ENGINEERING AND IT

2020 Graduate Guide

For more information, visit eng.unimelb.edu.au
THE MELBOURNE ADVANTAGE

Study at Australia’s No. 1 university
No.40 in the world for engineering and technology

Be internationally recognised
Maximise your career opportunities around the world with accreditation from Engineers Australia, Washington Accord (USA) and EUR-ACE® (Europe), learning from academics who are globally recognised in their field.

Be inspired by leading researchers
Learn from world-leading researchers who are working on groundbreaking innovations such as epileptic seizure predication, chemical blankets to protect our coral reefs, and robots with a human touch.

Connect with industry
The University of Melbourne is No.6 in the world for graduate employability. Take part in internships, complete industry projects or undertake an innovation challenge with an industry mentor.

» Study in the heart of Melbourne, one of the world’s most liveable cities
» Access Australia’s leading entrepreneurship and start-up program, the Melbourne Accelerator Program (MAP)
» Access a generous scholarships program that supports diversity and acknowledges academic achievement
» Be part of the world-leading innovation precinct Melbourne Connect, and discover a new seven-hectare campus for collaboration just five kilometres from the city, opening in early 2020.

1 Times Higher Education World University Rankings 2019
2 QS World University Rankings by Broad Subject Area 2019
3 QS Graduate Employability Rankings 2019
4 Economist Intelligence unit
HOW TO STUDY ENGINEERING AT MELBOURNE

To study engineering at Melbourne as a school leaver, you start with a three-year undergraduate degree, majoring in your chosen field of engineering. Then you progress to the two-year Master of Engineering to become an accredited engineer, enabling you to practice in Australia and around the world.

Or, if you already hold an undergraduate degree*, advance your career with an internationally recognised two to three year Master of Engineering or specialised graduate qualification.

If you meet the maths and science entry requirements for the Master of Engineering, but haven’t completed the required engineering subjects in your undergraduate degree, you will be eligible for the three-year Master of Engineering program.

You’ll graduate with a world-class masters qualification and a unique set of technical, analytical, business and interpersonal skills to give your career a competitive edge.

SCHOOL LEAVERS

MELBOURNE DEGREES (3 YEARS)

Bachelor of Biomedicine
> Complement your engineering skills with medical knowledge
> Contribute to issues that create, sustain and threaten life.
Major:
> Bioengineering Systems

Bachelor of Design
> Explore how we interact with the world
> Rethink the way we approach our cities, public spaces, transport, technology, websites and the environment.
Majors:
> Civil Systems
> Computing
> Mechanical Systems
> Spatial Systems

Bachelor of Science
> Understand how science underpins engineering
> Complement your engineering systems major with studies in genetics, ecology, food science, neuroscience and more.
Majors:
> Bioengineering Systems
> Chemical Systems
> Civil Systems
> Computing and Software Systems
> Electrical Systems
> Environmental Engineering Systems
> Spatial Systems
> Mechanical Systems
> Mechatronics Systems

MELBOURNE DEGREES (3 YEARS)

SCHOOL LEAVERS

MASTER OF ENGINEERING (2 YEARS)

Technical specialisations: Biomedical, Biochemical, Chemical, Civil, Electrical, Environmental, Materials, Mechanical, Mechanical with Aerospace, Mechatronics, Software, Spatial, Structural.
‘With Business’ specialisations: Biomedical, Chemical, Civil, Electrical, Mechanical, Software.

Exit to employment

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

Exit to employment with professional accreditation

Graduate Research Degrees
Master of Philosophy (MPhil)
Doctor of Philosophy (PhD)

*Any undergraduate degree from a recognised institution including the prerequisite subjects outlined on the course pages with a weighted average mark of at least H3 (65%), or equivalent.
HOW TO STUDY IT AT MELBOURNE

You can study an IT major or subjects focusing on IT in your undergraduate degree. Then you can advance your career with a masters degree. Some of our specialisations, such as mechatronics, software and spatial, are a blend of engineering and IT.

As an IT student, you'll experience a curriculum designed in consultation with leading IT industry decision-makers and taught by world-leading experts, with opportunities for industry placements.

You will be equipped to work in diverse settings, from your own start-up to multinational corporations, government and not-for-profit sector.

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**MELBOURNE DEGREES (3 YEARS)**

- **Bachelor of Science**
  - Majors:
    - Computing and Software Systems
    - Data Science
    - Mechatronics Systems
    - Spatial Systems

- **Bachelor of Design**
  - Majors:
    - Computing
    - Digital Technologies
    - Spatial Systems

- **IT as breadth**
  - in any Melbourne degree

- **Diploma in Computing**
  - An extra semester to complement your degree

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**GRADUATE COURSEWORK**

- **Master of Engineering**
  - Mechatronics
  - Software
  - Software with Business
  - Spatial

- **Master of Information Systems**
  - Health
  - Professional
  - Research

- **Master of Information Technology**
  - Artificial Intelligence
  - Computing
  - Cybersecurity
  - Distributed Computing
  - Human-Computer Interaction
  - Spatial

- **Master of Computer Science**

- **Master of Data Science**

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**SCHOOL LEAVERS**

**Any Bachelor Degree from a recognised tertiary institution**

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**Exit to employment**

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**Exit to employment with professional accreditation**

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**Graduate Research Degrees**

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

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1. Research options are available for eligible students.
2. For full accreditation details, see pages 6-11.
QUICK REFERENCE GUIDE: GRADUATE PROGRAMS

Melbourne School of Engineering offers a range of coursework and research study options designed to prepare you to become a professionally qualified engineer, advance or change your career, or undertake research. Full-time or part-time study, with Semester 1 (February) and Semester 2 (July) entry is available for most courses.

### COURSES

<table>
<thead>
<tr>
<th>COURSES</th>
<th>MINIMUM ENTRY REQUIREMENTS</th>
<th>DURATION</th>
<th>COURSE TYPE</th>
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<td>CHEMICAL AND BIOCHEMICAL ENGINEERING</td>
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<td>» Chemical</td>
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<td>CIVIL AND STRUCTURAL ENGINEERING</td>
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<td>» Civil with Business</td>
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<td>» Structural</td>
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<td>Master of Engineering Structures</td>
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<td>65% weighted average in a four-year civil or structural engineering undergraduate degree</td>
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<td>Civil engineering graduates must:</td>
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<td>» Have one year of relevant work experience,</td>
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<td>» Have dedicated 30% of course to structural engineering subjects</td>
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<td>COURSES</td>
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<td>DURATION²</td>
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<td>Graduate Certificate in Port Engineering</td>
<td>» Undergraduate degree in a relevant discipline</td>
<td>1 year</td>
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<td>» Undergraduate degree in any discipline</td>
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<td>» 65% weighted average</td>
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<td>» Two years of documented, relevant professional experience</td>
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<td>Master of Architectural Engineering</td>
<td>Engineering undergraduate degree:</td>
<td>3.5 years</td>
<td>Professional entry</td>
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<td>» 65% weighted average</td>
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<td>» Design folio</td>
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<td>» Equivalent to one architectural history subject</td>
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<td>» Personal statement of 500 words outlining</td>
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<td>relevant prior study, work</td>
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<td>experience and motivation to undertake the</td>
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<td>Architecture undergraduate degree:</td>
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<td>and Calculus 2) and two science subjects</td>
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<td>» Personal statement of 500 words outlining</td>
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<td>relevant prior study, work</td>
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<td>experience and motivation to undertake the</td>
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<td>ELECTRICAL AND ELECTRONIC ENGINEERING</td>
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<tr>
<td>Master of Engineering</td>
<td>Undergraduate degree with:</td>
<td>2-3 years</td>
<td>Professional entry</td>
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<tr>
<td>» Electrical</td>
<td>» 65% weighted average</td>
<td>full-time</td>
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<tr>
<td>» Electrical with Business</td>
<td>» Equivalent of 2 first-year mathematics subjects (i.e. Linear Algebra and Calculus 2)</td>
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<td>Accreditation: EUR-ACE®</td>
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<td></td>
<td>» Equivalent of 2 first-year physics subjects</td>
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<td>» Engineers Australia</td>
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<td>Advanced standing/credit</td>
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<td>» Up to one year of credit will be awarded to</td>
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<td>students with an electrical engineering major</td>
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<td>in their undergraduate degree</td>
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<tr>
<td>ENERGY</td>
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<td>1.5 years</td>
<td>Specialised masters</td>
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<tr>
<td>Master of Energy Systems</td>
<td>Undergraduate degree in a relevant discipline,</td>
<td>full-time</td>
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<td>such as commerce, science or engineering, and:</td>
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<td>» 70% weighted average</td>
<td>Semester 1</td>
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<td>» Equivalent of one subject in mathematics,</td>
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<td>statistics or other quantitative subject</td>
<td>entry only</td>
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<td>» 2 years of continuous, documented work</td>
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<td>experience in a relevant field if you have a</td>
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<td>weighted average of at least 65%</td>
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<td>ENGINEERING MANAGEMENT AND BUSINESS</td>
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<td>1 year</td>
<td>Specialised masters</td>
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<tr>
<td>Master of Engineering Management</td>
<td>» Four-year undergraduate degree in engineering</td>
<td>full-time</td>
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<td>or relevant discipline</td>
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<td>» A three-year undergraduate degree in a</td>
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<td>relevant work experience since graduation</td>
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¹ Minimum entry requirements vary by program and may include specific academic qualifications, related work experience, and personal statements.
² Durations are indicative and may vary based on individual circumstances.
³ Course types include Specialised masters, Professional entry, and Accreditation:
   » EUR-ACE®
   » Engineers Australia
<table>
<thead>
<tr>
<th>COURSES</th>
<th>MINIMUM ENTRY REQUIREMENTS¹</th>
<th>DURATION²</th>
<th>COURSE TYPE</th>
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<tr>
<td><strong>ENGINEERING WITH BUSINESS</strong></td>
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<td>Master of Engineering</td>
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<td>» Biomedical with Business</td>
<td>Undergraduate degree with:</td>
<td>2-3 years</td>
<td>Professional entry</td>
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<td>» 65% weighted average</td>
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<td>Master of Engineering</td>
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<td>2-3 years</td>
<td>Professional entry</td>
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<tr>
<td>» Electrical with Business</td>
<td>Undergraduate degree with:</td>
<td>full-time</td>
<td>Accreditation:</td>
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<td>» 65% weighted average</td>
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<td>» EUR-ACE®</td>
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<td>Linear Algebra and Calculus 2</td>
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<td>Master of Engineering</td>
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<td>2-3 years</td>
<td>Professional entry</td>
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<td>» Mechanical with Business</td>
<td>Undergraduate degree with:</td>
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<tr>
<td>Master of Engineering</td>
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<td>2-3 years</td>
<td>Professional entry</td>
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<tr>
<td>» Software with Business</td>
<td>Undergraduate degree with:</td>
<td>full-time</td>
<td>Accreditation:</td>
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<tr>
<td></td>
<td>» 65% weighted average</td>
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<td>» EUR-ACE®</td>
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<tr>
<td></td>
<td>» Equivalent of any first-year</td>
<td></td>
<td>» Engineers</td>
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<td></td>
<td>mathematics subjects</td>
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<td>Australia</td>
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<td></td>
<td>» Equivalent of 2 first-year</td>
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<td>computing, programming or</td>
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<td></td>
<td>computer science subjects</td>
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<td>be awarded to students with a</td>
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<tr>
<td></td>
<td>computing and software</td>
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<td>engineering major in their</td>
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<tr>
<td></td>
<td>undergraduate degree</td>
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</tbody>
</table>

¹ Undergraduate degree with:
² 2-3 years full-time
³ Advanced standing/credit
⁴ Environmental Engineering
⁵ Information Technology and Software Engineering
⁶ Professional entry
⁷ Accreditation:
⁸ » EUR-ACE®
⁹ » Engineers Australia
<table>
<thead>
<tr>
<th>COURSES</th>
<th>MINIMUM ENTRY REQUIREMENTS</th>
<th>DURATION</th>
<th>COURSE TYPE</th>
</tr>
</thead>
</table>
| INFORMATION TECHNOLOGY AND SOFTWARE ENGINEERING | Depending on your work experience and undergraduate study, you may be eligible for advanced standing:  
200 point (2 years full-time) program  
- Undergraduate degree in any discipline  
- 65% weighted average  
150 point (1.5 years full-time) program  
- Undergraduate degree in any discipline  
- 65% weighted average  
- One year of documented, relevant work experience  
100 point (1 year full-time) program  
- Undergraduate degree in information systems  
- 65% weighted average  
- Two years of documented, relevant work experience  
*See study.unimelb.edu.au for other 150 point and 100 point entry requirements | 1-2 years full-time | Professional entry  
Accreditation:  
- Australian Computer Society |
| Master of Information Systems (Executive) |  
- Undergraduate degree in an IT-related discipline  
- 70% weighted average in the final year (or equivalent)  
- 10 (or at least 5) years of documented, relevant work experience  
- Personal statement of goals  
- Employer referee reports | 1 year full-time (online delivery only) | Specialised masters |
| Master of Information Technology  
- Artificial Intelligence  
- Computing  
- Cybersecurity  
- Distributed Computing  
- Human-Computer Interaction  
- Spatial | Depending on your work experience and undergraduate study, you may be eligible for advanced standing:  
200 point (2 years full-time) program  
- Undergraduate degree in any discipline  
- 65% weighted average  
150 point (1.5 years full-time) program  
- Three-year undergraduate degree with a major in computer science, information technology, software engineering or related discipline, for example:  
  - Computing and Software Systems major in the Bachelor of Science  
  - Computing or Digital Technologies major in the Bachelor of Design  
- 65% weighted average  
100 point (1 year full-time) program  
- Four-year undergraduate degree with a major in computer science, information technology, software engineering or related discipline  
- 65% weighted average and either:  
  - Studies in the area of specialisation at an advanced undergraduate level or higher, or:  
  - Two years of relevant, documented work experience in the area of specialisation | 1-2 years full-time | Professional entry  
Accreditation:  
- Australian Computer Society  
- Royal Institution of Chartered Surveyors (Spatial stream only) |
| Master of Data Science |  
- Undergraduate degree in computer science, data science or statistics  
- 65% weighted average  
- Equivalent to one subject from computer science or related discipline, focusing on computer programming  
- Equivalent of two subjects of first-year mathematics (including Calculus 2) | Specialised masters |
<table>
<thead>
<tr>
<th>COURSES</th>
<th>MINIMUM ENTRY REQUIREMENTS1</th>
<th>DURATION2</th>
<th>COURSE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMATION TECHNOLOGY AND SOFTWARE ENGINEERING</td>
<td>PAGE NO.36</td>
<td></td>
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</tr>
</tbody>
</table>
| Master of Science Bioinformatics | » Undergraduate degree with a major in biology and biomedicine, mathematics and statistics, or computer science  
» 65% weighted average in the major | 2 years full-time | Research pathway |
| Master of Computer Science | » Undergraduate degree with a major in computer science, for example:  
– Computing and Software Systems major in the Bachelor of Science  
– Computing major in the Bachelor of Design  
» 75% weighted average in the major  
» At least 25 points of university level mathematics or statistics subjects | 2 years full-time | Research pathway |
| MATERIALS ENGINEERING | PAGE NO.48 | | |
| Master of Engineering Materials2 | Undergraduate degree with:  
» 65% weighted average  
» Equivalent of 2 first-year mathematics subjects (i.e. Linear Algebra and Calculus 2)  
» Equivalent of 2 first-year physics subjects, or one chemistry and one physics subject | 2-3 years full-time | Professional entry |
| Advanced standing/credit | » Up to one year of credit will be awarded to students with a chemical or mechanical engineering major in their undergraduate degree |
| MECHANICAL, MECHATRONICS AND AEROSPACE ENGINEERING | PAGE NO.50 | | |
| Master of Engineering Mechanical | Undergraduate degree with:  
» 65% weighted average  
» Equivalent of 2 first-year mathematics subjects (i.e. Linear Algebra and Calculus 2)  
» Equivalent of 2 first-year physics subjects | 2-3 years full-time | Professional entry |
| » Mechanical with Business | | | EUR-ACE®  
» Engineers Australia |
| » Mechanical with Aerospace6 | | | |
| Advanced standing/credit | » Up to one year of credit will be awarded to students with a mechanical engineering major in their undergraduate degree |
| Master of Engineering Mechatronics | Undergraduate degree with:  
» 65% weighted average  
» Equivalent of 2 first-year mathematics subjects (i.e. Linear Algebra and Calculus 2)  
» Equivalent of 2 first-year physics subjects | 2-3 years full-time | Professional entry |
| » Mechatronics | | | EUR-ACE®  
» Engineers Australia |
<table>
<thead>
<tr>
<th>COURSES</th>
<th>MINIMUM ENTRY REQUIREMENTS</th>
<th>DURATION</th>
<th>COURSE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPATIAL INFORMATION</strong></td>
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<tr>
<td>Master of Engineering</td>
<td>Undergraduate degree with:</td>
<td>2-3 years</td>
<td>Professional entry</td>
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<tr>
<td>» Spatial</td>
<td>» 65% weighted average</td>
<td>full-time</td>
<td>Accreditation:</td>
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<tr>
<td></td>
<td>» Any 2 first year mathematics subjects</td>
<td></td>
<td>» EUR-ACE®</td>
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<tr>
<td></td>
<td>» Equivalent of 2 first year computing, programming or computer science subjects</td>
<td></td>
<td>» Engineers Australia</td>
</tr>
<tr>
<td><strong>Advanced standing/credit</strong></td>
<td>Up to one year of credit will be awarded to students with a spatial engineering major in their undergraduate degree</td>
<td></td>
<td>» Royal Institution of Chartered Surveyors</td>
</tr>
<tr>
<td><strong>Master of Information</strong></td>
<td>See above: Information Technology: Master of Information Technology</td>
<td>1-2 years</td>
<td>Professional entry</td>
</tr>
<tr>
<td>Technology</td>
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<td>full-time</td>
<td>Accreditation:</td>
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<tr>
<td>» Spatial</td>
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<td>» Australian Computer Society</td>
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<td></td>
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<td>» Royal Institution of Chartered Surveyors</td>
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<tr>
<td><strong>GRADUATE RESEARCH</strong></td>
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<tr>
<td>Master of Philosophy (MPhil)</td>
<td>Four-year undergraduate degree in a relevant discipline</td>
<td>1.5 -2 years</td>
<td>Research degree</td>
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<td>» Must include a substantial research component (equivalent of 25% of one year of full-time study)</td>
<td>full-time</td>
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<tr>
<td>» 75% weighted average in the equivalent of final year subjects OR</td>
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<tr>
<td>» A masters degree in a relevant discipline</td>
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<tr>
<td>» Must include a substantial research component (equivalent of 25% of one year of full-time study)</td>
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<td>» 75% weighted average OR</td>
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<tr>
<td>» Qualification or professional experience considered to be equivalent</td>
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<tr>
<td>Doctor of Philosophy (PhD)</td>
<td>See Master of Philosophy (above)</td>
<td>3-4 years</td>
<td>Research degree</td>
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<td></td>
<td></td>
<td>full-time</td>
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</tbody>
</table>

1 Minimum entry requirements do not guarantee entry and are listed as a guide only. Grades are calculated as equivalent to the University of Melbourne grades. Visit handbook.unimelb.edu.au for more information.

2 Course duration for the Master of Engineering, Master of Information Technology and Master of Information Systems is dependent on prior study and work experience.

3 The Master of Engineering (Materials) is provisionally accredited by Engineers Australia until sufficient students have graduated from the program. Changes to accreditation status will be backdated, enabling graduates to receive full accreditation when it is granted.

4 The Master of Engineering (Biochemical) and (Chemical) is accredited with IChemE.

5 Students who complete the Computing major in the Bachelor of Design are eligible to enter the 237.5 point Master of Engineering (Software) or (Software with Business). Students who complete the Digital Technologies major in the Bachelor of Design are eligible to enter the 262.5 point Master of Engineering (Software) or (Software with Business).

6 The Master of Engineering (Mechanical with Aerospace) is a new course that was launched in 2019. The Melbourne School of Engineering will seek provisional accreditation for this course through Engineers Australia. The Melbourne School of Engineering has not yet sought accreditation with EUR-ACE®.
BUILD A CAREER OF THE FUTURE AT MELBOURNE

Join the next generation of innovators, working towards a more productive, sustainable and liveable tomorrow. During your degree, you’ll have access to internship and industry opportunities to help forge your career while you study. When you graduate, you’ll benefit from international accreditation and be on your way to a global career in engineering and IT.

Gain real-world experience: industry collaboration

Our industry-connected curriculum means you’ll have the opportunity to gain real-world experience during your degree. You could complete an industry project, take part in internships, undertake an innovation challenge with an industry mentor or connect with a STEM mentor.

Internships

The internship subject is available to domestic and international students in the Master of Engineering, Master of Information Technology and Master of Information Systems:

» Undertake professional-level work experience for 10-16 weeks (approximately 320-350 hours)
» Gain credit towards your degree
» Take part in workshops run by careers counsellors to improve your resume, develop your interview skills and enhance your employability for the future
» Explore international and domestic internship opportunities related to your discipline and career goals

Industry connected Curriculum

Undertake a design or research project with industry and apply your knowledge to help solve a real-world problem.

» Undertake your project over the course of a semester, full-year or summer break
» Develop a collaborative relationship with industry practitioners
» Available in the Master of Engineering, Master of Information Technology and Master of Information Systems
» Creating Innovative Engineering: undertake an innovation challenge with an industry mentor in this first-year Master of Engineering subject.

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
» Guest industry lecturers
» Networking events
» Melbourne Accelerator Program
» Case Competition
» Endeavour Showcase

Skill building and workshops

Give your career a headstart with skill-building workshops tailored for engineering and IT students. Our employability team offers tips on perfecting your resume and cover letter, preparing for interviews and developing your personal brand and online presence. With access to screened job listings, industry events and university-sourced internship opportunities, you’ll be well-positioned to enhance your employability and start forging your career while you study.

Clubs and societies

Our student clubs bring together people who are passionate about engineering and IT 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.

» Aerospace and Robotics Society
» Computing and Information Systems Students Society (CISSA)
» Engineering Music Society
» Engineers Without Borders
» Melbourne University Engineering Student Club (MUESC)
» MUR Motorsports
» Robogals
» Women in Science and Engineering (WISE)
» Women in Technology

¹ For full list of eligible specialisations, visit: eng.unimelb.edu.au/industry/internships
² Subject to change
Build your portfolio while you study: student opportunities

As a Melbourne engineering or IT student, you’ll have access to a broad range of opportunities to build your experience and employability while you study.

Global Mobility Program: Exchange and Study Abroad

Choose from short-term or semester-long programs, and focus on research projects that match your interests. As an engineering or IT student, you’ll benefit from scholarships, bursaries and other funding opportunities.

Popular exchange destinations for engineering and IT students

North America:
University of Illinois at Urbana Champaign (USA)
McGill University (Canada)
University of British Columbia (Canada)
University of Texas at Austin (USA)
New York University (USA)
Carnegie Mellon University (USA)

Europe:
Delft University of Technology (Netherlands)
Lund University (Sweden)
Technical University of Munich (Germany)
Imperial College London (UK)
Swiss Federal Institute of Technology (ETH) Zurich (Switzerland)
Royal Institute of Technology (KTH) (Sweden)
University College London (UK)
King’s College London (UK)

Asia:
Peking University (China)
Tokyo Institute of Technology (Japan)
Nanyang Technological University (Singapore)
KAIST (Korea Advanced Institute of Science and Technology) (South Korea)
University of Tokyo (Japan)
Tsinghua University (China)

A global career

Around the world, employers are looking to fill valuable STEM roles with people who have the right combination of technical and professional skills, including business and communication skills.

As a Melbourne graduate, you’ll be equipped to meet today’s challenges with strong business, technical and interpersonal skills. You’ll enter the global workforce with the ability to lead projects and teams, and the creativity to analyse problems and develop innovative solutions.

In demand: engineering and IT professional salaries

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Average yearly salary</th>
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</thead>
<tbody>
<tr>
<td>Chemical and materials engineers</td>
<td>$95,725.003</td>
</tr>
<tr>
<td>Civil engineering professionals</td>
<td>$99,632.00</td>
</tr>
<tr>
<td>Computer network professionals</td>
<td>$93,652.00</td>
</tr>
<tr>
<td>Database and systems administrators and ICT security</td>
<td>$88,036.00</td>
</tr>
<tr>
<td>Electrical engineers</td>
<td>$113,100.00</td>
</tr>
<tr>
<td>Engineer managers</td>
<td>$122,460.00</td>
</tr>
<tr>
<td>ICT business and systems analysts</td>
<td>$94,588.00</td>
</tr>
<tr>
<td>ICT managers</td>
<td>$109,460.00</td>
</tr>
<tr>
<td>ICT support and test engineers</td>
<td>$89,752.00</td>
</tr>
<tr>
<td>Industrial, mechanical and production engineers</td>
<td>$101,972.00</td>
</tr>
<tr>
<td>Mining engineers</td>
<td>$105,924.00</td>
</tr>
<tr>
<td>Other engineering professionals</td>
<td>$101,556.00</td>
</tr>
<tr>
<td>Software and applications programmers</td>
<td>$93,652.00</td>
</tr>
<tr>
<td>Surveyors and spatial scientists</td>
<td>$81,224.00</td>
</tr>
<tr>
<td>Telecommunications engineering professionals</td>
<td>$80,496.00</td>
</tr>
</tbody>
</table>

Resources:
- Australian Government Job Outlook: joboutlook.gov.au
- Careers and employability: careers.unimelb.edu.au
- Engineers Australia: engineersaustralia.org.au
- Graduate Careers: graduatecareers.com.au

For more detailed information about where our graduates work and what roles they are employed in, see the relevant course page.

1 For a full list of institutions, visit programs.mobility.unimelb.edu.au/index.cfm
2 Figures are based on average weekly pay before tax in Australian dollars and is estimated from weekly gross median salary figures taken from the Australian Government’s Job Outlook website: joboutlook.gov.au, except where indicated. This information is intended to be an indicative guide only and salaries will vary on a case by case basis.
3 Figure based on median salary for employees aged 25-29, from the Institute of Chemical Engineers (IChemE) Salary Survey 2017: thechemicalengineer.com/features/do-your-earnings-stack-up
BIOMEDICAL ENGINEERING

Meet the health challenges of the future with a degree in biomedical engineering. As life expectancies increase, engineers, doctors and clinicians are working together to ensure our bodies can take us further than ever before.

What is biomedical engineering?
Biomedical engineers blend biomedical science with engineering techniques to create innovative healthcare solutions.

Our world-leading biomedical engineering research:
- Bionic eye
- Low-cost prostheses
- Brain-computer interfaces
- Bioprinting and tissue engineering

Get connected
Be exposed to world-class research through the Graeme Clark Institute for Biomedical Engineering, a community of engineers, scientists and clinicians in the healthcare system. Receive one-on-one job and career mentorship from our industry partners, where you will be matched with an industry representative to gain career advice and job interview tips.

Commercialise your medical device
Develop a concept for a medical device and design a business plan through the BioDesign Innovation subject. Working with students from the Master of Business Administration (MBA) course and clinicians from Melbourne hospitals, you’ll find an unmet clinical need, develop an engineering prototype and create a business plan to bring your medical device to market.

“I work in a gait laboratory at the Royal Children’s Hospital, where we use 3D motion capture to better understand how our patients are moving to help them before and after surgery. One of the greatest things about my role is helping the children we see, and we are constantly looking for ways to provide better care for them. I get to work with a great team of physiotherapists and other engineers as we try to achieve this.”

WILL ABBOTT
Master of Engineering (Biomedical with Business)
Bachelor of Biomedicine (Bioengineering Systems major)
Biomedical Engineer, Royal Children’s Hospital

*Please note that internships and mentor opportunities are subject to company approval and availability.*
Master of Engineering (Biomedical) or (Biomedical with Business)

**AT A GLANCE**
- Focus on human systems and the design and operation of devices and processes
- Apply engineering skills to new medical treatments, instruments and machines
- Learn from world leaders in medical bionics, human movement, prostheses, tissue engineering and more

**MASTER OF ENGINEERING (BIO MEDICAL)**
If you have not completed a major in biomedical engineering in your undergraduate degree, study the 3 year Master of Engineering (Biomedical):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Biology of Cells and Organisms</th>
<th>Biomechanical Physics and Computation</th>
<th>Circuits and Systems</th>
<th>Engineering Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>Chemistry 1</td>
<td>Biotransport Processes</td>
<td>Biosystems Design</td>
<td>Engineering Practice and Communication / Creating Innovative Engineering</td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in biomedical engineering in your undergraduate degree, study the 2 year Master of Engineering (Biomedical):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Clinical Trials and Regulation</th>
<th>Bioinstrumentation</th>
<th>Introduction to Biomechanics</th>
<th>Bioengineering elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>Biomaterials</td>
<td>Anatomy and Physiology for Engineers</td>
<td>Bioengineering elective</td>
<td>Bioengineering elective</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Biomedical Engineering Project Capstone</th>
<th>Biomedical Engineering Management</th>
<th>Bioengineering elective</th>
<th>Approved elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>Biomedical Engineering Design Project</td>
<td>Approved elective</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**MASTER OF ENGINEERING (BIO MEDICAL WITH BUSINESS)**
If you have not completed a major in biomedical engineering in your undergraduate degree, study the 3 year Master of Engineering (Biomedical with Business):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Engineering Mathematics</th>
<th>Biomedical Physics and Computation</th>
<th>Biology of Cells and Organisms</th>
<th>Circuits and Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>Biosystem Design</td>
<td>Chemistry 1</td>
<td>Biotransport Processes</td>
<td>Bioengineering elective</td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in biomedical engineering in your undergraduate degree, study the 2 year Master of Engineering (Biomedical with Business):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Clinical Trials and Regulations</th>
<th>Introduction to Biomechanics</th>
<th>Bioinstrumentation</th>
<th>The World of Engineering Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>Biomaterials</td>
<td>Anatomy and Physiology for Engineers</td>
<td>Engineering Contracts and Procurement</td>
<td>Bioengineering elective</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Biomedical Engineering Capstone Project</th>
<th>Strategy Execution for Engineers</th>
<th>Economic Analysis for Engineers</th>
<th>Bioengineering elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>Biomedical Engineering Design Project</td>
<td>Marketing Management for Engineers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/nc-eng
Our student opportunities

**INTERNSHIPS**
- Hospitals
- Biomedical Institutes

**STUDENT PROJECTS**
Design your own biomedical engineering instrumentation, from prosthetics to pacemakers, and use our state-of-the-art facilities to fabricate components.

Work on projects such as monitoring the vital signs of patients, a diagnostic tool for stent selection, speech recognition software and more.

Where our graduates work

**INDUSTRIES**
- Biotechnology
- Health Services
- Hospitals
- Medical Devices
- Petrochemicals
- Pharmaceuticals
- R&D
- Start-ups
- Consultancy

**COMPANIES**
- Accenture
- Agilent Technologies
- Bionics Institute
- Cerner Corporation
- Eastern Health
- GE
- IBM
- OMX Solutions
- Royal Children's Hospital
- Toshiba Medical Systems

**JOB ROLES**
- Research Associate
- Design Engineer
- Field Service Technician
- Service Engineer
- Startup Founder
- Hardware Engineer
Our BioDesign Innovation success stories include NAVi Medical Technologies, who have received more than $200,000 in funding, and Stelect, winners of Australia’s largest medtech startup competition, Medtech’s Got Talent.
With a degree in chemical or biochemical engineering, you’ll help meet the world’s growing need for food, energy and water, preserve the natural environment and develop solutions to heal our bodies.

What is chemical and biochemical engineering?
Biochemical engineering is a type of chemical engineering that focuses on biological processes, such as production of cheese, cosmetics and biofuels. Chemical engineering is a broader type of engineering that has a greater focus on chemical manufacturing, such as oil and plastics. Both work to keep our environment free of chemical pollution.

Our world-leading chemical and biochemical engineering research:
- Generating biofuels from algae
- What’s in our shampoo and conditioner?
- Keeping Antarctica clean

Learn from experts in nanotechnology, pharmaceuticals, minerals, materials, natural gas processing and solvent extraction.
Master of Engineering (Biochemical)

® AT A GLANCE
» Duration: 2-3 years
» Intakes: February (Semester 1), July (Semester 2)
» Designed for: Becoming an accredited biochemical engineer
» Accreditation: Engineers Australia and EUR-ACE

MASTER OF ENGINEERING (BIOCHEMICAL)
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<tr>
<th>Year 0</th>
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<th>Reactor Engineering</th>
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<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Safety and Sustainability Case Studies</td>
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<tr>
<td></td>
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<td>Process Equipment Design</td>
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<tr>
<td>Year 2</td>
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<td>Particle Mechanics and Processing</td>
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<td></td>
<td>Sem 2</td>
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» Apply your knowledge to areas such as food and beverage engineering, pharmaceuticals and cosmetics, and environmental remediation

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<tr>
<td></td>
<td>Sem 2</td>
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<th>Chemical Engineering Thermodynamics</th>
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<tr>
<td></td>
<td>Sem 2</td>
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<td>Process Dynamics and Control</td>
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</tr>
<tr>
<td>Year 2</td>
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<td>Food Engineering</td>
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<td>Biochemical Engineering elective</td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Biochemical Engineering Design Project</td>
<td>Biochemical and Pharmaceutical Engineering</td>
<td>Biochemical Engineering elective</td>
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» Discover how to design new bioproducts and bioprocesses
» Apply your knowledge to areas such as food and beverage engineering, pharmaceuticals and cosmetics, and environmental remediation

» Duration: 2-3 years
» Intakes: February (Semester 1), July (Semester 2)
» Designed for: Becoming an accredited biochemical engineer
» Accreditation: Engineers Australia and EUR-ACE
### Master of Engineering (Chemical) or (Chemical with Business)

**AT A GLANCE**
- **Duration:** 2-3 years
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Becoming an accredited chemical engineer
- **Accreditation:** Engineers Australia, EUR-ACE

**MASTER OF ENGINEERING (CHEMICAL)**
If you have not completed a major in chemical engineering in your undergraduate degree, study the 3 year Master of Engineering (Chemical):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Reactor Engineering</th>
<th>Material and Energy Balances</th>
<th>Engineering Mathematics</th>
<th>Transport Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Safety and Sustainability Case Studies</td>
<td>Chemical Process Analysis</td>
<td>Fluid Mechanics</td>
<td>Heat and Mass Transport Processes</td>
</tr>
</tbody>
</table>

If you have completed a major in chemical engineering in your undergraduate degree, study the 2 year Master of Engineering (Chemical):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Engineering Practice and Communication / Creating Innovative Engineering</th>
<th>Chemical Engineering Thermodynamics</th>
<th>Bioprocess Engineering</th>
<th>Chemical Engineering Elective Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Process Equipment Design</td>
<td>Process Dynamics and Control</td>
<td>Chemical Engineering Research Project/Industry Project</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Particle Mechanics and Processing</th>
<th>Advanced Heat and Mass Transport Processes</th>
<th>Process Engineering</th>
<th>Chemical Engineering Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Chemical Engineering Design Project</td>
<td>Chemical Engineering Elective</td>
<td>Chemical Engineering Elective</td>
<td></td>
</tr>
</tbody>
</table>

**MASTER OF ENGINEERING (CHEMICAL WITH BUSINESS)**
If you have not completed a major in chemical engineering in your undergraduate degree, study the 3 year Master of Engineering (Chemical with Business):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Material and Energy Balances</th>
<th>Engineering Mathematics</th>
<th>Transport Processes</th>
<th>Reactor Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Safety and Sustainability Case Studies</td>
<td>Heat and Mass Transport Processes</td>
<td>Chemical Process Analysis</td>
<td>Fluid Mechanics</td>
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If you have completed a major in chemical engineering in your undergraduate degree, study the 2 year Master of Engineering (Chemical with Business):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Chemical Engineering Elective</th>
<th>Bioprocess Engineering</th>
<th>Chemical Engineering Thermodynamics</th>
<th>Economic Analysis for Engineers</th>
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<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Biomaterials</td>
<td>Anatomy and Physiology for Engineers</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Chemical Engineering Research Project or Industry Project</th>
<th>Process Engineering</th>
<th>Chemical Engineering Elective</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Chemical Engineering Design Project</td>
<td>Strategy Execution for Engineers</td>
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</tbody>
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1 Please note students undertaking a 3-year (300 point) Master of Engineering will study one of these subjects in the first year of their course.
“I work in energy efficiency for a consulting firm. Right now I’m managing two dairy sites, one sewage treatment and one fruit preserving company. Having a biochemical background has really helped me understand the processes behind each industry that I’m working in.”

SASHA FINN
Master of Engineering (Biochemical)
CIVIL AND STRUCTURAL ENGINEERING

Reimagine our cities in a growing world with a degree in civil or structural engineering. Prepare regions, cities and towns to handle increasing populations, finite resources and extreme events.

What is civil and structural engineering?
Civil engineering can cover a broad range of areas, such as transport, environmental and geotechnical engineering. Structural engineering is a specialised type of civil engineering that focuses on the design and maintenance of load-bearing structures.

Our world-leading civil and structural engineering research:

- Prefabricated housing
- Going underground for green energy
- How nanoclay stops cladding fires from spreading

Learn from researchers in the ARC Training Centre for Advanced Manufacturing and Prefabricated Housing, the Australia-China Joint Research Centre on River Basin Management, Centre for Disaster Management and Public Safety and more.

“One of my highlights was the subject, Structural Theory and Design 3. A guest lecturer assigned us a project during ‘Steel Week’, which gave us practical insight into what being a structural engineer and working in a firm was really like.”

ELIZABETH STAVRAKIS
Master of Engineering (Structural)
Graduate Engineer, Mott MacDonald
### Master of Engineering (Civil) or (Civil with Business)

**AT A GLANCE**
- **Duration:** 2-3 years
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Becoming an accredited civil engineer
- **Accreditation:** Engineers Australia and EUR-ACE

**MASTER OF ENGINEERING (CIVIL)**
If you have not completed a major in civil engineering in your undergraduate degree, study the 3 year Master of Engineering (Civil):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Engineering Risk Analysis</th>
<th>Engineering Mechanics</th>
<th>Engineering Mathematics</th>
<th>Fluid Mechanics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Earth Processes for Engineering</td>
<td>Engineering Materials</td>
<td>Systems Modelling and Design</td>
<td>Structural Theory and Design</td>
</tr>
</tbody>
</table>

If you have completed a major in civil engineering in your undergraduate degree, study the 2 year Master of Engineering (Civil):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Structural Theory and Design 2</th>
<th>Sustainable Infrastructure Engineering</th>
<th>Engineering Site Characterisation</th>
<th>Geotechnical Engineering</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Engineering Project Implementation</td>
<td>Civil Hydraulics</td>
<td>Transport Systems</td>
<td>Engineering Practice and Communication / Creating Innovative Engineering</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>Engineering Capstone Project Part 1 and 2</td>
<td>Risk Analysis</td>
<td>Integrated Design (Civil)</td>
<td>Civil Engineering elective</td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Construction Engineering</td>
<td>Civil Engineering elective</td>
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### MASTER OF ENGINEERING (CIVIL WITH BUSINESS)

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<th>Fluid Mechanics</th>
<th>Engineering Risk Analysis</th>
<th>Engineering Mathematics</th>
<th>Engineering Mechanics</th>
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Master of Engineering (Structural)

» Learn to design, develop and evaluate materials and systems used in constructing load-bearing infrastructure, such as roads, bridges, buildings, railways or dams.

» Take part in 'Steel Week', where you’ll work with an industry practitioner on a structural engineering project and gain insight into engineering consulting.

MASTER OF ENGINEERING (STRUCTURAL)

If you have not completed a major in structural engineering in your undergraduate degree, study the 3 year Master of Engineering (Structural):

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If you have completed a major in structural engineering in your undergraduate degree, study the 2 year Master of Engineering (Structural):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Structural Theory and Design 2</th>
<th>Sustainable Infrastructure Engineering</th>
<th>Engineering Site Characterisation</th>
<th>Structural Engineering elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Engineering Project Implementation</td>
<td>Structural Theory and Design 3</td>
<td>Systems Modelling and Design</td>
<td>Structural Engineering elective</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>IE Research Project Part 1 and 2</td>
<td>Geotechnical Engineering</td>
<td>Integrated Design (Infrastructure) or Integrated Design (Civil)</td>
<td>Structural Engineering elective</td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Construction Engineering</td>
<td></td>
<td></td>
<td>Structural Engineering elective</td>
</tr>
</tbody>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng

1 Please note students undertaking a 3 year (300 point) Master of Engineering will study one of these subjects in the first year of their course.

Where our graduates work

INDUSTRIES
» Aerospace
» Civil Engineering
» Construction
» Geotechnical Engineering
» Manufacturing
» Mining
» Oil and Gas
» Transport
» Utilities
» Water Resources Engineering

COMPANIES
» AECOM
» Arup
» Aurecon
» BHP Billiton
» Boston Consulting Group
» City West Water
» GeoAust Geotechnical Engineers
» GHD
» Golder Associates
» Jacobs
» John Holland
» Melbourne Metro Rail Authority
» Multiplex
» Shell

JOB ROLES
» Project Engineer
» Site Engineer
» Geotechnical Engineer
» Structural Engineer
» Civil Engineer
» Consultant
» Design Engineer
» Tunnel Engineer
» Field Engineer
» Build Reports Consultant
» Construction Engineer
» Rail Engineer
» Drainage Engineer

Our student opportunities

INTERNSHIPS
» Infrastructure
» Property
» Transport
» Electricity Distribution
» Built Environment
» Oil and Gas
» Engineering Consulting
» Project Management
» Construction

STUDENT PROJECTS

Work on projects such as estimating life loss from flood, the role of virtual reality in search and rescue or detecting bridge cracks with drones.
"I did the Bachelor of Commerce/Engineering pathway. Seeing aspects of both disciplines has been great. Having a background in commerce has really opened my options to both technical and managerial roles. I think I can use my knowledge for both aspects in engineering."

KISAL WEERATUNGE
Master of Engineering (Structural)
Master of Engineering Structures

Learning outcomes
» Explore key themes such as structural systems, conceptual design, sustainable design, extreme loading and advanced analysis techniques
» Gain the skills to design ecologically sustainable and resilient structures
» Learn the special requirements to successfully design high rise structures
» Understand the procedures and processes for structural steel, cold-formed steel, composites, timber or masonry structures

Student experience
» Undertake an infrastructure engineering research subject and choose from a wide range of electives
» Complete a simulated structural design exercise and collaborate with an experienced senior practising engineer

Our career outcomes
The Master of Engineering Structures is a specialised masters course, designed to help qualified engineers advance their career. This qualification prepares graduates for senior roles in structural engineering and related industries.

Sample course plan

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>High Rise Structures</th>
<th>Infrastructure Engineering elective</th>
<th>Structural Engineering elective</th>
<th>Structural Engineering elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Structural Theory and Design 3</td>
<td>Structural Engineering elective</td>
<td>Infrastructure Engineering elective</td>
<td>Infrastructure Engineering elective</td>
</tr>
</tbody>
</table>

Structural Engineering electives (choose at least 3)
» Structural Resistant Design of Buildings
» Extreme Loading of Structures
» Concrete Design and Technology
» Structural Dynamics and Modelling
» Building Information Modelling

Infrastructure Engineering electives (choose up to 3)
» Sustainable Infrastructure Engineering
» Quantitative Environmental Modelling
» Solar Energy
» Energy for Sustainable Development
» Project Management Practices
» Engineering Project Implementation
» Geotechnical Applications
» Energy Efficiency Technology

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/2019/courses/746st
Graduate Certificate in Port Engineering

**Learning outcomes**
- Improve your capacity for port and harbour design and management
- Strengthen your understanding of ship traffic in ports and harbours
- Engage with a multidisciplinary overview of dredging issues
- Apply technologies, concepts, methods and hydrodynamic theories in harbour facility planning, design and construction

**Student experience**
- Undertake specialised coursework electives
- Learn from world-leading scientists in the field of maritime engineering
- Engage with industry through site visits
- Developed in consultation with eminent practitioners in maritime, coastal and port engineering

**Our career outcomes**
This course prepares professionals for senior or specialised roles in the port and coastal engineering industry. Graduates will benefit from advanced knowledge and skills, enabling them to design and manage prominent ports and harbours.

Choose one elective from the following:
- Freight Systems
- Building Information Modeling
- Metocean Engineering
- Port Structural Design
- Environmental Management ISO 14000
- Satellite Positioning Systems

**Sample course plan**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Dredging Engineering</th>
<th>Port Access and Navigation (online)</th>
<th>Port and Harbour Engineering</th>
<th>Elective</th>
</tr>
</thead>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/2019/courses(gc-porteng)
What is electrical and electronic engineering?

Electrical engineers design and manage the electrical systems used in automation, surveillance, energy conversion, power distribution, telecommunications and information processing. Electronic engineers focus on small-scale electronic systems, such as computers and integrated circuits.

Our world-leading electrical engineering research:

- Bionic implants
- Predicting epileptic seizures, just like the weather
- Using lasers to help the blind see
- Community microgrids to efficiently share renewable energy

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.

Learn from leading experts in power systems, energy-efficient telecommunications systems and sensor networks that monitor the environment.

“It feels fantastic to build something that you can control via a few lines of code and it can run without a PC or a laptop.”

Qee Zhao
Master of Engineering (Electrical)
# Master of Engineering (Electrical) or (Electrical with Business)

**AT A GLANCE**
- **Duration:** 2-3 years
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Becoming an accredited electrical or electronic engineer
- **Accreditation:** Engineers Australia and EUR-ACE

## Master of Engineering (Electrical)

If you have not completed a major in electrical engineering in your undergraduate degree, study the 3 year Master of Engineering (Electrical):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Foundations of Electrical Networks</th>
<th>Engineering Mathematics</th>
<th>Engineering Computation</th>
<th>Approved elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Electrical Device Modelling</td>
<td>Electrical Network Analysis and Design</td>
<td>Signals and Systems</td>
<td>Digital Systems Design</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Probability and Random Models</th>
<th>Engineering Practice and Communication/ Creating Innovative Engineering</th>
<th>Electronic Circuit Design</th>
<th>Introduction to Power Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Communication Systems</td>
<td>Signal Processing</td>
<td>Embedded System Design</td>
<td>Control Systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Electrical Engineering Capstone Project</th>
<th>Electrical Engineering elective</th>
<th>Electrical Engineering elective</th>
<th>Approved elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Electrical Engineering elective</td>
<td>Electrical Engineering elective</td>
<td>Approved elective</td>
<td></td>
</tr>
</tbody>
</table>

## Master of Engineering (Electrical with Business)

If you have completed a major in electrical engineering in your undergraduate degree, study the 2 year Master of Engineering (Electrical with Business):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Foundations of Electrical Networks</th>
<th>Engineering Mathematics</th>
<th>Engineering Computation</th>
<th>Approved elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Electrical Network Analysis and Design</td>
<td>Electrical Device Modelling</td>
<td>Signals and Systems</td>
<td>Digital System Design</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Control Systems</th>
<th>Probability and Random Models</th>
<th>Introduction to Power Engineering</th>
<th>Economic Analysis for Engineers</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Engineering Capstone Project</th>
<th>Engineering Contracts and Procurement</th>
<th>World of Engineering Management</th>
<th>Electrical Engineering elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Marketing Management for Engineers</td>
<td>Strategy Execution for Engineers</td>
<td>Approved elective</td>
<td></td>
</tr>
</tbody>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng
Our student opportunities

**INTERNSHIPS**
- Biotechnology
- Aerostructures
- Oil and gas
- Automation
- Technical consulting
- Power solutions
- Computing devices

**STUDENT PROJECTS**
Work on projects such as an accelerometer to measure football kicks, electric vehicles, smart metres, drones in disaster management and more.

Where our graduates work

**INDUSTRIES**
- Automation
- Aviation
- Broadcast/Sound Engineering
- Electrical Equipment
- Electronics
- Power Generation and Transmission
- System Engineering
- Telecommunications

**COMPANIES**
- Accenture
- AECOM
- BHP
- Coles
- Daly International
- Deloitte
- ExxonMobil
- Google
- KPMG
- NBN Co. Limited
- Siemens
- Tesla
- Telstra
- Thales

**JOB ROLES**
- Business and Technology Architect
- Software Engineer
- Electrical Engineer
- Support Engineer
- Technology Specialist
- VR Software Engineer
- IEA Reliability Engineer
- Electronic Hardware Engineer
- Software Developer
- Control System Engineer
- Digital Analyst
“Doing an internship has helped me feel more confident and career-ready, because I understand how I will be using my engineering skills in the work force.”

OLIVIA PANJKOV
Master of Engineering (Electrical)
ENERGY AND ENVIRONMENTAL ENGINEERING

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

Become a leader in the energy sector. The Master of Energy Systems will provide you with the skills and knowledge required to implement the transition to a sustainable, least cost energy future.

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

Our world-leading environmental engineering research:
- Exploring the birthplace of monster waves
- Taking the sludge out of wastewater
- Turning any water into drinking water
- Digital vineyards

“My subjects reflected real-life complexities of current environmental problems and it was eye-opening to learn the importance of an interdisciplinary approach when facing these challenges.”

HANNAH YAP
Master of Engineering (Environmental)
**Master of Engineering (Environmental)**

**AT A GLANCE**
- Duration: 2-3 years
- Intakes: February (Semester 1), July (Semester 2)
- Designed for: Becoming an accredited environmental engineer
- Accreditation: Engineers Australia and EUR-ACE

**Engineer solutions to the challenges facing our world in climate change, water resources, energy and bushfire management.**
- Design and build sustainable solutions to environmental problems
- Focus on climate change, water scarcity and bushfire management
- Develop a specialisation in energy, waste management or water resources

**MASTER OF ENGINEERING (ENVIRONMENTAL)**
If you have not completed a major in environmental engineering in your undergraduate degree, study the 3 year Master of Engineering (Environmental):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Engineering Mechanics</th>
<th>Engineering Mathematics</th>
<th>Fluid Mechanics</th>
<th>Analysis of Biological Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Environmental</td>
<td>Earth Processes for</td>
<td>Biotransport</td>
<td>Systems Modelling and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering Systems</td>
<td>Engineering</td>
<td>Processes</td>
<td>Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capstone</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in environmental engineering, study the 2 year Master of Engineering (Environmental):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Quantitative Environmental Modelling</th>
<th>Sustainable Infrastructure Engineering</th>
<th>Engineering Site Characterisation</th>
<th>Engineering Practice and Communication / Creating Innovative Engineering(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Engineering Project Implementation</td>
<td>Civil Hydraulics</td>
<td>Environmental Analysis Tools</td>
<td>Monitoring Environmental Impacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IE Research Project</td>
<td>Environmental Engineering elective</td>
<td>Environmental Engineering elective</td>
<td>Environmental Engineering elective</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>Integrated Design (Civil)</td>
<td>Environmental Engineering elective</td>
<td>Environmental Engineering elective</td>
<td>Environmental Engineering elective</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Please note students undertaking a 3-year (300 point) Master of Engineering will study one of these subjects in the first year of their course.

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng

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**Where our graduates work**

**INDUSTRIES**
- Catchment Management
- Civil Engineering
- Conservation and Natural Resources
- Renewable Energy
- Infrastructure Engineering
- Energy
- Mining
- Resource Planning and Management
- Oil and Gas
- Waste and Water Resources

**COMPANIES**
- Acciona Australia
- Alluvium Consulting
- Bureau of Meteorology
- China Ministry of Environmental Department of Environment, Land, Water and Planning
- Engineers Without Borders
- Golder Associates
- Jacobs
- Melbourne Water
- North Sumatra Hydro Energy
- Water Tech
- Woodside Energy

**JOB ROLES**
- Application Engineer
- Environmental Engineer
- Consultant
- Project Environmental Engineer

**Our student opportunities**

**INTERNSHIPS**
- Companies and government organisations specialising in water resources management
- Environmental consulting and design
- Construction
- Weather forecasting

**STUDENT PROJECTS**
Design and implement an environmental monitoring program, take part in a five-day field camp and engage with consultants who work on projects around the world.
Master of Environmental Engineering

**AT A GLANCE**

- Duration: 1 year program (part-time available)
- Intakes: February (Semester 1), July (Semester 2)
- Designed for: Accredited engineers

**Gain advanced knowledge in sustainable development and environmental management.**

**Learning outcomes**

- Gain expertise in air pollution, cleaner production, environmental management systems, noise, vibration and more
- Understand the complexities of decision-making from a political, legal and economic perspective

**Our career outcomes**

The Master of Environmental Engineering is a specialised masters course, designed to help qualified engineers change their field of work or advance their career. This qualification prepares graduates for senior roles in environmental engineering and related industries.

---

**Sample course plan**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Quantitative Environmental Modelling</th>
<th>Sustainable Infrastructure Engineering</th>
<th>Selective</th>
<th>Selective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Monitoring Environmental Impacts</td>
<td>Environmental Analysis Tools</td>
<td>Selective</td>
<td>Approved elective</td>
</tr>
</tbody>
</table>

Choose 3-4 electives from one of the following themes:

**Waste management**

- Solid Wastes to Sustainable Resources
- Water and Waste Water Management
- Environmental Management ISO 14000
- Groundwater Hydrology
- Infrastructure Engineering Research Project

**Energy**

- Energy for Sustainable Development
- Solar Energy
- Energy Efficiency Technology
- Sustainable Buildings
- Infrastructure Engineering Research Project

**Water resources**

- Environmental Applied Hydrology
- Waste and Water Management
- Sustainable Water Resources Systems
- International River Basement Management
- Groundwater Hydrology
- Infrastructure Engineering Research Project

Or, choose one approved elective, such as:

- Engineering Contracts and Procurement
- Foundations of Spatial Information
- Geotechnical Applications
Master of Energy Systems

Tackle emerging energy issues and guide critical decision-making in the energy sector.

Learning outcomes

» Analyse energy systems from technical, commercial and policy standpoints
» Explore energy finance, economics, energy markets and the operation of renewable and non-renewable energy systems
» Learn from specialists in electricity generation, the transport sector, energy network design, sustainability and efficiency

Sample course plan

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Introduction to Energy Systems</th>
<th>Analysing Energy Systems</th>
<th>Electrical Power Systems</th>
<th>Financial Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Non-Renewable Energy</td>
<td>Renewable Energy</td>
<td>Managerial Economics</td>
<td>Elective</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>Energy Supply and Value Chains</td>
<td>Elective</td>
<td>Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

In the Master of Energy Systems, you’ll complete eight compulsory core subjects and four electives taken over 1.5 years (or part-time equivalent). Choose from a broad range of electives, including the Energy Systems Project and subjects from:

<table>
<thead>
<tr>
<th>Energy and sustainability</th>
<th>Energy, finance and policy</th>
<th>The business of energy</th>
<th>Energy and law</th>
</tr>
</thead>
<tbody>
<tr>
<td>» Adapting to Climate Change</td>
<td>» Climate Change Politics and Policy</td>
<td>» Business Analysis and Decision Making</td>
<td>» Construction Law</td>
</tr>
<tr>
<td>» Climate Change Mitigation</td>
<td>» Engineering for Public Policy</td>
<td>» Engineering Contracts and Procurement</td>
<td>» Energy Regulation and the Law</td>
</tr>
<tr>
<td>» Climate Modelling and Climate Change</td>
<td>» Environmental Policy Instruments</td>
<td>» Optimisation for Industry</td>
<td></td>
</tr>
<tr>
<td>» Environmental Modelling</td>
<td>» Project Finance</td>
<td>» Supply Chain Management</td>
<td></td>
</tr>
<tr>
<td>» Sustainable Buildings</td>
<td>» Sustainability Accounting</td>
<td>» Transport Systems</td>
<td></td>
</tr>
<tr>
<td>» Solar Energy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>» Sustainable Infrastructure Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where our graduates work

INDUSTRIES
» Automotive
» Demand Response
» Network Optimisation
» Renewable Energy
» Solar Energy
» Thermal Energy
» Transport
» Virtual Power Plant Design

COMPANIES
» AEMO
» AGL
» ANZ
» DELWP
» DNVGL
» ENEA Consulting
» Energy Australia
» FlowPower
» GreenSync
» Jacobs
» Pacific Hydro
» Powershop/Meridian Energy
» Siemens
» Tesla
» West Wind

JOB ROLES
» Project Manager
» Associate Systems Engineer
» Development Manager
» Consultant
» Executive Engineer
» Senior Engineer
» Project Mechanical Engineer
» Business Evaluation Manager
» Principal Engineer
» Analyst
» Co-founder

Our student opportunities

STUDENT PROJECTS

Energy Systems Project – work onsite at an organisation over three months, solving a real energy problem, forging industry connections and undertaking cross-disciplinary analysis. Outstanding students (average mark >75%) will be eligible for the Energy Systems Project program, a 1-semester placement onsite at a leading energy organisation, solving real energy industry problems, forging industry connections and undertaking cross-disciplinary analysis.
Master of Engineering Management

Fast-track your career in management, gain expertise in navigating organisational change and leading projects to achieve tangible results.

**AT A GLANCE**
- **Duration:** 1 year program
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Accredited engineers

**Learning outcomes**
- Take the next step in your career
- Enhance your technological problem-solving skills
- Gain business skills to manage people, projects and resources in complex organisation settings

**Sample course plan**
In the Master of Engineering Management, you’ll complete eight subjects over one year (or part-time equivalent).

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Project / Change Management Subject</th>
<th>Project / Change Management Subject</th>
<th>Elective from the Master of Management</th>
<th>Elective from the Master of Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Strategic Management</td>
<td>Engineering Management Capstone</td>
<td>Project / Change Management Subject</td>
<td>Elective from the Master of Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All students complete the Engineering Management Capstone and Strategic Management. Of the remaining subjects, you’ll choose:
- Three subjects from the Change and/or Project Management stream (you can either focus on one stream, or take a combination of subjects from both streams)
- Four subjects from the Master of Management, taught by Melbourne Business School

**Project Management Subjects**
- Sustainable Infrastructure Engineering
- Project Management Practices
- Engineering Project Implementation
- Engineering Contracts and Procurement
- Transport System Modelling

**Change Management Subjects**
- Management and Leadership for Engineers
- Building Information Modelling
- Managing Change for IS Professionals
- Engineering Entrepreneurship

**Electives**
- Supply Chain Management
- Management Competencies
- Accounting for Decision Making
- Business Analysis and Decision Making
- Financial Management
- Managerial Economics
- Operations
- Managing People

Master of Engineering (with Business)

**Designed for:** Students seeking to become a professionally accredited engineer. The Master of Engineering (with Business) is available in six specialisations: Biomedical, Chemical, Civil, Electrical, Mechanical and Software. To take a ‘with Business’ specialisation in the Master of Engineering, you’ll replace five technical subjects with management subjects.
INDUSTRIES
» Product Development
» Manufacturing
» Construction
» Design Engineering
» Industrial Engineering
» Software Engineering
» Telecommunications

COMPANIES
» Accenture
» Cisco
» Inventec
» Jetstar Airways
» Komatsu
» KPMG
» Melbourne Metro Rail Authority
» Rio Tinto
» Shell
» Telstra
» Thales
» Unilever

JOB ROLES
» Operations Coordinator
» Reliability Engineer
» National Proposals Coordinator
» Automotive Program Manager
» Configuration Management Coordinator
» Consultant
» Business Analyst
» Programmatic and Data Intelligence Manager

Our student opportunities
STUDENT EXPERIENCE
» Learn from world-leaders from Melbourne Business School and collaborate with students from their masters programs
» Engage with industry through guest lectures and site visits
» Analyse business cases relevant to decision making and practice in engineering management

“By participating in business and technology workshops, I have had the chance to talk with industry and research experts. The professors challenge us to think more broadly through business case analyses.

At the beginning of my master’s degree, I just wanted to improve my personal and technical skills in project management. Now I want to develop and launch my own business in blockchain technology.”

JOHANNA ROJAS
Master of Engineering Management
INFORMATION TECHNOLOGY AND SOFTWARE ENGINEERING

Transform the future of business, health, communication and entertainment with a degree in IT or software engineering from Melbourne.

Gain expertise in areas including:
- Information systems
- Human-computer interaction
- Software engineering
- Cybersecurity
- Artificial intelligence
- Data science
- Machine learning
- Spatial information

Our world-leading computing and information systems research:
- Ageing in a virtual world
- Insertable technology
- Digital connectivity, crime and privacy
- Greener cloud computing

Which IT degree is right for me?

<table>
<thead>
<tr>
<th>Program name</th>
<th>What it’s all about?</th>
<th>Your career goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>» Software</td>
<td>Produce and manage large and small-scale software systems</td>
<td>Become an accredited software engineer</td>
</tr>
<tr>
<td>» Software with Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Information Technology</td>
<td>Gain advanced technical skills and knowledge in IT</td>
<td>Pursue a technical IT career or advance your current IT skills</td>
</tr>
<tr>
<td>Master of Information Systems</td>
<td>Support, manage and change business processes through ICT</td>
<td>Pursue or advance your career in digital business</td>
</tr>
<tr>
<td>Master of Information Systems</td>
<td>Gain strategic expertise to influence decision-making at the most senior level</td>
<td>For senior IT executives seeking to take the next step in their career</td>
</tr>
<tr>
<td>(Executive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Data Science</td>
<td>Build advanced skills in statistical tools, techniques and methods</td>
<td>Pursue a career as a data scientist, software engineer or business intelligence analyst</td>
</tr>
<tr>
<td>Master of Computer Science</td>
<td>Research training program</td>
<td>Pursue a career as an application programmer, information architect or computational research expert</td>
</tr>
</tbody>
</table>

1 QS World University Rankings by Subject 2019
“What excites me the most is the faculty and the professors are the best that I’ve seen. The experience and knowledge and industry experience they bring to the classroom is every bit valuable to us.”

GAYATHRI SADAGOPAN
Master of Information Systems
**Master of Engineering (Software) or (Software with Business)**

**AT A GLANCE**

- **Duration:** 2-3 years
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Becoming an accredited software engineer
- **Accreditation:** Engineers Australia and EUR-ACE, Euro-Inf, Australian Computer Society

» Learn how to produce and manage large and small-scale software systems, leveraging your mathematical, scientific and technical knowledge
- Specialise in algorithms, internet technologies and database systems
- Gain expertise in artificial intelligence, machine learning, cloud computing, cryptography, parallel computing and more

**MASTER OF ENGINEERING (SOFTWARE)**

If you have not completed a major in computing or software engineering in your undergraduate degree, study the 3 year Master of Engineering (Software):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Object Oriented Software Development</th>
<th>Database Systems</th>
<th>Computer Systems</th>
<th>CIS elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Design of Algorithms</td>
<td>Software Modelling and Design</td>
<td>Models of Computation</td>
<td>CIS elective</td>
</tr>
</tbody>
</table>

If you have completed a major in computing or software engineering in your undergraduate degree, study the 2 year Master of Engineering (Software):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Software Requirements Analysis</th>
<th>Software Processes and Management</th>
<th>Engineering Practice and Communication / Creating Innovative Engineering</th>
<th>CIS Advanced elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Masters Software Engineering Project</td>
<td>Software Testing and Reliability</td>
<td>CIS elective</td>
<td>CIS Advanced elective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Masters Advanced Software Project</th>
<th>High Integrity Systems Engineering</th>
<th>Modelling Complex Software Systems</th>
<th>CIS Advanced elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Software Design and Architecture</td>
<td>CIS Advanced elective</td>
<td>Approved elective</td>
<td></td>
</tr>
</tbody>
</table>

**MASTER OF ENGINEERING (SOFTWARE WITH BUSINESS)**

If you have not completed a major in Computing and Software Systems in your undergraduate degree, study the 3 year Master of Engineering (Software with Business):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Sem 1</th>
<th>Database Systems</th>
<th>Design of Algorithms</th>
<th>Object Oriented Software Development</th>
<th>CIS elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>CIS elective</td>
<td>CIS elective</td>
<td>Software Modelling and Design</td>
<td>Models of Computation</td>
</tr>
</tbody>
</table>

If you have completed a major in Computing and Software Systems in your undergraduate degree, study the 2 year Master of Engineering (Software with Business):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Software Requirements Analysis</th>
<th>Computer Systems</th>
<th>Software Processes and Management</th>
<th>The World of Engineering Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Masters Software Engineering Project</td>
<td>Software Testing and Reliability</td>
<td>Marketing Management for Engineers</td>
<td>Engineering Contracts and Procurement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Masters Advanced Software Project</th>
<th>High Integrity Systems Engineering</th>
<th>Modelling Complex Software Systems</th>
<th>Economic Analysis for Engineers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Software Design and Architecture</td>
<td>Strategy Execution for Engineers</td>
<td>CIS Advanced elective</td>
<td></td>
</tr>
</tbody>
</table>

1 Please note students undertaking a 3-year (300 point) Master of Engineering will study one of these subjects in the first year of their course.

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng
“Being involved in client work has been a highlight of my course. We have worked in teams with a real client and built fully-functional software programs. We learnt how to coordinate and run a project, while building our mobile development skills.”

GRACE JOHNSON
Master of Engineering (Software)
Master of Information Technology

Gain advanced technical skills in artificial intelligence, computing, cybersecurity, distributed computing, spatial information or human-computer interaction.

» Gain advanced technical skills and knowledge to lead IT innovation that can be applied to business, government, health, entertainment and more
» Grow your skills in project and change management, risk management, quality assurance and testing
» Develop fundamental technical skills that will remain valuable as new technologies emerge
» Explore fast-changing areas of IT such as artificial intelligence, cybersecurity, machine learning and deep learning, data mining, urban systems and smart cities

AT A GLANCE

» Duration: 1-2 years (depending on prior study and work experience)
» Intakes: February (Semester 1), July (Semester 2)
» Designed for: Students with at least one subject in programming to qualify as an IT professional
» Accreditation: the Australian Computer Society (ACS)

Where our graduates work

INDUSTRIES
» Business
» Financial Services
» Games and Entertainment
» Health
» Media and Social Media
» Technology R&D
» Telecommunications

COMPANIES
» Accenture
» ANZ
» Apollo Medical Imaging Technology
» Bitcoin Group
» Blockchain Global Ltd
» Centre for Eye Research Australia (CERA)
» Cyberinc
» Data Solutions Group
» National Australia Bank
» PwC
» Sina Com Technology
» Suncorp Group
» Telstra
» Venuemob

JOB ROLES
» Python Developer
» Data Infrastructure Engineer
» Project Manager
» Software Engineer/Developer
» Android/iOS Developer
» Quantitative Analyst
» Data Scientist
» Front-end Developer
» Algorithm Engineer
» Web Developer
» Virtual Reality Developer
» Big Data Engineer
» Programmer
» IT Consultant
» Business Intelligence Consultant

Our student opportunities

INTERNSHIPS
» Finance and banking
» Telecommunications
» Construction
» Biotechnology
» Startups

STUDENT EXPERIENCE

Choose from electives in bioinformatics, database systems, enterprise computing, machine learning and artificial intelligence, programming languages, security and more.

1 The Master of Information Technology (Spatial) is also accredited with the Royal Institution of Chartered Surveyors.
Sample course plan

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Programming and Software Development</th>
<th>Algorithms and Complexity</th>
<th>Internet Technologies</th>
<th>Database Systems and Information Modelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td></td>
<td>Specialisation Subject</td>
<td>Specialisation Subject</td>
<td>Specialisation Subject</td>
<td>Specialisation Subject</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Advanced Specialisation Subject</th>
<th>Advanced Specialisation Subject</th>
<th>Advanced Specialisation Subject</th>
<th>Advanced Specialisation Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td></td>
<td>Advanced Specialisation Subject</td>
<td>Advanced Specialisation Subject</td>
<td>Capstone Project</td>
<td></td>
</tr>
</tbody>
</table>

In addition to your area of specialisation, you’ll also choose elective subjects to complement your area of specialisation, which includes the opportunity to undertake an internship or industry placement, or complete industry-based project.
Master of Information Systems

Develop advanced capability in supporting, managing and changing business processes through information and communication technology (ICT).

**AT A GLANCE**

- **Duration:** 1-2 years (depending on prior study and work experience)
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Students from any undergraduate background
- **Accreditation:** Australian Computer Society (ACS)

» Develop expertise in project and change management, emerging technologies, IT strategy and governance, security and service provision
» Choose from one of three specialisations: professional, health or research
» Learn transferable skills in problem solving, collaboration and project management
» Build working relationships with clients in the subject Professional IS Consulting

**CHOOSE YOUR SPECIALISATION**

In the Master of Information Systems, you’ll take a range of core subjects exploring IT and its impact on how we do business.

<table>
<thead>
<tr>
<th>Professional</th>
<th>Health</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build skills to further your career in IT management and digital business. Explore topics as database systems, organisational processes, app development, consulting, business analysis, emerging technologies and IT strategy and governance.</td>
<td>Leverage technology to improve health outcomes in healthcare service provision, public health and biomedical research. You’ll focus on reducing preventable clinical errors and managing cost pressures in healthcare and access career opportunities in health agencies, health services, biomedical research institutes and health organisations. Work as a health informatician, health IT consultant, medical research data manager or digital and mobile health solution developer.</td>
<td>Pursue a career in research undertaking an original investigation into a pressing IT issue with the Information Systems Major Research Project.</td>
</tr>
</tbody>
</table>

**Electives**

Choose up to four electives, focusing on areas such as:

- Industry experience, including an internship, industry placement or industry project
- Information systems project and change management
- IT service provision
- Business analytics
- IT innovation and interaction design
- Management
- Accounting and finance
- Human resources, operations and marketing
- Spatial information
- Health

**Master of IT Management (Executive)**

Gain advanced capability in supporting, managing and changing business processes through information and communication technology.

**AT A GLANCE**

- **Duration:** 1 year
- **Delivery:** 100% online
- **Intakes:** February, April, July, October
- **Designed for:** Senior information technology executives

» Gain strategic expertise to influence decision-making at the most senior level
» Acquire advanced collaborative skills to manage complex teams
» Connect with an extensive network of high-achieving peers from a variety of industries
» Develop advanced knowledge in emerging technologies, technopreneurship, business analytics and enterprise architecture applications

For more information visit online.unimelb.edu.au
“I chose the Master of Information Systems because it puts you at the front of managing emerging technology and making businesses work with it.

Information Systems excites me because I have gained a perspective on technology and businesses through the lens of managing both parts concurrently and what it takes to successfully combine the two.”

NGEI NING LAU
Master of Information Systems

Where our graduates work

INDUSTRIES
- Business
- Financial Services
- Games and Entertainment
- Health agencies and healthcare services
- Media and Social Media
- Technology R&D
- Telecommunications

COMPANIES
- AGL Energy
- Amazon
- ANZ
- Deloitte
- Didi Chuxing
- EY
- Korea Computer & Systems Inc
- KPMG
- National Australia Bank
- Nielsen
- Outware Mobile
- Protiviti
- PwC
- Qantas
- RXP Services
- Suncorp Group
- Sydney Opera House
- Telstra
- Zanity

JOB ROLES
- Financial Services Manager
- Business Systems Analyst
- IT Solution Lead
- Front-end Developer
- Agile Delivery Manager
- Analyst
- Data Engineer
- Consultant
- Technology Specialist
- Data and Analytics Manager
- Solution Architect
- Application Developer
- Project Manager

Our student opportunities

INTERNSHIPS
- Startups
- Non-profit sectors
- Major Australian firms
- Multinationals

STUDENT EXPERIENCE
Gain professional practice knowledge of real-world IT management through industry links and guest lectures.
Master of Data Science

Keen to try a career in data analytics? Combine data science, computer science and statistics in a single coordinated program.

» Develop the technological abilities and analytical skills to manage and gain insights from large and complex collections of data
» Acquire skills in using statistical tools, techniques and methods
» Use in-depth analysis and evaluation to solve real-problems with data

The Master of Data Science opens career opportunities as data scientists, business analysts, data engineer, climate and weather forecaster or data analyst. Graduates may find employment with Microsoft, Bureau of Meteorology, ANZ Bank, BHP Billiton, Boeing and more.

Master of Science (Bioinformatics)

Seeking a pathway to PhD study or a technical role in industry? Combine biology and IT, blending genetics, molecular biology, biochemistry and physiology with computer science, statistics and applied mathematics.

» Learn from and work with high-profile researchers and practitioners in the heart of the Parkville Biomedical Precinct
» Undertake a significant research project

Access career opportunities in medical research institutes and hospitals, government, research-focused companies and academic institutions, with examples including IBM, CSL, Melbourne Bioinformatics, Nectar and RDS. The Master of Science is also a pathway to a PhD or further research.
“Working in the financial industry, I observed a megatrend that combines AI and machine learning techniques. I chose the University of Melbourne because of its great reputation in computer science and because it allowed me to study without a background in the area.”

JAMES LIAO
Master of Information Technology
Master of Computer Science

Keep up with the rapid advances in the field of computer science while completing a major research project on your pathway to PhD study or a research-oriented industry position.

The Master of Computer Science will give you a broad base of high-level knowledge to keep up with the rapid advances in the field of computer science. You will develop specialist skills in at least one area of:

- Artificial intelligence
- Cybersecurity
- Distributed systems
- Human-computer interaction
- Spatial information science

The structure of this course is one year of coursework plus a one-year research project.

You’ll complete an independent project in your chosen research area, supported by one of our academic experts. You’ll leave the course with a major research project to feature in your CV.

First year

<table>
<thead>
<tr>
<th>Core subject</th>
<th>Foundation selectives</th>
<th>Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods</td>
<td>Choose at least two of:</td>
<td>Choose up to five electives, focusing on areas such as:</td>
</tr>
<tr>
<td></td>
<td>» Knowledge Technologies</td>
<td>» Advanced Computer Science</td>
</tr>
<tr>
<td></td>
<td>» Declarative Programming</td>
<td>» Artificial intelligence</td>
</tr>
<tr>
<td></td>
<td>» Distributed Computing</td>
<td>» Cybersecurity</td>
</tr>
<tr>
<td></td>
<td>» AI Planning for Autonomy</td>
<td>» Human-Computer Interaction</td>
</tr>
<tr>
<td></td>
<td>» Evaluating the User Experience</td>
<td>» Programming Languages and Distributed Computing</td>
</tr>
<tr>
<td></td>
<td>» Foundations of Spatial Information</td>
<td>» Spatial</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Data</td>
</tr>
</tbody>
</table>

Second year

Computer Science Research Project
“I completed an internship with an electronics startup company, where I co-led a project to develop an electronic device to help people suffering from Alzheimer’s disease. The greatest benefit of this experience was applying the skills I had learnt in my course to solve a real-life problem.”

RICARDO PARDAVE
Master of Information Technology
Procurement Specialist, Telstra
From medical devices that aid weak hearts to material systems that efficiently store energy, a degree in materials engineering will give you the skills to improve materials that exist all around us and even create new ones.

What is materials engineering?
Materials engineers design and improve the materials underpinning our devices, processes and technologies. These have applications in biomedical devices, sustainable energy solutions and manufacturing.

Our world-leading materials engineering research:
- Skydiving to investigate nanoparticles
- Clean carbon technology
- Chemical blankets to save coral reefs
- Safer drug delivery for cancer

Learn the fundamental concepts of atomic bonding, atomic scale structure, phase equilibria and methods of characterisation.

“Materials engineering influences so many industries. By studying the relationship between processing and performance, materials engineering questions how and why materials have different behaviour.”

MICHAEL TIE
Master of Engineering (Materials)
Master of Engineering (Materials)

**AT A GLANCE**

- **Duration:** 2-3 years
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Becoming an accredited materials engineer
- **Accreditation:** Engineers Australia*

**MASTER OF ENGINEERING (MATERIALS)**

If you have not completed a major in chemical engineering or mechanical engineering in your undergraduate degree, study the 3 year Master of Engineering (Materials):

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>Elective</th>
<th>Sem 2</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Mechanics and Materials</td>
<td></td>
<td>Fluid Mechanics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Engineering Mathematics</td>
<td></td>
<td>Engineering Materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transport Processes</td>
<td></td>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in chemical engineering in your undergraduate degree, study the 2 year Master of Engineering (Materials):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Elective</th>
<th>Sem 2</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Engineering Practice and Communication / Creating Innovative Engineering¹</td>
<td>Polymers and Composites</td>
<td>Economic Analysis for Engineers</td>
<td>Materials</td>
</tr>
<tr>
<td></td>
<td>Ceramics andBrittle Fracture</td>
<td>Minerals Materials and Recycling</td>
<td>Advanced Thermo and Reactor Engineering</td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>Elective</td>
<td>Sem 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industry Project</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Please note students undertaking a 3-year (300 point) Master of Engineering will study one of these subjects in the first year of their course.

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng

Where our graduates work

**INDUSTRIES**
- Industrial Design
- Manufacturing
- Processing and Recycling
- Aerospace
- Transportation
- Automotive
- Solar Energy
- Tissue Engineering
- Drug Delivering
- ICT Systems
- Electronic Devices
- Optical Components

**COMPANIES**
- Defence Science and Technology Group
- AECOM
- Deloitte
- Ford
- GlaxoSmithKline
- KPMG
- Orica
- BlueScope Steel
- Morgan
- Advanced Ceramics
- Austral Bricks
- Qenos

**JOB ROLES**
- Metallurgist
- Plastics Engineer
- Ceramist
- Adhesive Scientist
- Quality Control Engineer
- Corrosion Engineer

Our student opportunities

**STUDENT PROJECTS**
- Take part in a materials engineering research project, such as developing ceramics, metals and composites to protect infrastructure and vehicles against blast damage.
- Use world-class facilities in the Materials Characterisation and Fabrication platform and learn advanced microscopy techniques to analyse different materials.

*The Master of Engineering (Materials) has provisional accreditation until sufficient students have graduated.*
MECHANICAL ENGINEERING, AEROSPACE AND MECHATRONICS

From aerospace to swarm robotics, use your skills in mechanical engineering and mechatronics to design the machines to improve efficiencies in the world around us, and the world beyond.

What is mechanical engineering?
Mechanical engineering focuses on turning energy into power and motion, spanning industries such as aeronautics, robotics and manufacturing.

What is mechatronics?
Mechatronics drives the development of ‘smart’ computer-controlled products, such as robots, drones, automotive equipment and medical imaging systems.

Our world-leading mechanical engineering and mechatronics research:
- Robots with a human touch
- Low-cost prosthetics
- Improving the efficiency of aircraft
- 3D-printing to manufacture new body parts

Learn from world-leaders in fluid mechanics, biomechanics, robotics, thermodynamics and materials science.

“I was particularly inspired by the friendliness and down-to-earth attitude of the academic staff and professors, who have such impressive career achievements. It made me feel very welcome and motivated me to learn more.”

SRIRAM CHANDRASEKARAN
Master of Engineering (Mechanical)
Master of Engineering (Mechanical) or (Mechanical with Business)

**AT A GLANCE**
- Duration: 2-3 years
- Intakes: February (Semester 1), July (Semester 2)
- Designed for: Becoming an accredited mechanical engineer
- Accreditation: Engineers Australia and EUR-ACE

► Participate in cross-disciplinary projects, including medicine, biology and earth sciences
► Focus on the generation, conversion, design and use of energy and discover how to turn energy into power and motion
► Examine the construction and operation of devices and systems

**MASTER OF ENGINEERING (MECHANICAL)**
If you have not completed a major in mechanical engineering in your undergraduate degree, study the 3 year Master of Engineering (Mechanical):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Systems Modelling and Analysis</td>
<td>Thermodynamics and Fluid Mechanics</td>
<td>Foundations of Electrical Networks</td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in mechanical engineering in your undergraduate degree, study the 2 year Master of Engineering (Mechanical):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Control Systems</th>
<th>Dynamics</th>
<th>Materials</th>
<th>Design for Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Fluid Dynamics</td>
<td>Solid Mechanics</td>
<td>Thermodynamics</td>
<td>Engineering Practice and Communication / Creating Innovative Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Engineering Capstone Project</th>
<th>Mechanical Engineering elective*</th>
<th>Mechanical Engineering elective*</th>
<th>Mechanical Engineering elective*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Thermodynamics</td>
<td>World of Engineering Management</td>
<td>Mechanical Engineering elective*</td>
<td>Mechanical Engineering elective*</td>
</tr>
</tbody>
</table>

**MASTER OF ENGINEERING (MECHANICAL WITH BUSINESS)**
If you have not completed a major in mechanical engineering major in your undergraduate degree, study the 3 year Master of Engineering (Mechanical with Business):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Systems Modelling and Analysis</td>
<td>Thermodynamics and Fluid Mechanics</td>
<td>Foundations of Electrical Networks</td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in mechanical engineering major in your undergraduate degree, study the 2 year Master of Engineering (Mechanical with Business):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Thermodynamics</th>
<th>World of Engineering Management</th>
<th>Materials</th>
<th>Design for Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Engineering Contracts and Procurement</td>
<td>Solid Mechanics</td>
<td>Mechanical Engineering elective*</td>
<td>Marketing Management for Engineers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Engineering Capstone Project</th>
<th>Economic Analysis for Engineers</th>
<th>Control Systems</th>
<th>Dynamics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strategy Execution for Engineers</td>
<td>Fluid Dynamics</td>
<td>Mechanical Engineering elective*</td>
<td></td>
</tr>
</tbody>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng
* Mechanical Engineering electives include subjects such as Advanced Motion Control, Advanced Fluid Dynamics, Economic Analysis for Engineers, Advanced Control Systems, Advanced Materials, Sensor Systems, and others.
Master of Engineering (Mechanical with Aerospace)

**AT A GLANCE**
- **Duration:** 2-3 years
- **Intakes:** February (Semester 1), July (Semester 2)
- **Designed for:** Becoming an accredited mechanical engineer specialising in aerospace
- **Accreditation:** Engineers Australia*

**MASTER OF ENGINEERING (MECHANICAL WITH AEROSPACE)**
If you have not completed a major in mechanical engineering in your undergraduate degree, study the 3 year Master of Engineering (Mechanical with Aerospace):

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Mechanical Systems Design</td>
<td>Systems Modelling and Analysis</td>
<td>Thermodynamics and Fluid Mechanics</td>
<td>Foundations of Electrical Networks</td>
</tr>
</tbody>
</table>

If you have completed a major in mechanical engineering in your undergraduate degree, study the 2 year Master of Engineering (Mechanical with Aerospace):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Control Systems</th>
<th>Dynamics</th>
<th>Materials</th>
<th>Design for Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Fluid Dynamics</td>
<td>Solid Mechanics</td>
<td>Thermodynamics</td>
<td>Engineering Practice and Communication / Creating Innovative Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Engineering Capstone Project</th>
<th>Advanced Fluid Dynamics</th>
<th>Computational Fluid Dynamics</th>
<th>Aerospace Dynamics and Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Vibrations and Aeroelasticity</td>
<td>Aerospace Propulsion</td>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng

**Connect with the Melbourne Space Program**
Starting with a group of students with a vision to build a nanosatellite, the Melbourne Space Program (MSP) quickly evolved into a team of 100 volunteers who are dedicated to strengthening the Australian aerospace sector. Their mission: to put Australian students at the forefront of the space industry and bridge the gap between curriculum and career.

*The Master of Engineering (Materials) has provisional accreditation until sufficient students have graduated.*
Our student opportunities

INTERNSHIPS
» Infrastructure and construction
» Aerostructures
» Biotechnology
» Manufacturing
» Mining and resources
» Water resources
» Health

STUDENT PROJECTS
» Read, write and debug programs in high-level programming languages such as C
» Access cutting edge laboratories and a heavy engineering workshop for materials testing, engine and turbine testing, wind tunnel investigations and metal forming processing

Where our graduates work

INDUSTRIES
» Aeronautics
» Automotive
» Biomechanics
» Manufacturing
» Minerals and Energy
» Power Generation
» Robotics
» Transport

COMPANIES
» ANZ
» Arup
» BAE
» Boeing
» Bosch
» Boston Consulting Group
» Carbon Revolution
» CSIRO
» Deloitte
» DST Group
» ExxonMobil
» Ford
» Honeywell
» Leica Microsystems
» PwC
» Siemens
» Yarra Trams

JOB ROLES
» Consultant
» Mechanical Engineer
» Subsurface Engineer
» Process Engineer
» Acoustic Engineer
» New Energy Vehicle Engineer
» Hydraulic Engineer
» Commissioning Engineer
» Industrial Engineer
» Quality Engineer
» Project Business Analyst
Master of Engineering (Mechatronics)

» Become an accredited mechatronics engineer
» Blend mechanical, electrical and software engineering to develop automation and advanced manufacturing technologies
» Understand and exploit emerging technological developments, such as robotics, machine learning, autonomous systems and flexible manufacturing

AT A GLANCE
» Duration: 2-3 years
» Intakes: February (Semester 1), July (Semester 2)
» Designed for: Becoming an accredited mechatronics engineer
» Accreditation: Engineers Australia and EUR-ACE

MASTER OF ENGINEERING (MECHATRONICS)
If you have not completed a major in mechatronics engineering in your undergraduate degree, study the 3 year Master of Engineering (Mechatronics):

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Numerical Programming for Engineers</td>
<td>Systems Modelling and Analysis</td>
<td>Mechanical Systems Design</td>
<td>Foundations of Electrical Networks</td>
</tr>
</tbody>
</table>

If you have completed a major in mechatronics engineering in your undergraduate degree, study the 2 year Master of Engineering (Mechatronics):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Control Systems</th>
<th>Dynamics</th>
<th>Engineering Practice and Communication / Creating Innovative Engineering</th>
<th>Knowledge Technologies or Internet Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Programming and Software Development</td>
<td>Embedded System Design</td>
<td>Advanced Control Systems</td>
<td>Advanced Dynamics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Sem 1</th>
<th>Engineering Capstone Project</th>
<th>Advanced Motion Control</th>
<th>Mechatronics elective</th>
<th>Mechatronics elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Sensor Systems</td>
<td>Mechatronics elective</td>
<td>Mechatronics elective</td>
<td>Mechatronics elective</td>
</tr>
</tbody>
</table>

1 Please note students undertaking a 3 year (300 point) Master of Engineering will study one of these subjects in the first year of their course. Core subject Elective
 Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng
"I chose mechatronics because I liked the idea of combining three different systems: mechanical, software and electrical."

PIRAYA (PIM) QUACH-TANISSORN
Master of Engineering (Mechatronics)
In a world where everything is geolocated, spatial information is at the forefront of the Internet of Things, autonomous vehicles and how our cities work.

**What is spatial information?**
Spatial information, or geomatics, answers the fundamental questions of ‘where’ and ‘when’ in public administration, planning, construction, infrastructure management, navigation, safety and resilience, and the sharing economy.

**Spatial engineering or spatial information technology?**
If you have a science or maths background, and want to become an accredited spatial engineer, then the Master of Engineering (Spatial) is for you.

Or, if you want to complement your skillset with knowledge of cloud computing, algorithms, data warehousing and other areas of IT, study spatial information through the Master of Information Technology.
Master of Engineering (Spatial)

AT A GLANCE

- Duration: 2-3 years
- Intakes: February (Semester 1), July (Semester 2)
- Designed for: Becoming an accredited spatial engineer
- Accreditation: Engineers Australia, EUR-ACE, Surveyors Registration Board Victoria, Royal Institution of Chartered Surveyors

» Focus on the science and technology of measurement, mapping and visualisation
» Develop skills in geographic information systems (GIS), 3D computer visualisations, surveying and satellite and photographic image processing

MASTER OF ENGINEERING (SPATIAL)

If you have not completed a major in spatial engineering in your undergraduate degree, study the 3 year Master of Engineering (Spatial):

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Semester 1</th>
<th>Engineering Computation</th>
<th>Engineering Risk Analysis</th>
<th>Application of GIS</th>
<th>Imagining the Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 2</td>
<td>Surveying and Mapping</td>
<td>Integrated Spatial Systems</td>
<td>Land Administration Systems</td>
<td>Approved elective</td>
<td></td>
</tr>
</tbody>
</table>

If you have completed a major in spatial engineering in your undergraduate degree, study the 2 year Master of Engineering (Spatial):

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>Foundations of Spatial Information</th>
<th>Engineering Practice and Communication/Creatiing Innovative Engineering¹</th>
<th>Management of Technological Enterprises</th>
<th>Advanced Imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 2</td>
<td>Approved elective</td>
<td>Satellite Positioning Systems</td>
<td>Spatial Analysis</td>
<td>Mathematics of Spatial Information</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Semester 1</th>
<th>Advanced Surveying and Mapping</th>
<th>Spatial Databases</th>
<th>Approved elective</th>
<th>IE Research Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 2</td>
<td>Approved elective</td>
<td>Engineering Project Implementation</td>
<td>Spatial Data Infrastructure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Please note students undertaking a 3 year (300 point) Master of Engineering will study one of these subjects in the first year of their course.

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-eng

Where our graduates work

INDUSTRIES
- Aeronautics
- Agriculture
- Architecture
- Emergency Management
- Health
- Land and Resources
- Mining
- Property
- Transport
- Urban Planning

COMPANIES
- Arup
- BR Smith & Associates Surveyors
- Department of Economics Development, Jobs, Transport and Resources
- Geoscience Australia
- Jacobs
- JRL Land Surveyors
- Office of Surveyor-General
- Reeds Consulting
- Synchronoss Technologies
- ThinkSpatial
- Versor

JOB ROLES
- Consultant
- Surveyor
- Geospatial Analyst
- Technical Consultant
- Web Developer
- Analyst
- Project Surveyor

Our student opportunities

INTERNSHIPS
- Transport
- Infrastructure
- Surveying

STUDENT PROJECTS
- Take part in practical outdoor assignments to produce a detailed contour plan of an area
- Visit the regional Dookie campus in a four-day field work program
**Master of Information Technology (Specialisation: Spatial)**

**AT A GLANCE**
- Duration: 1-2 years
- Intakes: February (Semester 1), July (Semester 2)
- Designed for: Becoming an accredited IT professional
- Accreditation: Australian Computer Society, Royal Institution of Chartered Surveyors

**Core subject**

For more information about the Master of Information Technology (Spatial), see page 42.

**M A S T E R O F I N F O R M A T I O N T E C H N O L O G Y (S P A T I A L )**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>Programming and Software Development</th>
<th>Algorithms and Complexity</th>
<th>Internet Technologies</th>
<th>Database Systems and Information Modelling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>Foundations of Spatial Information</td>
<td>Spatial Visualisation</td>
<td>Spatial elective</td>
<td>Spatial elective</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>Spatial Databases</td>
<td>Spatial Information</td>
<td>Spatial elective</td>
<td>IT Project and Change Management</td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>Spatial Data Infrastructure</td>
<td>Spatial Analysis</td>
<td>Spatial IT Project</td>
<td></td>
</tr>
</tbody>
</table>

Sample plans are an indicative guide only and subjects may change. See handbook.unimelb.edu.au/courses/mc-it
“I have always had a love for maps. In my spare time I volunteer for Missing Maps, where I help respond to a disaster occurring somewhere in the world and remotely map buildings or features of interest from satellite imagery online.”

AMANDA CHONG
Master of Engineering (Spatial)
Geospatial Analyst, Arup
ENGINEERING AND IT RESEARCH DEGREES

Join an environment of cross-disciplinary research excellence and work alongside researchers who are creating technological solutions to global challenges.

As a Melbourne graduate research student, you’ll carry out an independent and sustained engineering or IT research project under supervision from one of our world-class researchers.

Your research options

Master of Philosophy (MPhil)
Duration: Typically 1.5 years full-time

Doctor of Philosophy (PhD)
Duration: Typically at least 3 years full-time

How to apply

Applications can be submitted at any time. You must secure an academic supervisor prior to making an application and supply documented evidence.

Finding a project/supervisor

To search for available PhD projects visit study.unimelb.edu.au/find/courses/graduate/doctor-of-philosophyengineering

To search for a supervisor visit findanexpert.unimelb.edu.au

Application checklist

You need:
- A qualification from a University with a well-recognised research profile
- Documented support of a University of Melbourne academic to supervise your project
- Evidence of completing a research project that accounts for at least 25% of one year’s work at fourth year Bachelor or at Masters level
- A weighted average equivalent to the University of Melbourne’s 80%.

Scholarships

You will be automatically considered for a scholarship at the time of application. Scholarship benefits range from full fee remission to general allowances, including relocation grants, Conference Travel Scholarships, Overseas Student Health Cover (OSHC) and sick leave. Scholarships include:

- Melbourne Research Scholarships (MRS): available to high-achieving domestic and international students
- Australian Government Research Training Program (RTP) Scholarships: available to high-achieving domestic students

What is a competitive score?

80% WAM:
- Competitive for entry, but does not guarantee admission.
- A competitive score for local applicants from Go8 institutions for the Research Training Program (RTP)
- A competitive score for international applicants for a Melbourne International Research Scholarship and Fee Remission Scholarship

85% WAM:
- A competitive score for local applicants from non Go8 institutions for the Research Training Program (RTP)
- A competitive score for international applicants for a Melbourne International Research Scholarship and Fee Remission Scholarship

Our institutes and partnerships

- Centre for Neural Engineering
- Centre for Disaster Management and Public Safety
- Graeme Clark Institute for Biomedical Engineering
- Melbourne Networked Society Institute
- IBM Research
- Peter Cook Centre for Carbon Capture and Storage
- Dairy Innovation Australia Ltd
- Microsoft
- Rio Tinto
- Ford

TREATING REAL-WORLD INJURIES WITH VIRTUAL REALITY

Although the Computer Assisted Rehabilitation Environment (CAREN) resembles an immersive video game, this unique technology is changing how we approach injury prevention and treatment.

Housed in Melbourne School of Engineering’s MedTech Linkway, CAREN allows researchers to understand how patients are responding to rehabilitation in real time.

Using this curved virtual reality screen and ground-level mobile platform, researchers see how joints and muscles move. The screen projects a 3D musculoskeletal model of patients’ bodies, with the muscles being used lighting up as patients move. Researchers can also collect information about muscle and brain activity through electromyography (EMG) and electroencephalography (EEG), assisting the rehabilitation of stroke sufferers.

With such diverse capabilities, CAREN supports cross-disciplinary research and helps researchers in engineering, medicine and science collaborate to solve major issues surrounding ageing, rehabilitation, human performance, mental health, computer science and even animation.
Research disciplines

Our research is interdisciplinary and collaborative, connecting diverse study areas and working closely with industry. As a Melbourne graduate research student, you’ll have the opportunity to make valuable contributions to areas such as water resource management, clean energy, disaster management, climate change, cancer treatment, epilepsy suppression, food processing, artificial intelligence, personalised medicine and smart grids.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Research themes</th>
<th>Our graduate research students work on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical engineering</td>
<td>» Biomaterials and tissue engineering</td>
<td>» Human vision during migraine, ageing and disease</td>
</tr>
<tr>
<td></td>
<td>» Biomechanics and mechanobiology</td>
<td>» Mapping the human schizophrenia connectome</td>
</tr>
<tr>
<td></td>
<td>» Bionics</td>
<td>» How cardiac cells grow</td>
</tr>
<tr>
<td></td>
<td>» Biomedical imaging and neuroimaging</td>
<td>» Neural plasticity for brain-machine interfaces</td>
</tr>
<tr>
<td></td>
<td>» Systems and synthetic biology</td>
<td></td>
</tr>
<tr>
<td>Chemical engineering</td>
<td>» Materials development</td>
<td></td>
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<tr>
<td></td>
<td>» Separations technology</td>
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<tr>
<td></td>
<td>» Surface chemistry and rheology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>» Bioprocessing</td>
<td></td>
</tr>
<tr>
<td>Computing and information systems</td>
<td>» Data and knowledge</td>
<td>» Australian dairy manufacturing</td>
</tr>
<tr>
<td></td>
<td>» Platforms and systems</td>
<td>» Biodegradable and drug-eluting coronary artery stents</td>
</tr>
<tr>
<td></td>
<td>» People and organisations</td>
<td>» Self-healing polymers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Tissue engineering of soft tissues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Keeping Antarctica clean</td>
</tr>
<tr>
<td>Electrical and electronics</td>
<td>» Communication and networks</td>
<td>» Adversarial machine learning</td>
</tr>
<tr>
<td>engineering</td>
<td>» Control and signal processing</td>
<td>» Apps for addiction recovery</td>
</tr>
<tr>
<td></td>
<td>» Photonic and electronic systems</td>
<td>» Efficient cloud computing</td>
</tr>
<tr>
<td></td>
<td>» Power and energy systems</td>
<td>» Dynamics and control of infectious diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Electronic voting in elections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» eSports</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Information security management</td>
</tr>
<tr>
<td>Infrastructure engineering</td>
<td>» Civil engineering</td>
<td>» Cybersecurity</td>
</tr>
<tr>
<td></td>
<td>» Geomatics</td>
<td>» Deep brain stimulation for Parkinson’s disease therapy</td>
</tr>
<tr>
<td></td>
<td>» Environmental hydrology and water resources</td>
<td>» Epileptic seizure warning methods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Computer-aided diagnosis of melanoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Sustaining internet growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Wireless sensor networks</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>» Autonomous systems</td>
<td>» Bio-inspired lightweight composite system for blast and impact protection</td>
</tr>
<tr>
<td></td>
<td>» Biomechanics</td>
<td>» Recycled glass in lightweight concrete</td>
</tr>
<tr>
<td></td>
<td>» Fluid dynamics</td>
<td>» Self-healing maps</td>
</tr>
<tr>
<td></td>
<td>» Thermodynamics</td>
<td>» Indoor air quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Prefabricated building systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Reassessing earthquake design</td>
</tr>
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</tbody>
</table>

To explore more research projects, view the Department website for your discipline of interest.
Commonwealth Supported Places (CSPs)

CSPs are awarded to domestic students. Students pay part of the tuition fee (the student contribution) and the Australian Government pays the remaining contribution. Fees are based on the subjects in which you enrol, rather than the overall course. Eligible students can apply for a HECS-HELP loan to defer upfront payment of their student contribution.

studyassist.gov.au

Guaranteed CSPs for Melbourne graduates

If you have completed a Bachelors degree at the University of Melbourne with a weighted average mark of 65%, you are guaranteed a CSP in the Master of Engineering, Master of Information Systems or Master of Information Technology (provided you meet the program entry requirements). Students enrolled in a Graduate Degree Package into the Master of Engineering will also receive a CSP.

Australian Fee Places & FEE-HELP

If you are a domestic student who is not enrolled in a CSP, you may be eligible to defer payment of all or part of your tuition fees via the FEE-HELP loan scheme.

studyassist.gov.au

Transferring from an Australian fee place to a CSP

After completing 100 points of study (equivalent to 1 year full-time), high-achieving students may be eligible to transfer to a CSP. Please note there are limited numbers of transfers available per semester.

Graduate Access Melbourne

Domestic students may be eligible to apply for Graduate Access Melbourne if you’re a member of a specified group that is underrepresented in higher education (such as women in engineering and IT) or if personal circumstances have had a sustained, adverse effect on your academic achievement. Find out more: gradaccess.unimelb.edu.au

Student Financial Aid

The University’s Student Financial Aid service can provide students with advice and assistance, about student loans and bursaries, student income support and cost of living advice.

services.unimelb.edu.au/finaid

Indicative 2019 annual coursework fees

Graduate Certificate in Port Engineering

Domestic full fee: $17,184 per annum
International fee: $21,504 per annum

All other graduate coursework programs

Domestic full fee: $34,368 per annum
CSPs available
International: $43,008 per annum

For more information about fees, scholarships and more, visit: study.unimelb.edu.au/how-to-apply/fees

1 Please note, fees are based on full-time study for the period of one year and are indicative only. Fees are subject to an annual increase.
Scholarships for engineering and IT students
We offer scholarships to students studying engineering and IT at undergraduate, graduate and at PhD level. These scholarships are awarded competitively based on academic merit. You will be considered for relevant scholarships at the time of course offer and you do not need to make a separate application.

University of Melbourne Scholarships
The University of Melbourne offers one of the most generous and comprehensive scholarship programs in Australia, which recognises the outstanding academic achievement of students from Australia and around the world. The University also acknowledges a special responsibility to provide access to higher education to those students who might otherwise be excluded by socioeconomic, cultural, geographic or other disadvantages.

Engineering and IT Graduate Coursework Scholarships

<table>
<thead>
<tr>
<th>Scholarship</th>
<th>Eligible Courses</th>
<th>Amount awarded</th>
<th>Who is it for?</th>
</tr>
</thead>
</table>
| Melbourne School of Engineering Foundation Scholarships | » Master of Engineering  
» Master of Information Technology  
» Master of Information Systems  
» Master of Energy Systems | $5,000 – $10,000 per annum, 12-15 awarded per year | Domestic and International students |
| Melbourne School of Engineering Scholarships  | All programs                                                                    | $5,000 – $20,000 per annum, up to 100 awarded per year | Domestic and International students |
| Melbourne Graduate Scholarship                | All engineering and IT coursework programs                                      | 50% fee remission, 2 awarded per year               | International students only               |
| JH Mirams Memorial Scholarships               | Specialised masters programs:  
» Master of Energy Systems  
» Master of Engineering Management  
» Master of Engineering Structures  
» Master of Environmental Engineering | $5,000 – $10,000 per annum | Domestic and International students |

If you want to take part in conferences, programs or other extracurricular activities to broaden your experience, you could apply for funding via a Student Enrichment Grant.
## HOW TO APPLY

### Application checklist

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Check the entry requirements and make sure you're eligible (See Quick Reference Guide on page 6 for a complete list of entry requirements or go to: handbook.unimelb.edu.au)</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Ensure you meet the University's English language requirements (see page 69)</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Gather the supporting documentation listed below</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Complete the online application form: study.unimelb.edu.au</td>
</tr>
</tbody>
</table>

### If you haven’t previously completed a degree at the University of Melbourne, you’ll need to provide:

1. Certified copy of academic results with a grading scale
2. Certified copy of certificate of completion
3. Syllabus subject descriptions for maths, science and other technical subjects (Master of Engineering applicants only)*

### Additional documentation

Evidence of any relevant work experience if required, such as: a current curriculum vitae (CV) and reference letters from your employer(s) on company letterhead.

### Application closing dates

<table>
<thead>
<tr>
<th>Semester 1: (February)</th>
<th>Semester 2: (July)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Professional Masters applicants: 30 November</td>
<td>All Professional Masters applicants: 30 April</td>
</tr>
<tr>
<td>Includes Master of Engineering, Master of Information Systems and Master of Information Technology</td>
<td>Includes Master of Engineering, Master of Information Systems and Master of Information Technology</td>
</tr>
<tr>
<td>International Specialised Masters applicants: 30 December²</td>
<td>International Specialised Masters applicants: 30 April¹</td>
</tr>
<tr>
<td>Domestic Specialised Masters applicants: 30 January³</td>
<td>Domestic Specialised Masters applicants: 30 May⁴</td>
</tr>
<tr>
<td>Semester 1: Graduate Certificate in Port Engineering: 30 January</td>
<td>Semester 2: Graduate Certificate in Port Engineering: 30 April</td>
</tr>
</tbody>
</table>

Applicants who supply all supporting documentation can expect to receive a response to their application within 6-8 weeks.

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¹ Please note, the Master of Energy Systems is only offered for entry in Semester 1.
³ Applicants who have completed a Washington Accord accredited engineering degree and are applying for the same engineering discipline (excluding Chemical, Biomedical and Materials) are not required to submit a syllabus/subject description.
English language requirements

All students studying at the University of Melbourne must satisfy the University of Melbourne English language entry requirements. One of the following scores are required for entry to graduate courses. Required scores must be achieved in one sitting within 24 months before your application. [https://study.unimelb.edu.au/how-to-apply/english-language-requirements](https://study.unimelb.edu.au/how-to-apply/english-language-requirements)

<table>
<thead>
<tr>
<th>Test</th>
<th>English language requirements:</th>
<th>Alternative English language requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>IELTS (academic English only)</td>
<td>6.5 (no band less than 6.0)</td>
<td>6.0 (no band less than 5.5)</td>
</tr>
<tr>
<td>TOEFL (internet-based test)*</td>
<td>79+ Writing 21; Speaking 18, Reading 13; Listening 13</td>
<td>60+ Writing 18; Speaking 16, Reading 8; Listening 7</td>
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<tr>
<td>Pearson Test of English (Academic)</td>
<td>58+ No communicative skill below 50</td>
<td>50 No communicative skill below 42</td>
</tr>
<tr>
<td>Cambridge English Advanced / Certificate of Advanced English (CAE)</td>
<td>176+ No communicative skill below 169</td>
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</tbody>
</table>

If you meet the alternative English language requirements, you can complete the University of Melbourne English Language Bridging Program (UMELBP) and be eligible for entry: [hawthornenglish.edu.au/english-language-courses/umelbp](http://hawthornenglish.edu.au/english-language-courses/umelbp)