Bachelor of Engineering (Honours)
Aerospace engineering specialisation
Available minors in Clayton

Update version: 30 November 2023

The environmental engineering and the civil engineering minors are not available within the aerospace engineering specialisation.

Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.

<table>
<thead>
<tr>
<th>Artificial intelligence in engineering</th>
<th>Computational engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>You must complete four units (24 cp) selected from below</strong></td>
<td><strong>You must complete the four units (24 cp) below</strong></td>
</tr>
<tr>
<td>CV4100 Autonomous vehicle systems</td>
<td>ECE3093 Optimisation and numerical methods for engineers</td>
</tr>
<tr>
<td>ECE2071 Computer organisation and programming</td>
<td>FIT3179 Data visualisation</td>
</tr>
<tr>
<td>ECE4179 Neural networks and deep learning</td>
<td>MEC4447 Computers in fluids and energy</td>
</tr>
<tr>
<td>ECE4076 Computer vision</td>
<td>MTE4590 Modelling of materials</td>
</tr>
<tr>
<td>ECE4078 Intelligent robotics</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering entrepreneurship</th>
<th>Micro and nano technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>You must complete the four units (24 cp) below</strong></td>
<td><strong>You must complete the four units (24 cp) below</strong></td>
</tr>
<tr>
<td>BEX3311 Entrepreneurial mindsets and capabilities</td>
<td>MEC3010 Micro and nanotechnologies: Fabrication and applications</td>
</tr>
<tr>
<td>BEX3411 Building start-ups with impact</td>
<td>CHE3172 Nanotechnology and materials 1</td>
</tr>
<tr>
<td>ENGS3701 Entrepreneurial project A</td>
<td>MTE4597 Engineering with nanomaterials</td>
</tr>
<tr>
<td>ENGS3702 Entrepreneurial project B</td>
<td>CHE4172 Nanotechnology and materials 2</td>
</tr>
<tr>
<td>(Unit available from 2024)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mining engineering</th>
<th>Renewable energy engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>You must complete the four units (24 cp) below</strong></td>
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</tr>
<tr>
<td>RSE3020 Resource estimation</td>
<td>RSE3141 Solar energy</td>
</tr>
<tr>
<td>RSE3040 Mining systems</td>
<td>RSE3241 Hydropower</td>
</tr>
<tr>
<td>RSE4010 Mine planning and development</td>
<td>RSE3242 Geothermal energy</td>
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<tr>
<td>RSE3030 Ventilation for surface and underground spaces</td>
<td>RSE3243 Bioenergy</td>
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<tr>
<td></td>
<td>MTE4235 Nuclear energy: Science, technology and society</td>
</tr>
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<table>
<thead>
<tr>
<th>Smart manufacturing</th>
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</tr>
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<tr>
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<tr>
<td>ECE3141 Information and networks</td>
<td>ENE2021 Energy and the environment</td>
</tr>
<tr>
<td>TRC3000 Automation project</td>
<td>ENE3031 Building sustainability</td>
</tr>
<tr>
<td>TRC4200 Engineering cyber-physical systems</td>
<td>CIV4268 Water resources management</td>
</tr>
<tr>
<td>TRC4902 Mechatronics and manufacturing</td>
<td>ENE4042 Environmental impact and risk assessment</td>
</tr>
<tr>
<td></td>
<td>MTE4593 Materials and sustainability</td>
</tr>
</tbody>
</table>

Monash University – CRICOS Provider Number: 00006C

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Bachelor of Engineering (Honours)
Chemical engineering specialisation
Available minors in Clayton

Update version: 30 November 2023

The civil engineering and the engineering entrepreneurship minors are not available within the chemical engineering specialisation.

Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfill the requirements.

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<tr>
<td>ENE3031 Building sustainability</td>
<td>MEC3010 Micro and nanotechnologies: Fabrication and applications</td>
</tr>
<tr>
<td>ENE3032 Fate and transport of contaminants</td>
<td>CHE3172 Nanotechnology and materials 1</td>
</tr>
<tr>
<td>ENE3606 The air environment</td>
<td>MTE4597 Engineering with nanomaterials</td>
</tr>
<tr>
<td>ENE4041 Soil remediation and solid waste management</td>
<td>CHE4172 Nanotechnology and materials 2</td>
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<tr>
<td>ECE3141 Information and networks</td>
<td>CHE3163 Sustainable processing 1 (Core unit)</td>
</tr>
<tr>
<td>TRC3000 Automation project</td>
<td>CHE4173 Sustainable processing 2 (Core unit)</td>
</tr>
<tr>
<td>TRC4200 Engineering cyber-physical systems</td>
<td>and two units from the following</td>
</tr>
<tr>
<td>TRC4902 Mechatronics and manufacturing</td>
<td>RSE3243 Bioenergy</td>
</tr>
<tr>
<td></td>
<td>ENE4042 Environmental impact and risk assessment</td>
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<tr>
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<td>MTE4593 Materials and sustainability</td>
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Bachelor of Engineering (Honours)
Civil engineering specialisation
Available minors in Clayton
Update version: 30 November 2023

Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.

### Artificial intelligence in engineering
You must complete four units (24 cp) selected from below
- CIV4100 Autonomous vehicle systems
- ECE2071 Computer organisation and programming
- ECE4179 Neural networks and deep learning
- ECE4076 Computer vision
- ECE4078 Intelligent robotics

### Computational engineering
You must complete the four units (24 cp) below
- ECE3093 Optimisation and numerical methods for engineers
- FIT3179 Data visualisation
- MEC4447 Computers in fluids and energy
- MTE4590 Modelling of materials

### Engineering entrepreneurship
You must complete the four units (24 cp) below
- BEX3311 Entrepreneurial mindsets and capabilities
- BEX3411 Building start-ups with impact
- ENGS3011 Entrepreneurial project A (Unit available from 2024)
- ENGS3012 Entrepreneurial project B (Unit available from 2024)

### Environmental engineering
You must complete four units (24 cp) selected from below
- ENE2021 Energy and the environment
- ENE3031 Building sustainability
- ENE3032 Fate and transport of contaminants
- ENE3606 The air environment
- ENE4041 Soil remediation and solid waste management
- ENE4042 Environmental impact and risk assessment

### Micro and nano technologies
You must complete the four units (24 cp) below
- MEC3010 Micro and nanotechnologies: Fabrication and applications
- CHE3172 Nanotechnology and materials 1
- MTE4597 Engineering with nanomaterials
- CHE4172 Nanotechnology and materials 2

### Mining engineering
You must complete the four units (24 cp) below
- RSE3020 Resource estimation
- RSE3040 Mining systems
- RSE3060 Rock breakage
- RSE3010 Mine geotechnical engineering

### Renewable energy engineering
You must complete four units (24 cp) selected from below
- RSE3141 Solar energy
- RSE3241 Hydropower
- RSE3242 Geothermal energy
- RSE3243 Bioenergy
- MTE4235 Nuclear energy: Science, technology and society

### Smart manufacturing
You must complete the four units (24 cp) below
- ECE3141 Information and networks
- TRC3000 Automation project
- TRC4200 Engineering cyber-physical systems
- TRC4902 Mechatronics and manufacturing

### Sustainable engineering
You must complete four units (24 cp) selected from below
- ENE2021 Energy and the environment
- ENE3031 Building sustainability
- CIV4268 Water resources management
- ENE4042 Environmental impact and risk assessment
- MTE4593 Materials and sustainability

Monash University – CRICOS Provider Number: 00008C
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**Bachelor of Engineering (Honours)**  
**Electrical and computer systems engineering specialisation**

*Available minors in Clayton*

Update version: 30 November 2023

The environmental engineering and the civil engineering minors are not available within the electrical and computer systems engineering specialisation.

**Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.**

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<td>ECE4076 Computer vision</td>
<td>MEC4447 Computers in fluids and energy</td>
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<tr>
<td>ECE4078 Intelligent robotics</td>
<td>MTE4599 Modelling of materials</td>
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<td>MEC3010 Micro and nanotechnologies: Fabrication and applications</td>
</tr>
<tr>
<td>BEX3411 Building start-ups with impact</td>
<td>CHE3172 Nanotechnology and materials 1</td>
</tr>
<tr>
<td>ENG3701 Entrepreneurial project A (Unit available from 2024)</td>
<td>MTE4597 Engineering with nanomaterials</td>
</tr>
<tr>
<td>ENG3702 Entrepreneurial project B (Unit available from 2024)</td>
<td>CHE4172 Nanotechnology and materials 2</td>
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<td>RSE3030 Ventilation for surface and underground spaces</td>
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<td></td>
<td>MTE4235 Nuclear energy: Science, technology and society</td>
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</tr>
<tr>
<td>MEC2402 Design methods</td>
<td>ENE2021 Energy and the environment</td>
</tr>
<tr>
<td>TRC3000 Automation project</td>
<td>ENE3031 Building sustainability</td>
</tr>
<tr>
<td>TRC4200 Engineering cyber-physical systems</td>
<td>CIV4268 Water resources management</td>
</tr>
<tr>
<td>TRC4902 Mechatronics and manufacturing</td>
<td>ENE4042 Environmental impact and risk assessment</td>
</tr>
<tr>
<td></td>
<td>MTE4599 Materials and sustainability</td>
</tr>
</tbody>
</table>
Bachelor of Engineering (Honours)  
Environmental engineering specialisation  
Available minors in Clayton  
Update version: 30 November 2023

The sustainable engineering minor is not available within the environmental engineering specialisation.

Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.

### Artificial intelligence in engineering

You must complete four units (24 cp) selected from below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIV4100</td>
<td>Autonomous vehicle systems</td>
</tr>
<tr>
<td>ECE2071</td>
<td>Computer organisation and programming</td>
</tr>
<tr>
<td>ECE4179</td>
<td>Neural networks and deep learning</td>
</tr>
<tr>
<td>ECE4076</td>
<td>Computer vision</td>
</tr>
<tr>
<td>ECE4078</td>
<td>Intelligent robotics</td>
</tr>
</tbody>
</table>

### Civil engineering

You must complete the four units (24 cp) below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIV2282</td>
<td>Transport and traffic engineering</td>
</tr>
<tr>
<td>CIV2235</td>
<td>Structural materials or CIV2206 Structural mechanics</td>
</tr>
<tr>
<td>CIV2242</td>
<td>Geomechanics</td>
</tr>
<tr>
<td>CIV4288</td>
<td>Water treatment</td>
</tr>
</tbody>
</table>

### Computational engineering

You must complete the four units (24 cp) below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE3093</td>
<td>Optimisation and numerical methods for engineers</td>
</tr>
<tr>
<td>FIT3179</td>
<td>Data visualisation</td>
</tr>
<tr>
<td>MEC4447</td>
<td>Computers in fluids and energy</td>
</tr>
<tr>
<td>MTE4590</td>
<td>Modelling of materials</td>
</tr>
</tbody>
</table>

### Engineering entrepreneurship

You must complete the four units (24 cp) below:

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BEX3311</td>
<td>Entrepreneurial mindsets and capabilities</td>
</tr>
<tr>
<td>BEX3411</td>
<td>Building start-ups with impacts</td>
</tr>
<tr>
<td>ENG3701</td>
<td>Entrepreneurial project A (Unit available from 2024)</td>
</tr>
<tr>
<td>ENG3702</td>
<td>Entrepreneurial project B (Unit available from 2024)</td>
</tr>
</tbody>
</table>

### Micro and nano technologies

You must complete the four units (24 cp) below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEC3010</td>
<td>Micro and nanotechnologies: Fabrication and applications</td>
</tr>
<tr>
<td>CHE3172</td>
<td>Nanotechnology and materials 1</td>
</tr>
<tr>
<td>MTE4597</td>
<td>Engineering with nanomaterials</td>
</tr>
<tr>
<td>CHE4172</td>
<td>Nanotechnology and materials 2</td>
</tr>
</tbody>
</table>

### Mining engineering

You must complete the four units (24 cp) below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSE3020</td>
<td>Resource estimation</td>
</tr>
<tr>
<td>RSE3040</td>
<td>Mining systems</td>
</tr>
<tr>
<td>RSE4010</td>
<td>Mine planning and development</td>
</tr>
<tr>
<td>RSE3030</td>
<td>Ventilation for surface and underground spaces</td>
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</tbody>
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### Renewable energy engineering

You must complete four units (24 cp) selected from below:

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<tr>
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<tbody>
<tr>
<td>RSE3141</td>
<td>Solar energy</td>
</tr>
<tr>
<td>RSE3241</td>
<td>Hydropower</td>
</tr>
<tr>
<td>RSE3242</td>
<td>Geothermal energy</td>
</tr>
<tr>
<td>RSE3243</td>
<td>Bioenergy</td>
</tr>
<tr>
<td>MTE4235</td>
<td>Nuclear energy: Science, technology and society</td>
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### Smart manufacturing

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<th>Course Code</th>
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<tbody>
<tr>
<td>ECE3141</td>
<td>Information and networks</td>
</tr>
<tr>
<td>TRC3000</td>
<td>Automation project</td>
</tr>
<tr>
<td>TRC4200</td>
<td>Engineering cyber-physical systems</td>
</tr>
<tr>
<td>TRC4902</td>
<td>Mechatronics and manufacturing</td>
</tr>
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<td>BEX3411 Building start-ups with impact</td>
<td>CHE3172 Nanotechnology and materials 1</td>
</tr>
<tr>
<td>ENGS301 Entrepreneurial project A (Unit available from 2024)</td>
<td>MTE4597 Engineering with nanomaterials</td>
</tr>
<tr>
<td>ENGS302 Entrepreneurial project B (Unit available from 2024)</td>
<td>CHE4172 Nanotechnology and materials 2</td>
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<td>ENE2021 Energy and the environment</td>
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<td>TRC3000 Automation project</td>
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<td>TRC4200 Engineering cyber-physical systems</td>
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<td>ENE4042 Environmental impact and risk assessment</td>
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<td></td>
<td>MTE4593 Materials and sustainability</td>
</tr>
</tbody>
</table>
The environmental engineering and the civil engineering minors are not available within the mechanical engineering specialisation.

Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.

<table>
<thead>
<tr>
<th>Artificial intelligence in engineering</th>
<th>Computational engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>You must complete four units (24 cp) selected from below</td>
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<tr>
<td>CIV4100 Autonomous vehicle systems</td>
<td>ECE3093 Optimisation and numerical methods for engineers</td>
</tr>
<tr>
<td>ECE2071 Computer organisation and programming</td>
<td>FIT3179 Data visualisation</td>
</tr>
<tr>
<td>ECE4179 Neural networks and deep learning</td>
<td>MEC4447 Computers in fluids and energy</td>
</tr>
<tr>
<td>ECE4076 Computer vision</td>
<td>MTE4590 Modelling of materials</td>
</tr>
<tr>
<td>ECE4078 Intelligent robotics</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Engineering entrepreneurship</th>
<th>Micro and nano technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>You must complete the four units (24 cp) below</td>
<td>You must complete the four units (24 cp) below</td>
</tr>
<tr>
<td>BEX3311 Entrepreneurial mindsets and capabilities</td>
<td>MEC3010 Micro and nanotechnologies: Fabrication and applications</td>
</tr>
<tr>
<td>BEX3411 Building start-ups with impact</td>
<td>CHE3172 Nanotechnology and materials 1</td>
</tr>
<tr>
<td>ENGS701 Entrepreneurial project A</td>
<td>MTE4597 Engineering with nanomaterials</td>
</tr>
<tr>
<td>(Unit available from 2024)</td>
<td>CHE4172 Nanotechnology and materials 2</td>
</tr>
<tr>
<td>ENGS702 Entrepreneurial project B</td>
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<td>(Unit available from 2024)</td>
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<table>
<thead>
<tr>
<th>Mining engineering</th>
<th>Renewable energy engineering</th>
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<tbody>
<tr>
<td>You must complete the four units (24 cp) below</td>
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<tr>
<td>RSE3020 Resource estimation</td>
<td>RSE3141 Solar energy</td>
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<tr>
<td>RSE3040 Mining systems</td>
<td>RSE3241 Hydropower</td>
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<tr>
<td>RSE4010 Mine planning and development</td>
<td>RSE3242 Geothermal energy</td>
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<tr>
<td>RSE3030 Ventilation for surface and underground spaces</td>
<td>RSE3243 Bioenergy</td>
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<td>MTE4235 Nuclear energy: Science, technology and society</td>
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<table>
<thead>
<tr>
<th>Smart manufacturing</th>
<th>Sustainable engineering</th>
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</thead>
<tbody>
<tr>
<td>You must complete the four units (24 cp) below</td>
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<tr>
<td>ECE3141 Information and networks</td>
<td>ENE2021 Energy and the environment</td>
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<tr>
<td>TRC3000 Automation project</td>
<td>ENE3031 Building sustainability</td>
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<td>TRC4200 Engineering cyber-physical systems</td>
<td>CIV4268 Water resources management</td>
</tr>
<tr>
<td>TRC4902 Mechatronics and manufacturing</td>
<td>ENE4042 Environmental impact and risk assessment</td>
</tr>
<tr>
<td></td>
<td>MTE4593 Materials and sustainability</td>
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Bachelor of Engineering (Honours)
Resources and mining engineering specialisation

Available minors in Clayton
Update version: 30 November 2023

The mining engineering minor is not available within the resources and mining engineering specialisation. Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfill the requirements.

### Artificial intelligence in engineering

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>CS4010</td>
<td>Autonomous vehicle systems</td>
</tr>
<tr>
<td>ECE2071</td>
<td>Computer organisation and programming</td>
</tr>
<tr>
<td>ECE4179</td>
<td>Neural networks and deep learning</td>
</tr>
<tr>
<td>ECE4076</td>
<td>Computer vision</td>
</tr>
<tr>
<td>ECE4078</td>
<td>Intelligent robotics</td>
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### Civil engineering

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>CIV1228</td>
<td>Transport and traffic engineering</td>
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<tr>
<td>CIV2356</td>
<td>Structural materials</td>
</tr>
<tr>
<td>CIV3085</td>
<td>Engineering hydrology</td>
</tr>
<tr>
<td>CIV3047</td>
<td>Geomechanics 2</td>
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</tbody>
</table>

### Computational engineering

<table>
<thead>
<tr>
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<th>Course Description</th>
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<tbody>
<tr>
<td>ECE3093</td>
<td>Optimisation and numerical methods for engineers</td>
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<tr>
<td>FIT3179</td>
<td>Data visualisation</td>
</tr>
<tr>
<td>MEC4447</td>
<td>Computers in fluids and energy</td>
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<tr>
<td>MTE4590</td>
<td>Modelling of materials</td>
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### Engineering entrepreneurship

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>BEX3111</td>
<td>Entrepreneurial mindsets and capabilities</td>
</tr>
<tr>
<td>BEX3112</td>
<td>Building start-ups with impact</td>
</tr>
<tr>
<td>ENG3701</td>
<td>Entrepreneurial project A (Unit available from 2024)</td>
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<tr>
<td>ENG3702</td>
<td>Entrepreneurial project B (Unit available from 2024)</td>
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### Environmental engineering

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ENE2021</td>
<td>Energy and the environment</td>
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<tr>
<td>ENE3031</td>
<td>Building sustainability</td>
</tr>
<tr>
<td>ENE3032</td>
<td>Fate and transport of contaminants</td>
</tr>
<tr>
<td>ENE3606</td>
<td>The air environment</td>
</tr>
<tr>
<td>ENE4041</td>
<td>Soil remediation and solid waste management</td>
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### Micro and nano technologies

<table>
<thead>
<tr>
<th>Unit Code</th>
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<tbody>
<tr>
<td>MEC3010</td>
<td>Micro and nanotechnologies: Fabrication and applications</td>
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<tr>
<td>CHE3172</td>
<td>Nanotechnology and materials 1</td>
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<td>MTE4597</td>
<td>Engineering with nanomaterials</td>
</tr>
<tr>
<td>CHE4172</td>
<td>Nanotechnology and materials 2</td>
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### Renewable energy engineering

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>RSE3141</td>
<td>Solar energy</td>
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<tr>
<td>RSE3241</td>
<td>Hydropower</td>
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<tr>
<td>RSE3242</td>
<td>Geothermal energy</td>
</tr>
<tr>
<td>RSE3243</td>
<td>Bioenergy</td>
</tr>
<tr>
<td>MTE4235</td>
<td>Nuclear energy: Science, technology and society</td>
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### Smart manufacturing

<table>
<thead>
<tr>
<th>Unit Code</th>
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<tbody>
<tr>
<td>ECE3141</td>
<td>Information and networks</td>
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<tr>
<td>TRC3000</td>
<td>Automation project</td>
</tr>
<tr>
<td>TRC4200</td>
<td>Engineering cyber-physical systems</td>
</tr>
<tr>
<td>TRC4902</td>
<td>Mechatronics and manufacturing</td>
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### Sustainable engineering

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>ENE2021</td>
<td>Energy and the environment</td>
</tr>
<tr>
<td>ENE3031</td>
<td>Building sustainability</td>
</tr>
<tr>
<td>CIV4266</td>
<td>Water resources management</td>
</tr>
<tr>
<td>ENE4042</td>
<td>Environmental impact and risk assessment</td>
</tr>
<tr>
<td>MTE4593</td>
<td>Materials and sustainability</td>
</tr>
</tbody>
</table>
The renewable energy engineering minor is not available within the resources and renewable energy engineering specialisation. **Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.**

**Artificial intelligence in engineering**

You must complete four units (24 cp) selected from below

- CIV4100 Autonomous vehicle systems
- ECE2071 Computer organisation and programming
- ECE4179 Neural networks and deep learning
- ECE4076 Computer vision
- ECE4078 Intelligent robotics

**Civil engineering**

You must complete the four units (24 cp) below

- CIV2282 Transport and traffic engineering
- CIV2235 Structural materials
- CIV3285 Engineering hydromechanics
- CIV3247 Geomechanics 2

**Computational engineering**

You must complete the four units (24 cp) below

- ECE3093 Optimisation and numerical methods for engineers
- FIT3179 Data visualisation
- MEC4447 Computers in fluids and energy
- MTE4590 Modelling of materials

**Engineering entrepreneurship**

You must complete the four units (24 cp) below

- BEX3311 Entrepreneurial mindsets and capabilities
- BEX3411 Building start-ups with impact
- ENG3701 Entrepreneurial project A (Unit available from 2024)
- ENG3702 Entrepreneurial project B (Unit available from 2024)

**Environmental engineering**

You must complete four units (24 cp) selected from below

- ENE2021 Energy and the environment
- ENE3031 Building sustainability
- ENE3032 Fate and transport of contaminants
- ENE3606 The air environment
- ENE4041 Soil remediation and solid waste management

**Mining engineering**

You must complete the four units (24 cp) below

- RSE3020 Resource estimation
- RSE3040 Mining systems
- RSE4010 Mine planning and development
- RSE3030 Ventilation for surface and underground spaces

**Micro and nano technologies**

You must complete the four units (24 cp) below

- MEC3010 Micro and nanotechnologies: Fabrication and applications
- CHE3172 Nanotechnology and materials 1
- MTE4597 Engineering with nanomaterials
- CHE4172 Nanotechnology and materials 2

**Smart manufacturing**

You must complete the four units (24 cp) below

- ECE3141 Information and networks
- TRC3000 Automation project
- TRC4200 Engineering cyber-physical systems
- TRC4902 Mechatronics and manufacturing

**Sustainable engineering**

You must complete four units (24 cp) selected from below

- ENE2021 Energy and the environment
- ENE3031 Building sustainability
- CIV4268 Water resources management
- ENE4042 Environmental impact and risk assessment
- MTE4593 Materials and sustainability
Bachelor of Engineering (Honours)
Robotics and mechatronics engineering specialisation

Available minors in Clayton
Update version: 30 November 2023

The environmental engineering and the civil engineering minors are not available within the robotics and mechatronics engineering specialisation.

Before commencing a minor, it is essential for you to review the prerequisite requirements for the units within the minor and proactively plan ahead to fulfil the requirements.

### Artificial intelligence in engineering
This minor is available to the Automation stream only

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<tr>
<td>CIV4100 Autonomous vehicle systems</td>
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### Computational engineering

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### Engineering entrepreneurship

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### Micro and nano technologies

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<tr>
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### Mining engineering

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<td>RSE3020 Resource estimation</td>
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<td>RSE4010 Mine planning and development</td>
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### Renewable energy engineering

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<td>RSE3141 Solar energy</td>
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<td>RSE3243 Bioenergy</td>
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<td>MTE4235 Nuclear energy: Science, technology and society</td>
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</tbody>
</table>

### Smart manufacturing
This minor is available to the Artificial intelligence stream only

<table>
<thead>
<tr>
<th>You must complete the four units (24 cp) below</th>
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<tbody>
<tr>
<td>ECE3141 Information and networks</td>
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<td>TRC4200 Engineering cyber-physical systems</td>
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<tr>
<td>CIV4268 Water resources management</td>
</tr>
<tr>
<td>ENE4042 Environmental impact and risk assessment</td>
</tr>
<tr>
<td>MTE4593 Materials and sustainability</td>
</tr>
</tbody>
</table>
## First Year breadth study

1. **Intending to specialise in biomedical engineering:** You must complete BMS1021 as a First Year elective unit.

2. CHM1011 and CHE1051 are mutual prohibition units, meaning that you can only complete either CHM1011 or CHE1051.

3. **NOTE:** If you complete a First Year technical elective that is also a core unit in your chosen specialisation or if you have completed a unit that is a prohibition to a core unit in your specialisation, you must replace the core with another unit chosen from your specialisation technical electives list or from one of the engineering minors. The replacement unit must be at the same level as the core unit or higher. Please seek advice from the Faculty of Engineering prior to enrolling in the replacement unit.

4. **Intending to specialise in chemical engineering:** Due to the prohibition with CHE2161, you are strongly advised against completing MEC2404 as a First Year elective. Choosing MEC2404 may lead to an insufficient foundation for the subsequent core unit CHE3167 in the chemical engineering specialisation. If you intend to specialise in chemical engineering, you are advised to choose CHE2161 as your First Year elective instead.

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Unit Name</th>
<th>Offered</th>
<th>Not offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS1021</td>
<td>Cells, tissues and organisms 1</td>
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<td>CHE1010</td>
<td>Grand challenges in chemical engineering: Delivering sustainable food, water and energy</td>
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<td></td>
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<tr>
<td>CHM1011</td>
<td>Chemistry 1 or CHM1051 Chemistry 1 advanced 2, 3</td>
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<tr>
<td>ENE1621</td>
<td>Environmental engineering</td>
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<td>ENG1021</td>
<td>Spatial communication in engineering</td>
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<td>ENG1051</td>
<td>Materials for energy and sustainability</td>
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<td>MAT1830</td>
<td>Discrete mathematics for computer science 3</td>
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<td>Introduction to software engineering</td>
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<td>Physics for engineering</td>
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<td>RSE1010</td>
<td>Introduction to resources engineering</td>
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<tr>
<td>CHE2161</td>
<td>Mechanics of fluids 3, 4</td>
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<td>ECE2072</td>
<td>Digital systems 3</td>
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<td>FIT2085</td>
<td>Introduction to computer science for engineers 3</td>
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<td>MAE2505</td>
<td>Aerospace dynamics 3</td>
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<tr>
<td>TRC2001</td>
<td>Introduction to systems engineering</td>
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### Aerospace engineering

Electives must be completed at the unit level required to satisfy your course requirements.

1. **Level 5 units:** You must obtain a weighted average mark (WAM) of 65 or above at the conclusion of level 3 and be in your final year to be eligible to enrol in the level 5 units.

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Unit Name</th>
<th>Offered</th>
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<tbody>
<tr>
<td>MEC3010</td>
<td>Micro and nanotechnologies: Fabrication and applications</td>
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<tr>
<td>MEC3416</td>
<td>Machine design</td>
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<tr>
<td>MEC3459</td>
<td>Materials selection for engineers</td>
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<tr>
<td>TRC3000</td>
<td>Automation project</td>
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<td>TRC3500</td>
<td>Sensors and artificial perception</td>
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<tr>
<td>ECE4078</td>
<td>Intelligent robotics</td>
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<tr>
<td>MEC4407</td>
<td>Design project</td>
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<tr>
<td>MEC4428</td>
<td>Advanced dynamics</td>
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<td>Computers in fluids and energy</td>
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<td>MEC4459</td>
<td>Wind engineering</td>
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<tr>
<td>TRC4200</td>
<td>Engineering cyber-physical systems</td>
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<td>MEC5221</td>
<td>Railway engineering 1</td>
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<td>MEC5881</td>
<td>Engineering systems performance analysis 1</td>
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<td>Instrumentation, sensing and monitoring 1</td>
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<td>MEC5883</td>
<td>Mechanical systems design 1</td>
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<td>MEC5884</td>
<td>Sustainable engineering systems 1</td>
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</table>

You may consider an engineering technical unit chosen from the engineering minors, subject to meeting the unit prerequisite and/or co-requisite rules.
## Chemical engineering

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
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<tbody>
<tr>
<td><strong>CHE2166</strong></td>
<td>Introduction to process simulation</td>
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<tr>
<td><strong>CHE2167</strong></td>
<td>Process material selection</td>
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<tr>
<td><strong>CHM2951</strong></td>
<td>Environmental chemistry – Water</td>
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<tr>
<td><strong>ECE2071</strong></td>
<td>Computer organisation and programming</td>
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<tr>
<td><strong>ECE2131</strong></td>
<td>Electrical circuits</td>
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<tr>
<td><strong>MTH2232</strong></td>
<td>Mathematical statistics</td>
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<tr>
<td><strong>CHE3133</strong></td>
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<tr>
<td><strong>CHE3163</strong></td>
<td>Sustainable processing 1</td>
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<tr>
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<td>Biomass and bio-refineries ¹</td>
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<td>Nanostructured membranes for separation and energy production ¹</td>
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<td><strong>CHE5884</strong></td>
<td>Process modelling and optimisation ¹</td>
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<tr>
<td><strong>CHE5889</strong></td>
<td>Food engineering and processing ¹</td>
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You may consider an engineering technical unit chosen from the engineering minors, subject to meeting the unit prerequisite and/or co-requisite rules.

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## Civil engineering

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<td>Ventilation for surface and underground spaces</td>
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<td><strong>RSE3060</strong></td>
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Offerings are subject to change.

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<tbody>
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<td>CIV4293 Transport planning for Asian cities</td>
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<td>CIV5314 Planning urban mobility futures ¹</td>
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<td>CIV5881 Ground water hydraulics ¹</td>
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<td>CIV5882 Flood hydraulics and hydrology ¹</td>
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<td>CIV5885 Infrastructure dynamics ¹</td>
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<td>CIV5887 Infrastructure rehabilitation and monitoring ¹</td>
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<td>CIV5888 Advanced computational methods ¹</td>
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<td>CIV5889 Infrastructure information management ¹</td>
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<tr>
<td>MEC5221 Railway engineering ¹</td>
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</table>

You may consider an engineering technical unit chosen from the engineering minors, subject to meeting the unit prerequisite and/or co-requisite rules.

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## Electrical and computer systems engineering

Electives must be completed at the unit level required to satisfy your course requirements.

### CORE ELECTIVES

The ECSE specialisation requires the completion of sixteen core units AND two core electives chosen from the ECSE technical electives list. The core electives must be level 4 or 5 ECE-coded.

¹ Level 5 units: You must obtain a weighted average mark (WAM) of 65 or above at the conclusion of level 3 and be in your final year to be eligible to enrol in the level 5 units.

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<td>o</td>
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<td>Network performance</td>
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<td>ECE5883</td>
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<tr>
<td>ECE5884</td>
<td>Wireless communications ¹</td>
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Offerings are subject to change

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<tr>
<th>Course Code</th>
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<th>Semester 2</th>
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<tr>
<td>MEC5885</td>
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You may consider an engineering technical unit chosen from the engineering minors, subject to meeting the unit prerequisite and/or co-requisite rules.

### Environmental engineering

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<td>Prosperity, poverty and sustainability in a globalised world</td>
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<td>CHE3161</td>
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You may consider an engineering technical unit chosen from the engineering minors, subject to meeting the unit prerequisite and/or co-requisite rules.

### Materials engineering

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¹ Level 5 units: You must obtain a weighted average mark (WAM) of 65 or above at the conclusion of level 3 and be in your final year to be eligible to enrol in the level 5 units.
Offerings are subject to change. Semester 1

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<td>Materials for energy technologies</td>
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<td>Biomaterials and biomechanics</td>
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### Mechanical engineering

Electives must be completed at the unit level required to satisfy your course requirements.

1 **Level 5 units:** You must obtain a weighted average mark (WAM) of 65 or above at the conclusion of level 3 and be in your final year to be eligible to enrol in the level 5 units.

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<tr>
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<td>Railway engineering</td>
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<td>MEC5881</td>
<td>Engineering systems performance analysis</td>
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<td>MEC5882</td>
<td>Instrumentation, sensing and monitoring</td>
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### Resources and mining engineering

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### Level 5 units
You must obtain a weighted average mark (WAM) of 65 or above at the conclusion of level 3 and be in your final year to be eligible to enrol in the level 5 units.

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<td>TRC4902</td>
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### Software engineering
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