor of Laws (Honours) and Bachelor of Electrical and Computer Systems Engineering (Honours)				
						Bachelor of Laws (Honours) and Bachelor of Materials Engineering (Honours)				
Bachelor of Laws (Honours) and Bachelor of Mechanical Engineering (Honours)										
Pharmaceutical Science	5	■		■	Chemistry	Bachelor of Chemical Engineering (Honours) and Bachelor of Pharmaceutical Science	CL PA	90.5	31	86
Science	5	■		■	Chemistry or Physics	Bachelor of Aerospace Engineering (Honours) and Bachelor of Science	CL	89.35	31	86
						Bachelor of Chemical Engineering (Honours) and Bachelor of Science				
						Bachelor of Civil Engineering (Honours) and Bachelor of Science				
						Bachelor of Electrical and Computer Systems Engineering (Honours) and Bachelor of Science				
						Bachelor of Environmental Engineering (Honours) and Bachelor of Science				
						Bachelor of Materials Engineering (Honours) and Bachelor of Science				
						Bachelor of Mechanical Engineering (Honours) and Bachelor of Science				
						Bachelor of Robotics and Mechatronics Engineering (Honours) and Bachelor of Science				
Bachelor of Software Engineering (Honours) and Bachelor of Science										

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 2021 lowest ATAR to which an offer was made or an estimate (E), and is to be used as a guide only.

³ Masters 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

COURSE	DEGREE AWARDED	Duration (years) ¹	Monash code	Location	Intake* (semester)	English language level (see below)	2021 fee p.a. ² (A\$)	Prerequisites (see page 28)			
								English		Mathematics	Science
								Level 1	Level 2	Level 3	Specified
Engineering	Bachelor of Aerospace Engineering (Honours)	4	E3001	CL	Feb, July & Nov	A	\$46,000	■		■	Chemistry or Physics
	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 ³	5					■		■	Chemistry or Physics		

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.

How to calculate your entry score for the listed qualifications in this guide

Entry scores for the listed qualification in this guide are calculated as follows:

Australian Year 12 (listed under the '2022 ATAR for international students' column): Final ATAR as awarded by the relevant Australian state Year 12 authority.

GCE A Level: Total score of a maximum of the best three A Level subject examinations taken within two years⁴. Two AS Level subjects can be counted in place of one A Level subject, provided that the subject has not been taken at A Level, and there's at least one A Level subject included in the calculation. AS Level results cannot be used to replace a poor performance in an A Level subject. Score A Level grades as follows:

A*(a*)=5, A(a)=5, B(b)=4, C(c)=3, D(d)=2, E(e)=1, U=0. Score AS Level grades as follows: 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) are not to be included in the calculation. A maximum of 1 bonus point is offered when achieving A* in an A Level subject.

GCE A Levels must be awarded by the following bodies:

- Cambridge Assessment International Examinations (CAIE) (previously known as CIE)
- Pearson Edexcel (previously known as Edexcel)
- Council for the Curriculum, Examinations and Assessment (CCEA)
- Oxford, Cambridge and RSA Examinations (OCR)
- Welsh Joint Education Committee (WJEC)
- Assessment and Qualifications Alliance (AQA).

All India Senior School Certificate: Overall average of the best four academic subjects (excluding Physical Education) and results indicated as 'PASS'.

American Admission Tests:

- **Advanced Placement:** Total of the best two Advanced Placement (AP) examinations undertaken during Grades 9 to 12 of the American High School Diploma. If more than two AP examinations have been completed, only the best two AP examinations will be used in the calculation. Minimum accepted score in each AP examination is 3.

The following documents must also be submitted:

- Official final Advanced Placement examination issued by the College Board
- Official final academic transcript and Diploma Certificate for the American High School Diploma (or equivalent Australian Year 12 qualification⁷).

- **Scholastic Aptitude Test (SAT) – total score out of 2400:** Total score obtained by adding the highest section scores⁵ (by adding the best scores achieved for 'Critical Reading', 'Mathematics' and 'Writing') across all SAT examinations submitted to Monash University.

The following documents must also be submitted:

- Official final SAT examination issued by The College Board
- Official final academic transcript and Diploma Certificate for the American High School Diploma (or equivalent Australian Year 12 qualification⁷).

- **Scholastic Aptitude Test (SAT) – total score out of 1600:** Total score obtained by adding the highest section scores⁶ (by adding the best scores achieved for 'Evidence Based Reading and Writing' and 'Math') across all SAT examinations submitted to Monash University.

The following documents must also be submitted:

- Official final SAT examination issued by The College Board
- Official final academic transcript and Diploma Certificate for the American High School Diploma (or equivalent Australian Year 12 qualification⁷).

Additional Requirements for American Admission Tests (SAT and AP):

- The American High School Diploma cannot be accepted independently for admission into Monash University.
- Schools that offer the American High School Diploma in the United States of America must be listed as accredited on the National Center for Education Statistics at www.nces.ed.gov/globallocator
- Schools that offer the American High School Diploma outside the United States of America must be accredited by the Advanced Ed or an equivalent regional accrediting agency in the United States of America as follows:
 - Middle States Association of Colleges and Schools
 - New England Association of Schools and Colleges
 - North Central Association of Colleges and Schools
 - Northwest Commission on Colleges and Universities
 - Northwest Accreditation Commission
 - Western Association of Schools and Colleges
 - Southern Association of Colleges and Schools.
- If a student has undertaken multiple American Admission Tests (i.e. SAT, AP or ACT), the test with the highest achieved scores will be considered as meeting Monash University undergraduate entry requirements.

High School Diploma (Bằng Tốt Nghiệp Trung Học Phổ Thông), Vietnam: Overall average of all Grade 12 subjects.

2022 ATAR for international students	GCE A Level	All India Senior School Certificate	Indian School Certificate Examination	Advanced Placement, America	SAT, America (Total score out of 2400)	SAT, America (Total score out of 1600)	High School Diploma, Vietnam	Hong Kong Diploma of Secondary Education	International Baccalaureate (IB) Diploma	Ontario Secondary School Diploma – Grade 12	SMA3, Indonesia – 100% scale (60% pass)	STPM, Malaysia	UEC, Malaysia	Monash University Foundation Year (commencing MUFY in 2021)	UNSW Foundation Studies	University Of Melbourne, Trinity College Foundation Studies	Monash College	
																	Diploma Part 1 ¹⁰	Diploma Part 2 ¹⁰
87.50	11	81%	76%	7	1770	1270	8.49	20	31	86.30%	8.75 or 87.50%	9.4	3	76.25%	8.25	83%	80%	60%
94.1	14	85%	80%	9	1920	1360	8.7	23	36	91%	9 or 90%	10.30	1.8	88.75%	Not applicable			

Hong Kong Diploma of Secondary Education: Total score of the best five subjects⁹ (Category A and C only). Score 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.

Indian School Certificate Examination: Overall average of the best four academic subjects (excluding Physical Education) and results indicated as 'PASS CERTIFICATE AWARDED'.

International Baccalaureate (IB) Diploma: Total final score as awarded on the final official transcript.

Ontario Secondary School Diploma – Grade 12: Overall average of the best six academic Grade 12 subjects⁹ (excluding workplace preparation courses and open courses). Students must achieve a minimum total of 30 credits and complete Community Involvement.

SMA3, Indonesia – 100% scale (60% pass): Overall average of all Semester 1 and Semester 2 Grade 12 results.

Note: Monash University undergraduate entry scores vary for SMA3 qualifications that are marked on differing grading scales.

STPM, Malaysia: Total of the best three subjects, excluding Pengajian Am (General Studies).

UEC, Malaysia: 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.

Monash University Foundation Year (MUFY): To calculate the average mark required for the Monash University destination degree, refer to the 'How to calculate your Foundation Year score' information available at:

monashcollege.edu.au/courses/foundation-year/destination-degrees

The undergraduate entry requirements published in this brochure are for students who commence the MUFY program in 2022.

UNSW Foundation Studies: Final grade point average.

The University of Melbourne Trinity College Foundation Studies:

Overall average of the best four subjects (excluding English for Academic Purposes).

Monash College Diploma: To calculate the average mark required for the Monash University destination degree, refer to the relevant diploma program information available at

monashcollege.edu.au/courses/diplomas/destination-degrees

The Monash College Diploma Part 1 and Part 2 entry requirements published in this guide are for students commencing their undergraduate destination degree in 2023.

Other international qualifications entry requirements can be found at

monash.edu/prior-study

PREREQUISITES AND ADDITIONAL REQUIREMENTS

Students need to meet course prerequisites (including English) and additional requirements. It should be noted that required prerequisite subject scores are not listed in this course guide.

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
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 Fees are quoted in Australian dollars; each is the annual average fee per 48 credit points of study in this course for 2020. Fees are adjusted annually. Please see monash.edu/fees/course-fee-types/international-full-fee for updates.

³ Masters Accelerated Pathway is only available to school leavers and is not offered with biomedical, environmental or software engineering specialisations.

⁴ Subject examinations taken within two years may include more than one sitting. For example, subject examinations in June 2019 until June 2021 are acceptable.

⁵ In order for the final score to be calculated all SAT scores must be marked out of 2400.

⁶ In order for the final score to be calculated all SAT scores must be marked out of 1600.

⁷ Students who have undertaken an American Admission Test (i.e. SAT, AP or ACT) with another international qualification (equivalent to an Australian Year 12) will be considered for Monash University undergraduate admission, however the qualification or American Admission Test with the highest achieved score will be used to determine whether the student has met the entry requirements. Students who have undertaken an accredited final secondary school leaving award that is not equivalent to an Australian Year 12 may be considered for Monash University undergraduate admission only with an approved American Admissions Test, however higher entry scores will apply.

⁸ The highest grade will be used in the calculation in the event where individual subject examinations have been sat in multiple sittings.

⁹ The grade 12 subjects must be taken from the most recent completed Ontario Student Transcript issued by the Ontario Ministry of Education.

¹⁰ The Monash College Diploma Part 1 and 2 entry requirements are for students commencing their undergraduate degree in 2022.

* Please refer to monash.edu/study for further details on semester intake availability for individual specialisations

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

Living in Melbourne is affordable if you plan ahead and know what your needs will be. Your tuition and study fees do not include personal costs such as accommodation, food and miscellaneous items. These costs can add up to approximately A\$22,900+ per year. 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.

monash.edu/study/student-life

Support services

Monash helps students 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.



Melbourne Cricket Ground (MCG)



Southbank



Australian native wildlife (Koala)



Great Ocean Road

¹ Economist Intelligence Unit 2011-2018.

DISCOVER MORE

There's a range of events held throughout the year for you to visit campus and experience Monash Engineering first-hand. Meet our lecturers, talk to current students, see our innovative facilities and explore the various fields of engineering.

Event dates may be subject to change. Please check the website for the latest details on these events and more, visit monash.edu/engineering/events

2021 EVENTS

Inside Monash

Online webinar 13 May and 26 August 2021

Join us for an interactive online stream to hear from our incredibly talented graduates and students and gain insights into what its really like to be an engineer.

Engineering campus tours

Tours held throughout the year

If you would like to take a closer look and see where you could be studying next year, this is a great chance to visit our fantastic engineering facilities and student spaces. Get a feel for campus life, have chat with engineering staff and we can help you with course advice as well. The tour is free and registration is essential. See the events website for details.

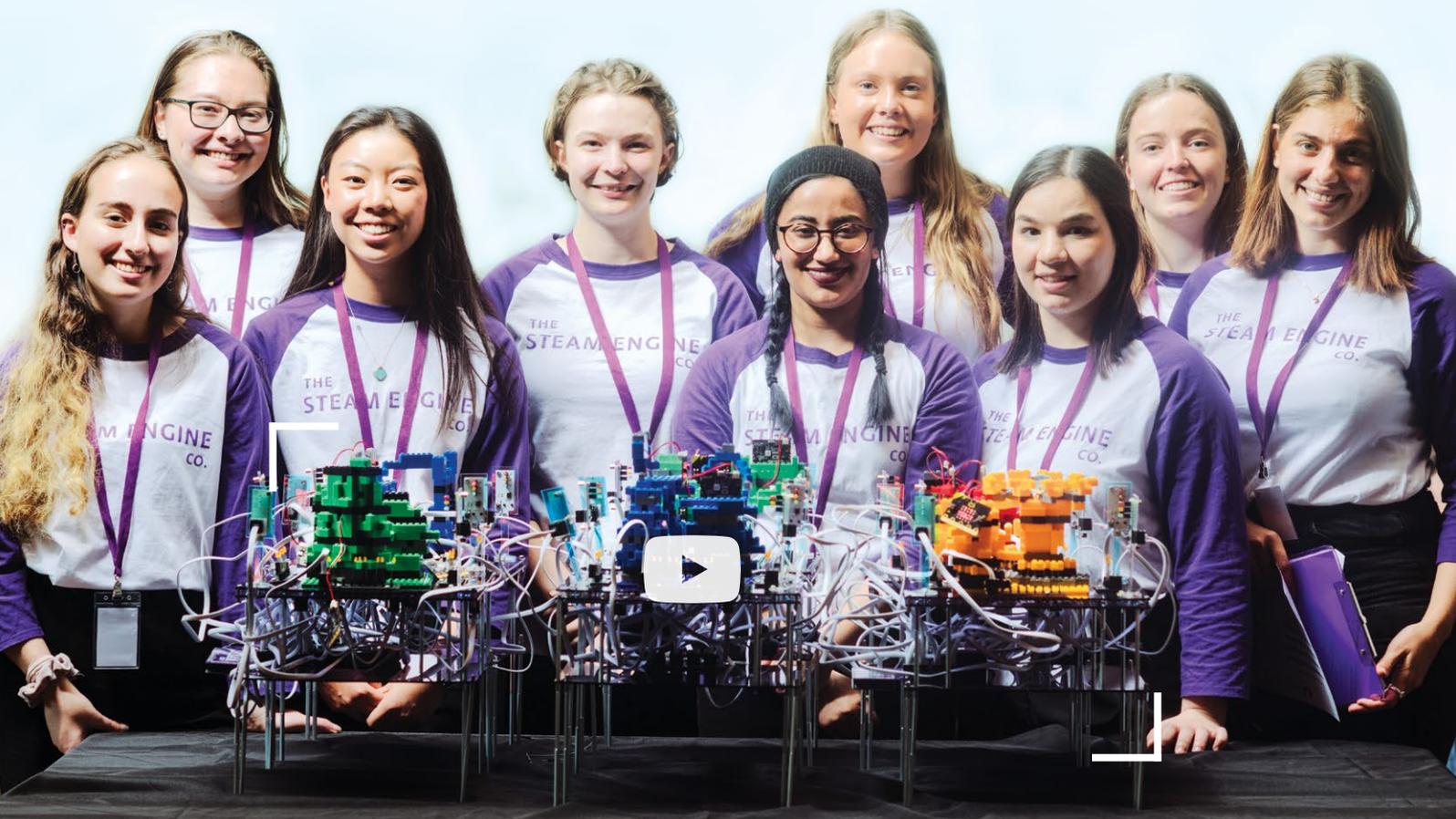
Open Day 2021

Discover what it's like to be a Monash student. Open Day is a chance to talk with current students, meet academics and speak with our student services team about your future. Watch live demonstrations, tour our engineering facilities and soak up the campus atmosphere. See the website for details.

Monash Engineering Girls (MEG)

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

For more information, visit monash.edu/engineering/meg



THE STEAM ENGINE CO.

This is an education technologies startup founded by Marissa Thomas, a Monash chemical engineering graduate. They deliver a range of coding, robotics and engineering workshops and toolkits to teach and empower children to realise their potential to change the world through engineering.



For more information, visit

youtu.be/_W5dbZowJyI

Monash Engineering

monash.edu/engineering

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youtube.com/monashengineering

Monash is proud to have the following industry partners who support our students through scholarships, prizes and Engineering Leadership and Co-operative Education programs:



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monash.edu

FIND A COURSE
monash.edu/study

INTERNATIONAL STUDENTS
monash.edu/study/international

FUTURE STUDENT ENQUIRIES
Australian citizens, permanent residents
and New Zealand citizens
T 1800 MONASH (666 274)
E future@monash.edu
monash.edu/study/contact

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T +61 3 9903 4788 (outside Australia)
E study@monash.edu

