THE UNIVERSITY OF MELBOURNE

Undergraduate Engineering and IT Guide

Discover Engineering and IT in 2026

Contents

Create your own path

We're supported by the Melbourne Curriculum, enabling you to explore your passions and strengths, while giving you the flexibility to specialise when you're ready.

Begin your journey with a three-year Bachelor of Design, Bachelor of Commerce, or Bachelor of Science degree and choose from over 100 study areas to create a course that fits you perfectly. You'll build essential skills like critical thinking, problem-solving, communication, and leadership, both in the classroom and through internships, industry-based learning and hands-on projects.

Explore what Melbourne has to offer or connect with our global community of over 200 exchange partners. Aligned with leading universities across Europe, North America and Asia, our course structure encourages you to develop both well-rounded skills and specialised expertise in your chosen discipline.

After completing your undergraduate studies, continue on into our specialised engineering or information technology master's programs. You'll graduate with a globally recognised qualification as well as the knowledge and experience to make an impact in your career, wherever that may take you.

The path is yours to create.

The University of Melbourne acknowledges the Traditional Owners of the unceded land on which we work, learn and live: the Wurundjeri Woi Wurrung and Bunurong peoples (Burnley, Fishermans Bend, Parkville, Southbank and Werribee campuses), the Yorta Yorta Nation (Dookie and Shepparton campuses), and the Dja Dja Wurrung people (Creswick campus).

Why choose Engineering or Information Technology?

Do you love innovation and discovering how things work? Are you passionate about inventing, designing and creating solutions for society? A global career in Engineering and Information Technology might be for you.

Engineering and Information Technology skills are applicable across almost every sector, from health care right through to manufacturing. There are many career pathways you could take, and the following themes are just a few examples. You may study areas not listed here or find other unique ways to apply your talents within your chosen industry.

Flexible and focused course structures

Select majors, electives, and breadth subjects that align with your chosen career from day one or explore a range of diverse subjects to discover new passions.

Immersive and hands-on learning experiences

Work alongside world-renowned academics, researchers and industry experts while using the latest technologies, tools and research to become a true innovator in your field. You'll gain valuable industry experience with internship opportunities, real-world projects and exciting innovation challenges with industry mentors.

Graduate ready to make an impact

You'll graduate with both an undergraduate and a professionally accredited masters degree giving you a higher-level qualification that is recognised by employers globally. We're accredited by Engineers Australia, EUR-ACE and more.

It's future proof

Australia's demand for engineering and IT skills is growing three times faster than other sectors, creating vast job opportunities. At Melbourne, you'll gain the technical expertise and innovative mindset needed to meet the industry's evolving needs and thrive in emerging fields.

Engineering and Information Technology at a glance

Excellence

#1
Top ranked university in Australia.[1]

#13
In the world.[1]

#11
Top ranked university for research in Australia.[2]

470,000+
Total living alumni

52,700+
Student population

#8
Globally for graduate employability[2]

#1
in Australia and 9th globally for social and environmental sustainability.[4]

59%
Domestic students

41%
International students

Quick Facts

Iconic projects

- Next generation internet technologies
- Nanotechnology-based drug delivery
- Bionic ear
- Bionic eye
- Global water resource management
- COVID-19 ventilation hood
- Carbon capture and storage

150 Key Partnerships

We partner with organisations from across the globe to help students gain real-world experience and build their networks while studying. These relationships with industry partners mean we can help you find employers, mentors and understand how to transition from studying to working in industry.

Key Research Areas

- Artificial Intelligence
- Food and Agribusiness
- Water, Environment and Agriculture
- Energy
- Infrastructure
- Transport
- MedTech
- Sustainable Resources
- Defence and National Security

1. QS World University Rankings 2025
2. QS Graduate Employability Ranking 2022
3. The Australian Financial Review Best Universities Ranking 2024
4. QS World University Rankings: Sustainability 2025
5. Figures based on 2025 enrolments

Your study experience

Scan to learn more

How the Melbourne curriculum works

You start with a three-year bachelors degree. Once completed, you can enter the workforce with a deep knowledge base and career ready skill set. Or, go on to gain advanced training through graduate coursework or research.

What is a major?

Making up one third of your subjects, a major is the subject area you'll focus on during your undergraduate degree. Each degree has a different set of majors.

In your first year, you can focus on your major straight away or explore other subjects before deciding on what major you want to pursue.

What is a minor?

A minor is a shortened sequence of subjects taken from a major that allows you to explore another field of interest in addition to your main area of study.

What is breadth?

Breadth is a key feature of your Melbourne curriculum undergraduate degree that allows you to study a wide range of subjects from outside your home faculty. It's a requirement of your course that a certain number of subjects are dedicated to breadth. Through breadth, you will develop a broader range of skills and can explore interests that may not traditionally be available within your main field of study.

What is a specialisation?

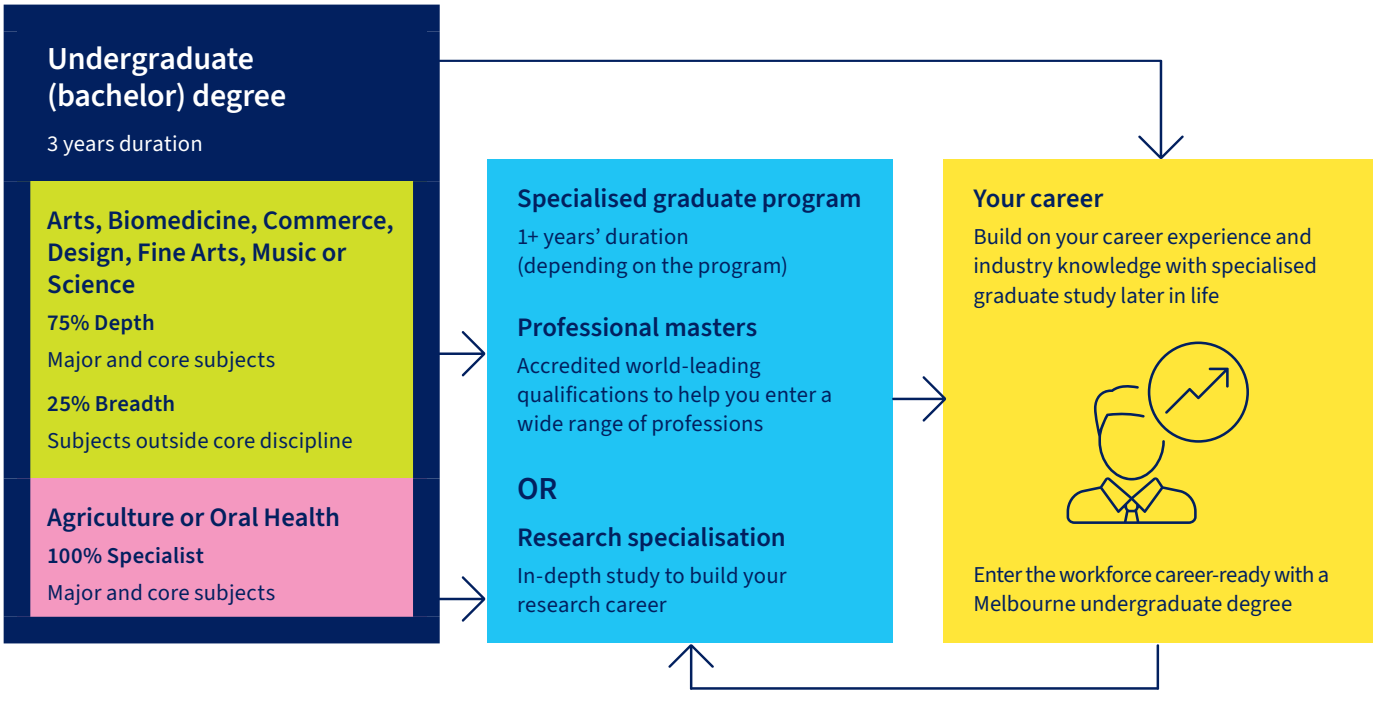
A specialisation is an optional set of subjects within a particular field of your choosing that can complement your degree.

You can choose a specialisation that pertains to a particular career path or industry of your interest.

For example: if you are studying the Master of Electrical Engineering, you could choose to specialise in Low-Carbon Power Systems to become a power system practitioner.

To complete a specialisation, you'll need to complete specific subjects to qualify. These subjects build on the expertise you'll develop throughout your degree and can demonstrate to potential employers that you're an expert in a specific field. You don't need to apply for a specialisation, but some subjects may have prerequisites.

Direct your learning experience



Your study options

Scan to learn more

Bachelor of Biomedicine, Design, or Science

To be eligible for the two-year Master of Engineering, choose an engineering major in the Bachelor of Biomedicine, Design or Science. As a Melbourne graduate, you'll be guaranteed a CSP* or international fee place into the Master of Engineering if you achieve a Weighted Average Mark (WAM) of 65% or higher in your bachelors degree.

Graduate Degree Package

Enrol into both a University of Melbourne bachelors degree and Master of Engineering or Information Technology (IT) degree. Graduate Degree Packages into the Master of Engineering or IT are available through the Bachelors of Biomedicine or Science for students who achieve a 95.00 ATAR or above or through the Bachelors of Commerce for students who achieve a 93.00 ATAR or above. This option guarantees your Commonwealth Supported Place* (CSP) or International fee place in the Master of Engineering or IT. A Graduate Degree Package has its own course code, so if you're not sure what ATAR to expect or want to keep your choices open, you can still enrol in the individual undergraduate degree – just indicate it as a separate preference in VTAC.

International applicants with an overseas qualification can apply for a Graduate Degree Package by indicating this in their direct application to the University.

Bachelor of Commerce

This pathway is ideal if you're looking to combine business skills like management, finance or accounting with technical knowledge in engineering or information technology to lead into a broad range of career options in engineering, information technology, business or consultancy.

High-achieving students can enrol in the Bachelor of Commerce/Master of Engineering or IT Graduate Degree Package (GDP). You will be guaranteed a Commonwealth Supported Place or international fee place into the three-year Master of Engineering or two-year Master of Information Technology, provided you meet the maths and science entry requirements.

Bachelor of Commerce students who intend to progress to the Master of Engineering will be permitted to complete the four prerequisite first year subjects using breadth.

Any bachelor degree

If you study any University of Melbourne undergraduate degree without an engineering major you are still guaranteed a CSP or international fee place in the Master of Engineering, Master of Information Technology or Master of Information Systems provided you achieve a WAM of 65% or higher in your bachelors degree, and meet the prerequisite requirements.

If you follow this path, you'll be eligible for the three-year Master of Engineering or the two-year Master of Information Technology or Master of Information Systems.

Melbourne Chancellor's Scholarship

The Melbourne Chancellor's Scholarship guarantees high-achieving students entry into the Master of Engineering. It is available to students who complete Year 12 or the International Baccalaureate (IB) in Australia and who achieve an ATAR of 99.90 or higher.

Sample course plan

Step 1: Study Mechanical Systems

Bachelor of Commerce (Finance major)

Year 1	Semester 1	Introductory Microeconomics	Accounting Reports and Analysis	Quantitative Methods 1	Calculus 2
	Semester 2	Introductory Macroeconomics	Principles of Finance	Linear Algebra	Physics 1
Year 2	Semester 1	Organisational Behavior	Intermediate Microeconomics	Corporate Financial Decision Making	Physics 2: Physical Science and Technology
	Semester 2	Intermediate Macroeconomics	Introductory Personal Finance	Breadth*	Econometrics 1
Year 3	Semester 1	Microeconomics	Breadth / Commerce Elective	Investments	Entrepreneurial Finance
	Semester 2	Macroeconomics	Derivative Securities`	Econometrics 2	Breadth / Commerce Elective

Core subjects **Economics subjects** **Finance subjects** **Breadth subjects**

Learn more at **https://eng.unimelb.edu.au/students/preeng-it/commerce-pathway**.

* BCom students must complete four prerequisite subjects to meet entry requirements for the three-year Master of Engineering: two specified maths subjects and two first year science subjects (relevant to your chosen engineering stream).

❶ This is a sample course plan only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

❷ A combination of economics and econometrics subjects is required to be awarded the Economics major. For full details, please see the University Handbook. The selected major subjects at level 3 are required for entry into honours in economics.

How to study Engineering at Melbourne

Scan to learn more

3 Years

Undergraduate degree (3 years full-time)

Bachelor of Biomedicine

Majors:

- Biomedical Engineering Systems

Bachelor of Design

Majors:

- Civil Engineering Systems
- Computing and Software Systems
- Digital Infrastructure Engineering Systems
- Mechanical Engineering Systems

Bachelor of Science

Majors:

- Biomedical Engineering Systems
- Chemical Engineering Systems
- Civil Engineering Systems
- Computing & Software Systems
- Digital Infrastructure Engineering Systems
- Electrical Engineering Systems
- Environmental Engineering Systems
- Mechanical Engineering Systems
- Mechatronics Engineering Systems

Exit to employment

3 Years

Undergraduate degree

Bachelor of Commerce, or any bachelors degree from a recognised tertiary institution

Must include Linear Algebra and Calculus 2 or equivalents, along with 2 science subjects relevant to intended specialisation.

2–3 Years

Masters degree (2–3 years)

- Master of Biomedical Engineering
- Master of Chemical Engineering
- Master of Civil Engineering
- Master of Digital Infrastructure Engineering
- Master of Electrical Engineering
- Master of Environmental Engineering
- Master of Industrial Engineering
- Master of Mechanical Engineering
- Master of Mechatronics Engineering
- Master of Software Engineering

Duration of Master of Engineering will vary from 2–3 years depending on amount of credit obtained from prior study

2 Years

Exit to employment with professional accreditation

Graduate Research Degrees

- Master of Philosophy (MPhil)
- Doctor of Philosophy (PhD)

You can choose a Graduate Degree Package and apply for a bachelors and engineering masters degree at the same time.

How to study Information Technology at Melbourne

Scan to learn more

Undergraduate degree (3 years full-time)

Bachelor of Science

Majors:

- Computing and Software Systems
- Data Science
- Digital Infrastructure Engineering
- Mechatronics Engineering Systems

Bachelor of Design

Majors:

- Computing and Software Systems
- Digital Infrastructure Engineering
- User Experience Design

IT as breadth

- in any Melbourne degree

Diploma in Computing

- An extra semester to complement your degree.

Undergraduate degree

Bachelor of Commerce, or any bachelors degree from a recognised tertiary institution

3 Years

Exit to employment

Masters Degree (1.5–3 years)

- Master of Computer Science
- Master of Data Science
- Master of Digital Infrastructure Engineering
- Master of Information Systems
- Master of Information Technology
- Master of Software Engineering

Specialisations:
Artificial Intelligence
Computing
Cybersecurity
Distributed Computing
Human-Computer Interaction

1–3 Years

Exit to employment with professional accreditation

Graduate Research Degrees

- Master of Philosophy (MPhil)
- Doctor of Philosophy (PhD)

2–4 Years

You can choose a Graduate Degree Package and apply for a bachelors and information technology masters degree at the same time.

Biomedical Engineering

Scan to learn more

Meet the health challenges of the future with a degree in biomedical engineering. Biomedical engineering offers a mix of innovation, impact, and interdisciplinary collaboration to address global health challenges.

What is biomedical engineering?

Biomedical engineering blends engineering with biology and medicine to create breakthroughs in healthcare from advancing diagnostic tools to designing life-saving medical devices.

What should I study?

Start with an undergraduate degree with a major in Biomedical Engineering Systems (3 years full-time), then progress to a Master of Biomedical Engineering (2-3 years full-time). This major is available in the following undergraduate degrees:

- Bachelor of Biomedicine
- Bachelor of Science

Student experience

As a biomedical engineering student, you could intern at a hospital or biomedical research institute, work on an innovation challenge with an industry mentor through the Innovation Practice Program or experience entrepreneurship with the BioDesign Innovation subject. You'll have the chance to work alongside researchers on projects or explore your own interests in capstone and summer project subjects.

Your career

Access career opportunities as a biomedical engineer in industries such as biotechnology, hospitals, R&D, startups, pharmaceuticals, medical devices and other health services. Our graduates are working at organisations such as the Bionics Institute, Seer Medical, Medtronic, Stryker, Chemtronics, Cochlear and 4DMedical.

Optional specialisations

- Business: Study tailored business subjects in partnership with the Melbourne Business School covering economics, marketing and finance that relate to engineering.

Sample course plan

Bachelor of Science (Biomedical Engineering Systems Major)

Year 1	Semester 1	Engineering Technology and Society	Calculus 2	Foundational Biology: Life's Machinery	Today's Science, Tomorrow's World
	Semester 2	Engineering Modelling and Design	Linear Algebra	Chemistry 1	Breadth
Year 2	Semester 1	Engineering Mathematics	Applied Computation in Bioengineering	Science Elective	Breadth
	Semester 2	Anatomy and Physiology for Bioengineering	Science Elective	Science Elective	Breadth
Year 3	Semester 1	Mechanics for Bioengineering	Circuits and Systems	Science Elective	Breadth / Science Elective
	Semester 2	Introduction to Biomaterials	Biosystems Design	Science Elective	Breadth / Science Elective

Core subjects **Elective subjects** **Breadth subjects** **Recommended subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Biomedical Engineering

Year 1	Semester 1	Biomechanics	Bioengineering Data Analytics	Bioinstrumentation	Bioengineering elective
	Semester 2	Biofluid Mechanics	Biosignal Processing	Interdisciplinary Design for Engineers	Bioengineering elective
Year 2	Semester 1	Biomedical Engineering Capstone Subject	Biomedical Engineering Management & Regulations	Bioengineering elective	Approved Elective
	Semester 2		Bioengineering elective	Bioengineering elective	Bioengineering elective

Core subjects **Elective subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Chemical Engineering

Scan to learn more

Address the food, resources, energy and water challenges of the future. With a degree in Chemical Engineering, you can implement processes and new technologies to establish the circular economy.

What is chemical engineering?

Chemical engineers use their understanding of chemistry and biology to create solutions in resources and a circular economy, recycling and waste stream management, energy supply, food and pharmaceutical production, and water treatment solutions.

What should I study?

Start with an undergraduate degree with a major in Chemical Engineering Systems (3 years full-time), then progress to a Master of Chemical Engineering (2–3 years full-time). This major is available in the following undergraduate degree:

- Bachelor of Science

Your career

Access career opportunities as a chemical engineer in industries such as manufacturing, food and beverage production, future fuels, renewables and energy storage, pharmaceuticals, waste recycling and water treatment. Our engineering graduates are working at organisations such as Bulla Dairy Foods, Carlton & United Breweries, CSL, ExxonMobil, Mars Chocolate Australia and Melbourne Water.

Optional specialisations

- Business: Study tailored subjects on economics, marketing and finance.
- Materials and minerals: Explore the technology that underpins materials production or mineral processing.
- Sustainability and environment: Address the challenges in producing sustainable fuels, foods and chemicals for the future.

Sample course plan

Bachelor of Science (Chemical Engineering Systems Major)

Year 1	Semester 1	Engineering Technology and Society	Calculus 2	Chemistry 1	Today's Science, Tomorrow's World
	Semester 2	Engineering Modelling and Design	Linear Algebra	Chemistry 2	Breadth / Science Elective
Year 2	Semester 1	Fundamentals of Chemical Engineering	Material and Energy Balances	Science Elective	Breadth / Science Elective
	Semester 2	Digitisation in the Process Industries	Engineering Mathematics	Science Elective	Breadth / Science Elective
Year 3	Semester 1	Reactors & Catalysts	Fluid Mechanics	Science Elective	Breadth / Science Elective
	Semester 2	Momentum, Mass and Heat Transfers	Safety and Sustainability Case Studies	Science Elective	Breadth / Science Elective

Core subjects **Elective subjects** **Breadth subjects** **Recommended subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:

Master of Chemical Engineering (Sustainability and environment specialisation)

Year 1	Semester 1	Chemical Engineering Thermodynamics	Thermal and Separation Design	Reactors and Catalysis	Interdisciplinary Design for Engineers
	Semester 2	Design and Construction of Equipment	Chemical Engineering Management	Wastewater and Environmental Remediation	Energy, Emissions and Pollution Control
Year 2	Semester 1	Process Engineering	Process Simulation and Control	Chemical Engineering Research Project or Internship	
	Semester 2	Chemical Engineering Design Project		Chemical Engineering Elective	Particle Technology

Core subjects **Elective subjects** **Specialisation subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Civil Engineering

Scan to learn more

Reimagine sustainable solutions for our cities with a degree in Civil Engineering. Prepare regions, cities and towns to handle increasing populations, finite resources and extreme events.

What is Civil Engineering?

Civil engineering can cover a broad range of areas, such as structural, construction, geotechnical, transport, and water. Civil engineers plan, design and construct the built environment, providing essential services and infrastructure.

What should I study?

Start with an undergraduate degree with a major in Civil Engineering Systems (3 years full-time), then progress to a Master of Civil Engineering (2–3 years full-time). This major is available in the following undergraduate degrees:

- Bachelor of Design
- Bachelor of Science

Your career

You could work as a civil engineer in industries such as aerospace, construction, oil and gas, transport and water resources. Our engineering graduates are working in organisations such as AECOM, BHP Billiton, City West Water, Golder Associates, Melbourne Metro Rail Authority and Shell.

Optional specialisations

You can choose to specialise in one of seven specialisations, or you can choose not to specialise if you prefer:

- Business: Study tailored business subjects developed in partnership with the Melbourne Business School.
- Energy: Design digital systems for sustainable energy.
- Geotechnical: Design, construct and manage emerging renewable energy platforms, geotechnical structures, energy geo-structures, and high-rise structures and tunnels.
- Project Management: Effectively evaluate opportunities, mitigate risks, and address sustainability needs.
- Structural: Design, develop and evaluate the load-bearing structural systems used in buildings, bridges and other infrastructure like tunnels and dams.
- Transport: Plan, design, construct, and manage transport infrastructure,
- Water Resources: Analyse, design, operate and maintain urban water supply systems, waste-water management systems, and urban water environment.

Sample course plan

Bachelor of Design (Civil Engineering Systems Major)

Year 1	Semester 1	Calculus 1	Linear Algebra	Design Elective	Breadth
	Semester 2	Calculus 2	Engineering Technology and Society	Design Elective	Breadth
Year 2	Semester 1	Sustainable Infrastructure Engineering	Design Elective	Design Elective	Breadth
	Semester 2	Engineering Mechanics and Materials	Earth Processes for Engineering	Engineering Mathematics	Breadth
Year 3	Semester 1	Fluid Mechanics	Engineering Risk Analysis	Design Elective	Breadth / Design Elective
	Semester 2	Systems Modelling and Design	Structural Theory and Design	Design Elective	Breadth / Design Elective

Core subjects Elective subjects Breadth subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Civil Engineering

Year 1	Semester 1	Structural Theory and Design 2	Engineering Site Characterisation	Transport Infrastructure Engineering	Geotechnical Engineering
	Semester 2	Engineering Project Implementation	Civil Hydraulics	Transport Systems	Interdisciplinary Design for Engineers
Year 2	Semester 1	Engineering Capstone Project Part 1	Integrated Design	Civil Engineering Elective	Civil Engineering Elective
	Semester 2	Engineering Capstone Project Part 2	Construction Engineering	Civil Engineering Elective	Civil Engineering Elective

Core subjects Elective subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Digital Infrastructure Engineering

To find out more scan this QR code

Capture, integrate and use data in a digital work environment. You'll work with the Internet of Things (IoT), design and use digital twins, and create digital solutions for asset management, smart and sustainable cities, and disaster management.

What is digital infrastructure engineering?

Digital infrastructure engineering combines engineering and information technology. Digital infrastructure engineers work on digital systems representing our environments, resources and infrastructure to drive sustainable outcomes for businesses, projects and ecosystems.

What should I study?

Start with an undergraduate degree with a major in Digital Infrastructure Engineering Systems (3 years full-time), then progress to a Master of Digital Infrastructure Engineering (2–3 years full-time). This major is available in the following undergraduate degrees:

- Bachelor of Design
- Bachelor of Science

Your career

The infrastructure sector in Australia is booming and digital engineering tools like Building Information Modelling (BIM), IoT and virtual reality are increasingly being used. With digital systems becoming required in many industries, you can meet the demand for skilled people to assist with the transition to digital strategies and systems.

Optional specialisations

- Artificial Intelligence: Apply core digital infrastructure skills in machine learning and computer vision.
- Business: Study tailored business subjects developed in partnership with the Melbourne Business School.
- Communication Infrastructure: Discover networks like 5G and the IoT.
- Construction: Build and manage buildings using data such as digital twins.
- Cultural Heritage: Use technology to learn from or improve cultural heritage.
- Energy: Design digital systems for sustainable energy.
- Information Systems: Combine information technology and digital business skills for organisational change.
- Information Technology: Become an expert in programming, internet and digital architecture.
- Land: Interpret surveys on land ownership and combine skills in culture, law and planning.
- Mobility: Improve how we move and build efficient systems.
- Smart Cities: Use digital infrastructure to manage the resources in a smart city.
- Sustainable Cities: Support the sustainable development of our cities.
- Water: Manage our water resources in a sustainable way.

Sample course plan

Bachelor of Design (Digital Infrastructure Engineering Systems Major)

Year 1	Semester 1	Calculus 2	Engineering Technology and Society	Elective	Elective
	Semester 2	Linear Algebra	Engineering Modelling and Design	Elective	Breadth
Year 2	Semester 1	Sustainable Infrastructure Engineering	Applying Digital Infrastructure	Algorithms and Data Structures	Breadth
	Semester 2	Sensing and Measurement	Numerical Methods in Engineering	Artificial Intelligence	Breadth
Year 3	Semester 1	Imaging the Environment	Engineering Risk Management	Planning Scenario and Policy Workshop	Breadth/Design Elective
	Semester 2	Digital Systems for Infrastructures	Integrating Digital Infrastructure	Smart Transportation	Breadth/Design Elective

Core subjects Elective subjects Breadth subjects Recommended subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Digital Infrastructure Engineering (Water Specialisation)

Year 1	Semester 1	Spatial Data Management	Spatial Data Analytics	Advanced Imaging	The Ethics of Artificial Intelligence
	Semester 2	Positioning Principles and Technologies	Building Information Modelling	Information Visualisation	Remote Sensing
Year 2	Semester 1	Quantitative Environmental Modelling	Integrated River & Catchment Management	Engineering Capstone Project Part 1	Interdisciplinary Design for Engineers
	Semester 2	Water and Waste Management	Environmental Analysis Tools	Engineering Capstone Project Part 2	Engineering Project Implementation

Core subjects Elective subjects Specialisation subjects Selective subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Electrical Engineering

Scan to learn more

Electrical systems power our everyday lives, from energy efficient power grids to life-changing medical devices. Learn to design, build and improve these valuable systems with a degree in electrical engineering.

What do electrical and electronic engineers do?

Electrical engineers design and manage the electrical systems that meet the practical needs of our world. This includes autonomous systems, electronics, power distribution, sensors, telecommunications and information processing. As a graduate, you'll have analytical skills, knowledge of the latest technologies and the ability to work on large and small scale systems.

What should I study?

Start with an undergraduate degree with a major in Electrical Engineering Systems (3 years full-time), then progress to a Master of Electrical Engineering (2-3 years full-time). This major is available in the following undergraduate degree:

- Bachelor of Science

Your career

You could work as an electrical engineer in industries such as automation, broadcast or sound engineering, power generation and transmission, and telecommunications.

Our engineering graduates work in organisations such as Accenture, AECOM, Deloitte, ExxonMobil, Google, Tesla and Telstra.

Optional specialisations

- Artificial Intelligence: Design, implement and analyse machines that learn, plan and reason covering topics like machine learning and digital ethics.
- Autonomous Systems: Develop methods and approaches to design and control autonomous systems from robotics to drones.
- Business: Study tailored subjects covering economics, marketing and finance.
- Intelligent Communications and Networks: Discover the technologies behind communication networks like 5G and IoT, and learn how to design the communication systems for the future.
- Electronics and Embedded Systems: Design and build the electronic, embedded and opto-electronic systems for applications in modern communications, computing, instrumentation and sensing.
- Low-carbon Power Systems: Gain expertise in low-carbon power systems, energy markets, and the integration of renewables, distributed energy, and smart grid technologies.

Sample course plan

Bachelor of Science (Electrical Engineering Systems Major)

Year 1	Semester 1	Today's Science, Tomorrow's World	Calculus 2	Natural Environments	Engineering Technology and Society
	Semester 2	Engineering Modelling and Design	Linear Algebra	Physics 2: Physical Science and Technology	Breadth
Year 2	Semester 1	Introduction to Numerical Computation	Engineering Mathematics	Digital Systems	Breadth
	Semester 2	Foundations of Electrical Networks	Science Elective	Science Elective	Breadth
Year 3	Semester 1	Signals and Systems	Electrical Network Analysis and Design	Science Elective	Breadth / Science Elective
	Semester 2	Electrical Device Modelling	Electronic System Implementation	Science Elective	Breadth / Science Elective

Core subjects Elective subjects Breadth subjects Recommended subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:

Master of Electrical Engineering (Artificial Intelligence Specialisation)

Year 1	Semester 1	Probability and Random Models	Control Systems	Electronic Circuit Design	Introduction to Power Engineering
	Semester 2	Communication Systems	Signal Processing	Embedded System Design	Interdisciplinary Design for Engineers
Year 2	Semester 1	Electrical Engineering Capstone Project	System Optimisation and Machine Learning	Modelling and Analysis for AI	Electrical Engineering Elective
	Semester 2		Applied Deep Learning for Engineers	Reinforcement Learning for Engineers	Electrical Engineering Elective

Core subjects Elective subjects Specialisation subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

"With the Digital Infrastructure Engineering Systems major I get to play with cities, model them, map them and actually see what happens when we build things a certain way. I think it's great fun. I love it!"

Tara Shokouhi

Digital Infrastructure Engineering Systems major

Environmental Engineering

Scan to learn more

Improve the liveability of our cities and sustainability of our resources with a degree in environmental engineering. Tackle the global challenges we face in water shortages, climate change and environmental and waste management.

What is environmental engineering?

Environmental engineers design and build sustainable solutions to problems such as climate change, water scarcity, renewable energy and bushfire management.

What should I study?

Start with an undergraduate degree with a major in Environmental Engineering Systems (3 years full-time), then progress to a Master of Environmental Engineering (2–3 years full-time). This major is available in the following undergraduate degree:

- Bachelor of Science

Your career

You could work as an environmental engineer in industries such as conservation, renewable energy, mining, sustainability programs, waste management and water resources. Our engineering graduates are working in organisations such as Alluvium Consulting, Bureau of Meteorology, Jacobs, Melbourne Water and Woodside Energy.

Optional specialisations

- Earth Observation: Study the imaging and analysis systems used to create sustainable landscapes and agriculture.
- Energy Systems: Explore energy efficiency and renewables to ensure low or zero carbon emissions.
- Water Systems: Study the systems that underpin the sustainable development of water systems.

Sample course plan

Bachelor of Science (Environmental Engineering Systems Major)

Year 1	Semester 1	Biology: Life's Machinery	Calculus 2	Physics 1	Today's Science, Tomorrow's World
	Semester 2	Engineering Modelling and Design	Linear Algebra	Genetics and the Evolution of Life	Breadth
Year 2	Semester 1	Analysis of Biological Data	Sustainable Infrastructure Engineering	Foundations of Computing	Breadth
	Semester 2	Earth Processes for Engineering	Engineering Mathematics	Science Elective	Breadth
Year 3	Semester 1	Fluid Mechanics	Intro to Sustainable Water Management	Science Elective	Breadth / Science Elective
	Semester 2	Environmental Engineering Systems Capstone	Environmental System Modelling and Design	Science Elective	Breadth / Science Elective

Core subjects Elective subjects Breadth subjects Recommended subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:

Master of Environmental Engineering (Specialisation in Energy Systems)

Year 1	Semester 1	Quantitative Environmental Modelling	Engineering Hydrology	Spatial Data Analytics	Water Planning & An Uncertain Future
	Semester 2	Monitoring Environmental Impacts	Environmental Analysis Tools	Civil Hydraulics	Environmental Systems Modelling and Design
Year 2	Semester 1	Engineering Capstone Project Part 1	Solar Energy	Solid Wastes to Sustainable Resources	Solid Wastes to Sustainable Resources
	Semester 2	Engineering Capstone Project Part 2	Engineering Project Implementation	Energy Efficiency Technology	Environmental Engineering Elective

Core subjects Elective subjects Selective subject Specialisation subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

“No two days are the same. You could be out in the field taking water samples, on campus building a raingarden or in the lab devising sustainable solutions to solve some of the world’s most pressing environmental problems.”

Nav De Silva

Environmental Engineering Systems major

Master of Environmental Engineering

Industrial Engineering

Scan to learn more

With a degree in industrial engineering, you'll gain skills to improve processes, services and systems. Develop a comprehensive skill set in manufacturing technologies, systems and simulation, operations techniques, sustainability, and digital transformation, along with business management.

What is industrial engineering?

Industrial engineering is the branch of engineering that involves figuring out how to make or do things better. Industrial engineers look at how to improve processes or design things that are more efficient and waste less money, time, raw materials, person-power and energy while achieving customer requirements and meeting regulatory obligations. They use knowledge and skills in the mathematical, physical and social sciences together with the principles and methods of engineering analysis and design for almost every industry sector from manufacturing to technology, services and healthcare.

What should I study?

Start with an undergraduate degree in any Engineering Systems major (3 years full-time), then progress to a Master of Industrial Engineering (2 years full-time).

Your career

Industrial engineers could work in various industries from manufacturing and processing, to healthcare, banking and consulting. You'll be able to build a career that focuses on doing things better, and you'll have access to work-integrated learning projects and industrial grounding activities while you study so you can get relevant work experience or find a potential mentor.

Sample course plan

Bachelor of Science (Mechanical Engineering Systems Major)

Year 1	Semester 1	Engineering Technology and Society	Calculus 2	Physics 1	Today's Science, Tomorrow's World
	Semester 2	Engineering Modelling and Design	Linear Algebra	Physics 2: Physical Science and Technology	Breadth
Year 2	Semester 1	Numerical Methods in Engineering	Engineering Mechanics	Science Elective	Breadth
	Semester 2	Foundations of Electrical Networks	Engineering Mathematics	Science Elective	Breadth
Year 3	Semester 1	Thermodynamics and Fluid Mechanics	Mechanics and Materials	Science Elective	Breadth / Science Elective
	Semester 2	Systems Modelling and Analysis	Mechanical Systems Design	Science Elective	Breadth / Science Elective

Core subjects **Elective subjects** **Breadth subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Industrial Engineering

Year 1	Semester 1	Industrial Engineering	Design and Manufacturing Practice	Manufacturing Processes and Technology	Supply Chain Management
	Semester 2	Industrial Systems and Simulation	Interdisciplinary Design for Engineers	Probability, Reliability and Quality	Manufacturing Automation and Information Technology
Year 2	Semester 1	Engineering Capstone Project Part 1	Optimisation for Industry	Economic Analysis for Engineers	Industrial Engineering Elective
	Semester 2	Engineering Capstone Project Part 2	Sustainable and Life Cycle Engineering	Industry Digital Transformation	Industrial Engineering Elective

Core subjects **Elective subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Mechanical Engineering

Scan to learn more

Design and build tomorrow's machines and systems, from small scale devices to airplanes and spacecraft. Turn energy into power and motion, gaining skills in mechanical design, manufacturing, thermodynamics, fluid mechanics and more.

What is mechanical engineering?

Mechanical engineering focuses on turning energy into power and motion, spanning industries and agencies such as aeronautics, healthcare, climate prediction, robotics and manufacturing.

What should I study?

Start with an undergraduate degree with a major in Mechanical Engineering Systems (3 years full-time), then progress to a Master of Mechanical Engineering (2-3 years full-time). This major is available in the following undergraduate degrees:

- Bachelor of Design
- Bachelor of Science

Your career

As a Melbourne graduate, you'll be equipped to work as a mechanical engineer in industries such as aerospace, biomechanics, manufacturing, healthcare, weather and climate prediction, minerals, energy, robotics, transport and more.

Our mechanical engineering graduates are working in companies such as Arup, CSIRO, BHP, Mars Australia, Telstra and Yarra Trams.

Optional specialisations

- Aerospace: Develop advanced skills in fluid mechanics, propulsion, aeroelasticity and aerospace control.
- Business: Study tailored subjects covering economics, marketing and finance.
- Manufacturing: Build knowledge and competence in manufacturing process and technologies, production system design and operation management, factory automation, and product quality and reliability.
- Materials: Become an expert in materials processing, metals for additive manufacturing, material modelling and characterisation, and how to make high- performance materials.

Sample course plan

Bachelor of Design (Mechanical Engineering Systems Major)

Year 1	Semester 1	Calculus 1	Physics 1	Design Elective	Breadth
	Semester 2	Calculus 2	Physics 2	Linear Algebra	Breadth
Year 2	Semester 1	Numerical Methods in Engineering	Design Elective	Design Elective	Breadth
	Semester 2	Foundation of Electrical Networks	Engineering Mathematics	Engineering Mechanics	Breadth
Year 3	Semester 1	Thermodynamics and Fluid Mechanics	Mechanics and Materials	Design Elective	Breadth / Design Elective
	Semester 2	Systems Modelling and Analysis	Mechanical Systems Design	Design Elective	Breadth / Design Elective

Core subjects Elective subjects Breadth subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Mechanical Engineering (Aerospace specialisation)

Year 1	Semester 1	Thermodynamics	Dynamics	Materials Engineering	Design and Manufacturing Practice
	Semester 2	Fluid Dynamics	Solid Mechanics	Control Systems	Interdisciplinary Design for Engineers
Year 2	Semester 1	Engineering Capstone Project Part 1	Advanced Fluid Dynamics	Aerospace Dynamics and Control	Mechanical Engineering Elective
	Semester 2	Engineering Capstone Project Part 2	Vibrations and Aeroelasticity	Aerospace Propulsion	Mechanical Engineering Elective

Core subjects Elective subject Specialisation subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Mechatronics Engineering

Scan to learn more

Want a career where you control robots? Mechatronics is a blend of mechanical, electrical and software engineering, and the key to a 'smart' and connected future.

What is mechatronics engineering?

Mechatronics drives the development of 'smart' computer-controlled products, such as robots, drones, automotive equipment and medical imaging systems.

What should I study?

Start with an undergraduate degree with a major in Mechatronics Engineering Systems (3 years full-time), then progress to a Master of Mechatronics Engineering (2-3 years full-time). This major is available in the following undergraduate degree:

- Bachelor of Science

Your career

You could work as a mechatronics engineer in industries such as aerospace, advanced manufacturing, computing and electronics, mining and robotics. Our engineering graduates work in organisations such as IBM, Telstra, Ford, KPMG and Alerte Digital Health.

Optional specialisation

- Manufacturing: Leverage your mechatronics skills to create innovative products and services for the flexible modern economy, with a strong grounding in physical manufacturing systems.

Sample course plan

Bachelor of Science (Mechatronics Engineering Systems Major)

Year 1	Semester 1	Engineering Technology and Society	Calculus 2	Physics 1	Today's Science, Tomorrow's World
	Semester 2	Engineering Modelling and Design	Linear Algebra	Physics 2: Physical Science and Technology	Breadth / Science Elective
Year 2	Semester 1	Intro to Numerical Computation in C	Engineering Mathematics	Science Elective	Breadth
	Semester 2	Foundations of Electrical Networks	Engineering Mechanics	Science Elective	Breadth
Year 3	Semester 1	Analog and Digital Electronics Concepts	Science Elective	Science Elective	Breadth / Science Elective
	Semester 2	Mechanical Systems Design	Systems Modelling and Analysis	Numerical Algorithms in Engineering	Breadth

Core subjects Elective subjects Breadth subjects Recommended subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Mechatronics Engineering (Specialisation in Manufacturing)

Year 1	Semester 1	Control Systems	Dynamics	Sensor Systems	Mechatronics Systems Design
	Semester 2	Embedded System Design	Analog and Digital Electronics Concepts	Introduction to Machine Learning	Interdisciplinary Design for Engineers
Year 2	Semester 1	Mechatronics Engineering Elective	Manufacturing Processes and Technology	Industrial Engineering	Engineering Capstone Project Part 1
	Semester 2	Mechatronics Engineering Elective	Probability, Reliability and Quality	Manfacturing Automation and IT	Engineering Capstone Project Part 2

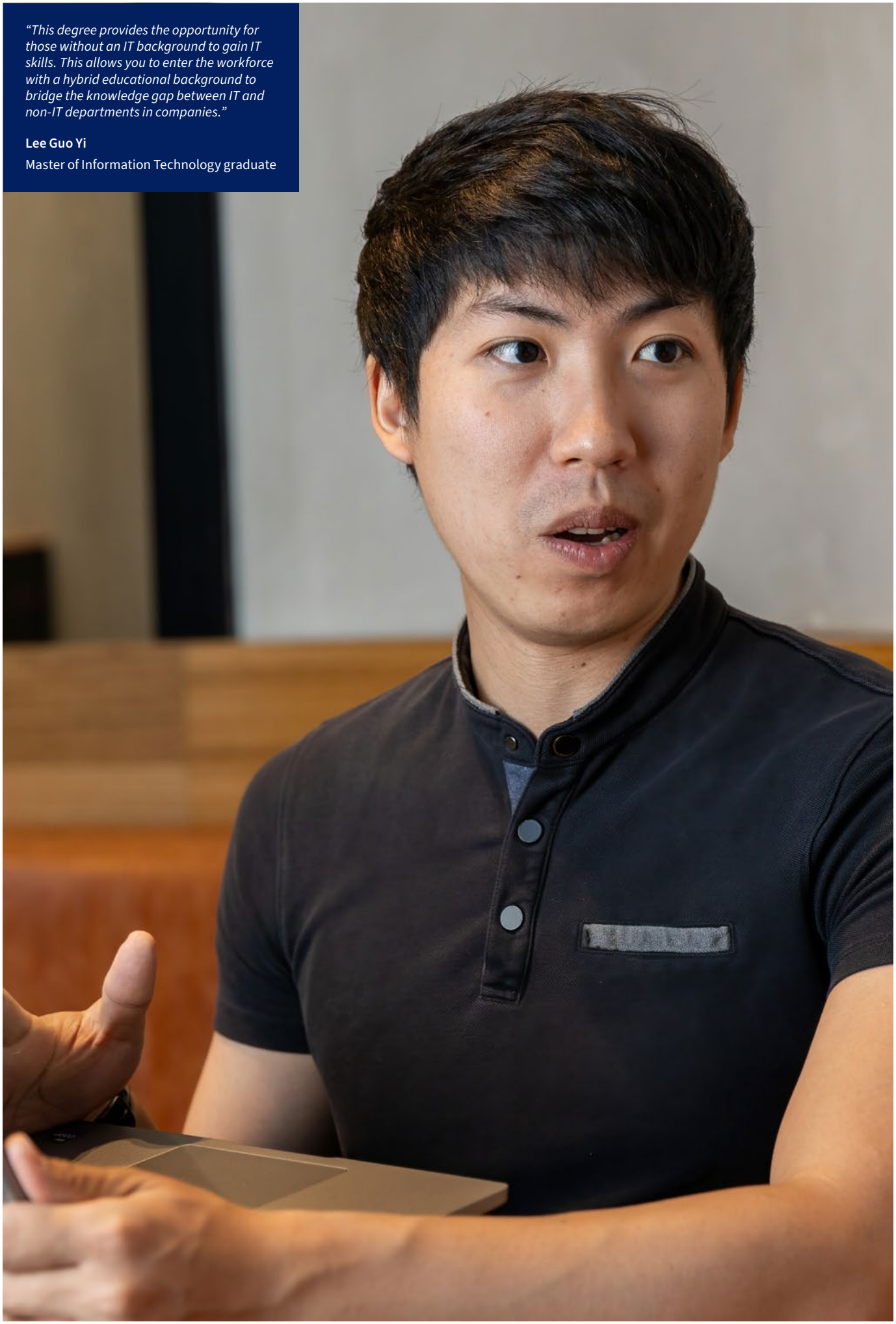
Core subjects Elective subjects Specialisation subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

“This degree provides the opportunity for those without an IT background to gain IT skills. This allows you to enter the workforce with a hybrid educational background to bridge the knowledge gap between IT and non-IT departments in companies.”

Lee Guo Yi

Master of Information Technology graduate



Information Technology

Scan to learn more

Computers are central to everything we do as data becomes more important for decision making and technology becomes more powerful. You can be a part of finding new ways to use tech or building the new tech that could change the way we work.

What should I study?

Information technology at Melbourne is flexible - you can study information technology through your bachelor degree as a major or specialise further and receive professional accreditation with a masters. Undergraduate majors are available through:

- Bachelor of Design
- Bachelor of Science
- Bachelor of Commerce

You can then progress to graduate study with options to pursue technical expertise, business analytics skills, research and more.

Your career

Build a career as an app developer, data analyst, digital copywriter, games developer, information technology consultant, data scientist and more. If you focus on the information technology, you can build the technical skills that help us understand and develop new technologies.

Available specialisations

- Artificial Intelligence: Design, implement and analyse machines that learn, plan and reason covering topics like machine learning and digital ethics.
- Computing: Focus on theoretical and applied computing where you could develop programming platforms for a career in app development, data analytics, games development and more.
- Cybersecurity: Create new technologies to improve security covering topics like cryptography and security analytics.
- Distributed Computing: Manage large quantities of data through networks and cover topics like distributed algorithms and parallel computing.
- Human-Computer Interaction: Create the next generation of interfaces with knowledge in user experience and social computing.

Sample course plan

Bachelor of Science (Computing and Software Systems major)

Year 1	Semester 1	Foundations of computing	Calculus 1	Science elective	Today's Science, Tomorrow's World
	Semester 2	Foundations of Algorithms	Calculus 2	Science Elective	Breadth
Year 2	Semester 1	Design of Algorithms	Science Elective	Science Elective	Breadth
	Semester 2	Object Oriented Software Development	Database Systems	Science Elective	Breadth
Year 3	Semester 1	Software Modelling and Design	Computer Systems	Science Elective	Breadth/Science Elective
	Semester 2	Information Technology Project	Models of Computation	Science Elective	Breadth/Science Elective

Core subjects Elective subjects Breadth subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Information Technology (Cybersecurity specialisation)

Year 1	Semester 1	Distributed Systems	Software Processes and Management	Introduction to Machine Learning	Advanced Specialisation Elective
	Semester 2	Cryptography and Security	Security and Software Testing	Advanced Specialisation Elective	Advanced Specialisation Elective
Year 2	Semester 1	IT Elective	IT Elective	Software Project	

Core subjects Elective subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Information Systems

Scan to learn more

Support businesses to use and benefit from technology. This could mean integrating cloud computing, creating cybersecurity networks or interpreting data to help a business make the best decisions.

What should I study?

You can combine technology and business skills in multiple undergraduate study areas for either your major, breadth or electives through:

- Bachelor of Design
- Bachelor of Science
- Bachelor of Commerce

A Computing and Software Systems major could be combined with business electives to give you an overview of the potential tech can have in shaping how companies work. Or a User Experience Design major can help you focus on what people want and how they use different kinds of technology.

All of this can lead to graduate study such as the Master of Information Systems where you'll blend technological and organisational skills to transform how we work.

Your career

With information systems, you'll connect the technological potential of software with the business problems that need solving, or processes that need improving. This means you could work in any industry that uses, or could benefit from, using technology.

This could mean a career in process design, consulting or project management. Combine your knowledge in data science, data visualisation and computing to improve how we use technology.

Sample course plan

Bachelor of Design (Computing and Software Systems major)

Year 1	Semester 1	Media Computation	Calculus 1	Design elective	Breadth
	Semester 2	Foundations of Algorithms	Calculus 2	Design elective	Breadth
Year 2	Semester 1	Design of Algorithms	Elements of Data Processing Design	Design elective	Breadth
	Semester 2	Database Systems	Design elective	Design elective	Breadth
Year 3	Semester 1	Advanced Interface Prototyping	Computer Systems	Design elective	Breadth/Design Elective
	Semester 2	Information Technology Project	Graphics and Interaction	Design elective	Breadth/Design Elective

Core subjects Elective subjects Breadth subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Information Systems

Year 1	Semester 1	Concepts in Information Systems	Database Systems & Information Modelling	Digital Business analysis	Introduction to Programming
	Semester 2	Cybersecurity Management	Professional IS Consulting	Skills for IS Research and Development	Information Systems Elective
Year 2	Semester 1	Information Technology Project and Change Management	Enterprise Applications & Architectures	Information Systems Elective	General Elective
	Semester 2	IS Strategy and Governance	General Elective	Information Systems Capstone Experience	

Core subjects Elective subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Software Engineering

Scan to learn more

You'll use engineering principles to build software products. This could be developing computer games or running a communications control system. Throughout your subjects you'll build your programming skills in different programming languages and your graduate study will help you become an accredited engineer.

What should I study?

Start with an undergraduate degree with a major like Computing and Software Systems (3 years full-time), then progress to a Master of Software Engineering (2-3 years full-time). This major is available in the following undergraduate degrees:

- Bachelor of Design
- Bachelor of Science

Your career

As a software engineer, you could work in banking and finance, human-computer interaction, technology consulting, health and more.

Optional specialisations

- Artificial Intelligence: Design, implement and analyse machines that learn, plan and reason covering topics like machine learning and digital ethics.
- Business: Study tailored subjects covering economics, marketing and finance.
- Cybersecurity: Create new technologies to improve security covering topics like cryptography and security analytics.
- Distributed Computing: Manage large quantities of data through networks and cover topics like distributed algorithms and parallel computing.
- Human-Computer Interaction: Create the next generation of interfaces with knowledge in user experience and social computing.

Sample course plan

Bachelor of Design (Computing and Software Systems major)

Year 1	Semester 1	Media Computation	Calculus 1	Design elective	Breadth
	Semester 2	Foundations of Algorithms	Calculus 2	Design elective	Breadth
Year 2	Semester 1	Design of Algorithms	Elements of Data Processing Design	Design elective	Breadth
	Semester 2	Database Systems	Design elective	Design elective	Breadth
Year 3	Semester 1	Advanced Interface Prototyping	Computer Systems	Design elective	Breadth/Design Elective
	Semester 2	Information Technology Project	Graphics and Interaction	Design elective	Breadth/Design Elective

Core subjects Elective subjects Breadth subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:
Master of Software Engineering

Year 1	Semester 1	Software Processes and Management	Software Requirements Analysis	Interdisciplinary Design for Engineers	Modelling Complex Software Systems
	Semester 2	Security & Software Testing	Masters Software Engineering Project	Software Engineering elective	Software Engineering elective
Year 2	Semester 1	Master Advanced Software Project part 1	High Integrity Systems Engineering	Software Engineering elective	Approved Elective
	Semester 2	Master Advanced Software Project part 2	Software Design and Architecture	Software Engineering elective	Software Engineering elective

Core subjects Elective subjects

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Computer Science

Scan to learn more

Computer science combines technical elements from information technology, analytical skills from information systems and through graduate study, gives you the option to pursue a research career.

What should I study?

Start with an undergraduate degree with a major like Computing and Software Systems, User Experience Design or Data Science (3 years full-time), then progress to a Master of Computer Science (2 years full-time). This major is available in the following undergraduate degrees:

- Bachelor of Design
- Bachelor of Science

Computer Science Research Project

Your Computer Science Research Project is an independent piece of research you can do with the support of an academic supervisor. You could work in areas like:

- Forest Crime Policing: Help protect Victoria's rare or threatened species using selective sound monitoring devices to identify the hotspots affecting animal behaviour and habitats.
- 3D object recognition in autonomous driving: Self-driving cars are becoming more accessible, and you can be a part of developing the software to help autonomous vehicles navigate adverse visibility conditions.
- Design empathetically responsive voice assistants: Technology can help people in many different ways, you can develop software programs that will make voice assistants accessible, empathetic and responsive.
- Cane toad modelling in Australia: Australia's native ecosystems are precious, and you could develop multiscale modelling to monitor invasive species like the cane toad and protect our natural environment.
- Measuring and mitigating gender bias in natural language processing: Machine learning relies on the data models that are programmed into it, and you can make sure that they're representative of the real world through monitoring data elements like gender bias, language and communication styles.

Sample course plan

Bachelor of Science (Computing and Software Systems major)

Year 1	Semester 1	Foundations of computing	Calculus 1	Science elective	Today's Science, Tomorrow's World
	Semester 2	Foundations of Algorithms	Calculus 2	Science Elective	Breadth
Year 2	Semester 1	Design of Algorithms	Science Elective	Science Elective	Breadth
	Semester 2	Object Oriented Software Development	Database Systems	Science Elective	Breadth
Year 3	Semester 1	Software Modelling and Design	Computer Systems	Science Elective	Breadth/Science Elective
	Semester 2	Information Technology Project	Models of Computation	Science Elective	Breadth/Science Elective

Core subjects **Elective subjects** **Breadth subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Pathway to:

Master of Computer Science

Year 1	Semester 1	Introduction to Machine Learning	AI Planning for Autonomy	Declarative Programming	Computer Science elective
	Semester 2	Research Methods	Computer Science elective	Computer Science elective	Computer Science elective
Year 2	Semester 1	Computer Science Research Project Part 1		Computer Science Research Project Part 2	
	Semester 2	Computer Science Research Project Part 3		Computer Science Research Project Part 4	

Core subjects **Elective subjects**

These are sample course plans only. Subjects offered may change from year to year. You will be advised of current subject offerings prior to subject selection and enrolment.

Student experience

Scan to learn more

At Melbourne, engineering and information technology offer more than just classroom learning. Engage in a variety of clubs and societies, engage with industry experts and enjoy the vibrant surroundings of one of the world's most exciting cities.

Clubs and Societies

Our student clubs bring together people who are passionate about engineering and information technology and want to make an impact. With over 200 clubs to choose from, you'll connect with people from a range of disciplines, cultural backgrounds and interests. Our clubs include:

- Aerospace and Rocket Engineering Society (ARES)
- Computing and Information Systems Students Association (CISSA)
- Engineering discipline-based clubs
- Engineering Music Society
- Engineers Without Borders (University of Melbourne chapter)
- Melbourne Space Program
- MUR Motorsports
- ENG & IT Community
- Robogals
- Unimelb Rover Team
- Women in Science and Engineering (WISE)
- Women in Technology

Melbourne Accelerator Program

Get your startup off the ground. Apply for the Melbourne Accelerator Program (MAP), a unique startup incubator that gives students the opportunity to forge their careers as entrepreneurs with the support of fellowship grants, office spaces and access to a network of mentors and investors.

Study abroad and exchange

Combine travel and study by taking part of your degree overseas through approved programs worldwide. With 200 university exchange partners and various engineering and information technology partnerships, such as AOTULE and GE3 networks, you'll have numerous opportunities to study at top schools across Asia, Oceania, Europe, and the US.

Scholarships and funding options are available for short-term or semester-long programs, making it possible to explore different countries during your degree.

Build your capabilities

The Global Leadership and Employability team provides programs and services to students free of charge, including screened job listings, workshops, practice interviews, industry events and connections with alumni. You can even attend a free Career Bootcamp.

Academic mentoring

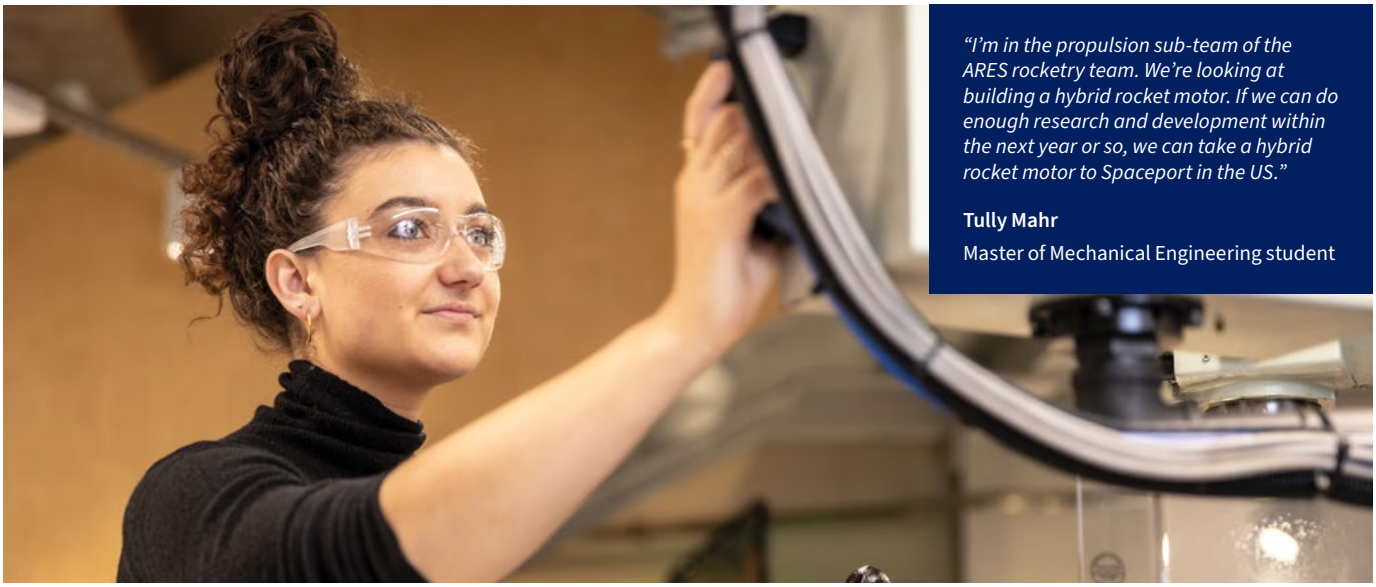
From your second undergraduate semester onwards, you'll meet with an Academic Mentor from your faculty or degree. Academic Mentoring provides you with an opportunity to discuss what you want to get out of studies and university as a whole, explore your interests and form a stronger connection with someone from the University's academic community. Your mentor is there to listen, offer reassurance and support you to stay on track and achieve your goals. Throughout your studies, you'll also be able to explore career and graduate study options with alumni and industry mentors.

Melbourne Peer Mentor Program

In your first semester of undergraduate studies, you'll be matched with a Peer Mentor from your faculty as part of a small group of students. Hear from fellow students, ask about navigating uni life, and make friends with other people in your degree. You can then develop your leadership and interpersonal skills in your second year onwards by signing up to become a Peer Mentor yourself!

Melbourne Plus

Melbourne Plus rewards your growth and development with certified digital credentials that you can earn outside the classroom through a wide range of volunteer and paid activities. You'll build capabilities with transferable skills and be able to share these credentials with your networks and future employers.



"I'm in the propulsion sub-team of the ARES rocketry team. We're looking at building a hybrid rocket motor. If we can do enough research and development within the next year or so, we can take a hybrid rocket motor to Spaceport in the US."

Tully Mahr

Master of Mechanical Engineering student

Endeavour Exhibition

Scan to learn more

The Endeavour Exhibition is a showcase of student work where you can discover the industry and research projects created by our engineering and information technology masters students.

Throughout your engineering studies, you'll have opportunities to put what you're learning in the classroom into action for real projects.

When you get to the graduate study level, you can take part in the Endeavour Exhibition, where you can partner with our industry networks, government and research groups over the course of a semester or a year, to solve problems and discover new ways of working. You'll take what you learn in the classroom – and apply it to a real problem.

The exhibition showcase happens twice a year and we invite our partners, students and the public to meet our students and see their work. There are industry and faculty awards and prizes to recognise everyone's hard work and the public can get involved in choosing a People's Choice Award winner. Throughout the semester, you can attend workshops to help with your presentation skills and networking, and you'll create a poster to present your work. You could also present a prototype or simulation of your project and have the opportunity to get involved in a student photoshoot or document your experience with the Road to Endeavour.

Master of Mechatronics Engineering student Talib and his Endeavour group created a bike reclaimed from a Melbourne e-bike hire service to design a prototype Water Pump Cart. He and his team and used human-centred design principles to create an attachment for a motorised bike that will help with labor in agricultural settings in the Pursat region of Cambodia.

Addressing issues with labor shortages, landmines and the national disability rate, this attachment can be used to transport water, food or other materials while being installed and maintained locally. In the Telstra Creator Space, they've used the general maker areas for assembling their cart, the electronics to work with wiring the pump and testing, the metal shop for building the frame and the various machines to help with creating materials.

Creator Space

Scan to learn more

The Creator Space offers various specialised areas dedicated to different aspects of the creation process.

Operated by industry professionals, the Creator Space offers equipment training and support to assist you in transforming your ideas into prototypes.

Spanning two floors, this space is equipped with 3D printers, laser cutters, electronics workbenches featuring oscilloscopes, functional generators, power suppliers, soldering stations, and a reflow oven for printed circuit boards.

The Wood Shop provides the necessary tools for traditional woodworking tasks like cutting, turning, sanding, and shaping wood and plastics.

Similarly, the Metal Shop contains traditional metal fabrication machines suitable for cutting, bending, drilling, grinding, and assembling steel and aluminium structures.

Additionally, there are CNC machines, as well as manual milling and lathe machines, which offer insights into the machinery used in various industries.

The Creator Space is continuously evolving to meet the ever-changing demands of the industry, ensuring that graduates are equipped and skilled with the latest fabrication methods and technologies.

Check out a virtual tour of the Creator Space here: **https://go.unimelb.edu.au/7djs**

Jack and Andria are Bachelor of Science students both majoring in Mechanical Engineering Systems and they're working on an interactive pet lizard that can detect objects in its path to find the way through a maze.

Industry experiences and careers

Scan to learn more

Connect with industry partners, research groups, start-ups and more to gain relevant experience while you study. You could complete an industry project, take on an internship or work on an innovation challenge with an industry mentor.

Some of your subjects may feature guest lecturers who will bring the latest knowledge and work from the industry to show you how you can apply what you learn in the workplace, or you could connect with an alumni mentor to help you figure out where your career could take you.

Internships

Internships provide you with opportunities to gain hands-on work experience to apply the knowledge and skills you've developed in your studies. You can complete internships during both your undergraduate study and your masters study, with options to complete internships as part of a subject for credit, or you can source them on your own.

- Undertake professional-level work experience and gain credit towards your degree.
- Take part in workshops run by qualified careers counsellors to improve your resume, develop your interview skills and build your employability for the future.
- Explore international and domestic internship opportunities related to your discipline and career goals.

As an undergraduate student, you can take engineering related internships through the Bachelor of Science work-integrated learning subjects or the Bachelor of Design vocational placements. The University also offers work opportunities through the Students@Work program where you could find a job on campus.

As a masters student, you could complete an internship as part of a subject for credit towards your degree or undertake paid work in industry outside of your studies with a not-for-credit internship. With both domestic and international internships available and the option to apply for positions with our industry contacts or find your own, an internship is the perfect opportunity to build your experience, employability and kick start your career before you graduate.

Industry projects

- Undertake a design or research project with industry and apply your knowledge to a real-world problem.
- Undertake your project over the course of a semester, full year or summer break.
- Develop a collaborative relationship with those working in industry.

Industry-connected curriculum

- Creating Innovative Engineering: Take an innovation challenge with an industry mentor in this first-year Master of Engineering subject.
- Professional IS Consulting: A practice-oriented subject in the Master of Information Systems, which helps you build working relationships with clients.
- Steel Week: Work with an industry practitioner on a structural engineering project and gain insight into engineering consulting in the Master of Civil Engineering.
- BioDesign Innovation: Collaborate with Master of Business Administration students to design a marketable medical device as part of the Master of Biomedical Engineering.

STEM Mentoring

Build professional networks, explore your career options and gain insight into the professional world of STEM with alumni mentors and industry professionals.

Other opportunities

- Industry panels and guest lectures
- Networking events
- Site visits
- Hackathons
- Health and wellbeing events
- Events and information sessions to enhance your professional skills

Experience uni while you're still at school

Scan to learn more

Eager to try out engineering or programming before you start uni? We offer a range of hands-on activities and workshops for high school students throughout the year.

Work Experience Week

Designed for: Year 10s

Want to know what it's like to be a scientist? Participate in workshops and activities in a STEM discipline of your choice. Meet new friends and role models and get a taste of university life.

go.unimelb.edu.au/t878

Girls' Programming Network

Designed for: High school girls

Take part in a series of workshops each term, developed and run by girls for girls. You will learn to program using Python and improve your software development skills.

go.unimelb.edu.au/r3fi

Hands on Engineering & Information Technology

Designed for: Year 10s

Take part in interactive, hands-on activities to learn about engineering and technology concepts and issues.

Available in school holidays and as a school excursion.

go.unimelb.edu.au/9ckj

Girl Power

Designed for: Years 9–12 (program starts in year 9)

Learn about careers in engineering and information technology and connect with like-minded high school students. Girl Power is a four-year program, where you'll join us for a three-day camp at the University of Melbourne, undertake work experience and participate in a mentoring program.

go.unimelb.edu.au/rg3i

Kwong Lee Dow Young Scholars Program

Designed for: Year 10s

Join an exciting two-year program that will help you grow academically and personally, setting you up for success at Melbourne and beyond. After finishing high school, you might even get a guaranteed spot in an undergrad program, help with moving to Melbourne, and a chance to study overseas.

unimelb.edu.au/kld

University of Melbourne Extension Program

Designed for: Year 11s

Take a university subject in your final year of high school to experience uni life, boost your ATAR, and earn credit towards a Melbourne degree. It could help you finish faster or lighten your first-year load.

unimelb.edu.au/extension-program

The Victorian Indigenous Engineering Winter School (VIEWS)

Designed for: Years 10–12

Indigenous students from across Australia can spend 5 days gaining an insight into what it's like to study and work in engineering, information technology and tech.

go.unimelb.edu.au/8f7s

"I joined the Girl Power 2018 cohort and have been volunteering with the program ever since. The 4-day camp brings together young women from across the state, offering hands-on experiences across a wide range of engineering and IT fields. Many of us shared the common experience of being one of the few girls in our science classes at school, so it was incredibly empowering to find a community built on our shared passion for STEM. I left the program with a strong network of friends, and it was comforting to know we'd reconnect again during O-Week."

Khushi Malhotra

Electrical Engineering Systems major
Master of Electrical Engineering

Pathways to professional careers

Scan to learn more

Flexibility and choice are at the heart of your Melbourne experience. Below are some examples of popular pathways, however these are just a small sample of the hundreds of undergraduate and graduate study combinations you can follow.

For more information on pathways, visit: **unimelb.edu.au/study/pathways**

Undergraduate degree		Graduate degree		Example career
Building, infrastructure and urban planning				
Any engineering systems major	3 years	Master of Civil Engineering	2–3 years	Civil engineer
Communications and networks				
Major in Digital Infrastructure Engineering Systems, Electrical Engineering Systems or Computing and Software Systems	3 years	Master of Electrical Engineering	2–3 years	Network engineer
Data science, artificial intelligence and cybersecurity				
Major in Computing and Software Systems, Digital Infrastructure Engineering Systems, Electrical Engineering Systems or Mechatronics Engineering Systems	3 years	Master of Software Engineering	2–3 years	Software engineer
Food and the environment				
Major in Chemical Engineering Systems or Environmental Engineering Systems	3 years	Master of Chemical Engineering	2–3 years	Chemical engineer
Medicine and health				
Major in Biomedical Engineering Systems, Chemical Engineering Systems or Mechanical Engineering Systems	3 years	Master of Biomedical Engineering	2–3 years	Biomedical engineer
Processes and product design				
Major in Biomedical Engineering Systems, Chemical Engineering Systems, Mechanical Engineering Systems or Mechatronics Engineering Systems	3 years	Master of Industrial Engineering	2–3 years	Industrial engineer
Robotics and automation				
Major in Computing and Software Systems, Electrical Engineering Systems or Mechatronics Engineering Systems	3 years	Master of Information Technology	1–2 years	AI engineer
Sustainability				
Major in Chemical Engineering Systems, Digital Infrastructure Engineering Systems or Environmental Engineering Systems	3 years	Master of Environmental Engineering	2–3 years	Environmental engineer
Transport, disaster response or power systems				
Major in Civil Engineering Systems, Digital Infrastructure Engineering Systems, Electrical Engineering Systems or Mechanical Engineering Systems	3 years	Master of Digital Infrastructure Engineering	2–3 years	Geospatial engineer

For information on Graduate Degree Packages, visit: **go.unimelb.edu.au/9vmi**

How to apply and entry requirements

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How to apply

Domestic students

Domestic students applying for an undergraduate course must submit an application through the Victorian Tertiary Admissions Centre (VTAC). Domestic students studying overseas must also apply through VTAC.

To receive Access Melbourne consideration, you must lodge a Special Entry Access Scheme (SEAS) application via VTAC.

vtac.edu.au

International students

International students studying an Australian Year 12 or IB in Australia must apply through VTAC.

All other international students, including those undertaking foundation studies in Australia, must apply directly to the University or through one of our overseas representatives.

Non-school leaver entry pathway

We understand that not all students come directly from completing an Australian Year 12 qualification. The non-school leaver entry pathway provides an alternative way to demonstrate your eligibility for entry and your likelihood to succeed in your chosen course.

go.unimelb.edu.au/z38e

Guaranteed entry

If you complete your undergraduate degree at the University of Melbourne and achieve a Weighted Average Mark (WAM) of 65%, you are guaranteed a Commonwealth Supported Place (domestic students) or an international fee place (international students), for the Master of Engineering, Master of Information Systems or Master of Information Technology, regardless of your ATAR❶.

Commonwealth Supported Places (CSP)

Domestic students and the Australian Commonwealth Government share the cost of tuition. Student contribution is based on the subjects you enrol in, rather than the overall course.

studyassist.gov.au

Fees

Visit our website for more information on Domestic (CSP) and International student fees.

go.unimelb.edu.au/djy6

Check out the Australian Government's website for current CSP contributions.

go.unimelb.edu.au/5wep

HECS-Help

HECS-HELP is a loan scheme that allows eligible domestic students in a Commonwealth Supported Place (CSP) to defer their student contribution payments. In the HECS-HELP scheme the Australian Government pays your student contribution amount. You only repay your HECS-HELP loan once your income meets the threshold.

studyassist.gov.au

❶ Provided the maths and science entry requirements are met.

❷ Fees are based on Equivalent Full-Time Student Load (EFTSL): 1 EFTSL is a standard annual full-time load.

Entry requirements

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Qualification	Bachelor of Biomedicine	Bachelor of Design	Bachelor of Science	Bachelor of Commerce
Australian Year 12				
Graduate degree package	95.00	93.00	95.00	93.00
Domestic guaranteed ATAR 2025/ Lowest selection rank 2025[1]	94.00 / 92.00	88.00 /87.00	89.00 / 87.00	92.00 / 92.00
International guaranteed ATAR 2025	94.00	85.00	85.00	92.00
Prerequisites[2]	A study score of at least 25 in English/English Language/Literature or at least 30 in EAL AND At least 25 in Chemistry and in Mathematical Methods or Specialist Mathematics	A study score of at least 25 in English/English Language/Literature or at least 30 in EAL If intending to pursue an engineering systems or computing major: At least 25 in Mathematical Methods; OR undertake a bridging mathematics subject as breadth in first year	A study score of at least 25 in English/English Language/Literature or at least 30 in EAL AND At least 25 in Mathematical Methods or Specialist Mathematics, and in one of Biology, Chemistry or Physics; OR At least 25 in both Mathematical Methods and Specialist Mathematics	A study score of at least 25 in English/English Language/Literature or at least 30 in EAL AND At least 25 in Mathematical Methods or Specialist Mathematics
International Baccalaureate (IB)				
Diploma International students: 2025 guaranteed score	37	31	31	35
IB Prerequisite subjects	English, Chemistry and Mathematics (or Further Mathematics)	English	English, Mathematics (or Further Mathematics) and one of: Biology, Chemistry or Physics; OR English, Mathematics and Further Mathematics	English and Mathematics (or Further Mathematics)
GCE A Levels/Singapore A Levels				
International students: 2025 guaranteed score	AAA	BBB	BBB	BBB
A level prerequisite subjects	Chemistry, Mathematics and an approved AS Level English subject	An approved AS Level English subject	Mathematics and one of Biology, Chemistry or Physics and an approved AS Level English subject	Mathematics and an approved AS Level English subject
Trinity College Foundation Studies				
International students: 2025 guaranteed score	91	80	80	86
TCFS prerequisite subjects	EAP, English, Chemistry and Mathematics 1	EAP and English	EAP, English, Mathematics 1, and one of: Biology, Chemistry or Physics OR EAP, English and both Mathematics 1 and Mathematics 2	EAP, English, Mathematics 1 and History of Ideas

Achieve 65% average to enter the Master of Engineering. Not required for Graduate Degree Packages.

[1] Domestic guaranteed ATARs for 2026 have not yet been set. The 2025 lowest selection rank is the lowest ATAR domestic school-leaver applicants were selected to in January 2025. This rank should be used as a guide only, as it is subject to change in future intakes.

[2] Prerequisite subject requirements are expressed in terms of VCE 3/4 subjects here. If you are not a VCE student, refer to our Study site for prerequisite details specific to your qualification **study.unimelb.edu.au/**

Scholarships

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We offer more than 1200 scholarships and prizes for new and current students.

Our scholarships either award academic excellence or assist students from diverse backgrounds or experiencing difficult circumstances with enrolling and completing their course.

To get the most out of your time at university, there are prizes for academic achievements, scholarships and grants to undertake overseas study or leadership opportunities, and bursaries to ease financial pressures so you can focus on your studies.

For a full overview of programs offered by the University and its faculties, visit: **scholarships.unimelb.edu.au**

Melbourne Chancellor's Scholarship

The Melbourne Chancellor's Scholarship is one of the University's most prestigious scholarship and offered to recent school leavers in recognition of their outstanding academic achievement during their Australian Year 12 or International Baccalaureate (IB).

As a Chancellor's Scholar, you will enjoy generous fee exemptions and be guaranteed a place in the graduate program of your choice at Melbourne. Domestic students also receive a living allowance for up to three years.

In addition, you'll receive a Melbourne Global Scholars Award to help you on your way to studying overseas as an exchange or study abroad student.

Eligible students who apply for admission to the University through VTAC are automatically considered for a Melbourne Chancellor's Scholarship, so you don't need to make a separate application. The scholarship is guaranteed to students who achieved an ATAR of at least 99.90, Indigenous students with an ATAR of at least 90.

Melbourne International Undergraduate Scholarship

Offers fee remissions for high-achieving students who are enrolling in a bachelor degree and are citizens of countries where international educational opportunities are limited by financial disadvantage.

Hansen Scholarship Program

The Hansen Scholarship recognises students from around Australia who have demonstrated resilience to adversity, and a commitment to supporting others.

As a Hansen Scholar, you will be awarded accommodation, a living allowance, and financial and personal support. You'll join a program that nurtures potential and provides a place where your ambition can grow, offering you access to a high-quality university education that might otherwise feel out of reach.

Applications open in Term 1 to current Year 12 students starting their undergraduate studies the following year.

Narrm Scholarship Program

Available to students from all over Australia, the Narrm Scholarship Program provides financial, academic and wellbeing support throughout your undergraduate degree. You'll be automatically considered by applying through Access Melbourne (SEAS).

As a Narrm Scholar you'll:

- Receive a yearly living allowance of $6500
- Participate in a tailored enrichment program to enhance your academic skills and career readiness
- Join a like-minded and supportive community.

Narrm Scholars from regional or remote areas of Australia will also receive a one-off relocation allowance of $3000, and an accommodation allowance of up to $20,000 per year if they are living at approved University Accommodation.

Melbourne Relocation Scholarship

The Melbourne Relocation Scholarship is guaranteed to students from regional and remote areas who have applied through Access Melbourne and are not in receipt of another scholarship.

The scholarship provides a relocation allowance of $1500 to assist with the cost of moving to Melbourne.

National Merit Scholarship

The National Merit Scholarship takes the stress out of relocating from Australian states and territories outside Victoria with an $8000 allowance paid in the first semester of your studies.

Melbourne International Undergraduate Scholarship

Offers fee remissions for high-achieving students who are enrolling in a bachelor degree and are citizens of countries where international educational opportunities are limited by financial disadvantage.

Humanitarian Access Scholarship

Offering full fee remission and $15,000 in living allowances to talented students, the Humanitarian Access Scholarship is for those who have applied for asylum in Australia.

Faculty scholarships

Our faculties offer hundreds of specific awards that can help you through your undergraduate studies. For a full list and how to apply, check faculty websites.

Residential college scholarships

More than one third of college students receive financial assistance, with a combined $8.3M in college scholarships and bursaries available. A scholarship may reduce the fees by between $100–$500 per week. A further $1.6M is for students who are employed part-time by their college.

colleges.unimelb.edu.au/scholarships-and-fees/

Elite Athlete Program

If you excel in sport, our Elite Athlete Program offers generous scholarships to help you pursue your sporting dreams as well as your academic aspirations.

sport.unimelb.edu.au/programs/elite-athlete-program

Airwallex Excellence in Technology Scholarship

Established to support exceptional second year undergraduate students majoring in Computing and Software Systems. Each scholarship is valued at $30,000 for a period of two years.

Paterson Scholarship

This scholarship supports an undergraduate student on an engineering pathway throughout their undergraduate degree and subsequent masters degree.

THE UNIVERSITY OF MELBOURNE

Open Day

Sunday 17 August 2025

Register your interest

The University of Melbourne (Australian University) PRV12150 / CRICOS 00116K

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