Course progression map for 2022 commencing students

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E6014 Master of Engineering
Specialisation - Biological engineering

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>CHE5886 Advanced biopolymers</th>
<th>CHE5321 Advanced bioprocess technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR 1</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>CHE5882 Biomass and biorefineries</td>
<td>CHE5322 Advanced biochemical engineering</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Part A. Common core units  Part B. Specialist core units  Part C. Enhancement units

Biological engineering enhancement units

- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- CHE5883 Nanostructured membranes for separation and energy production
- CHE5889 Food engineering and processing
- ENG5006 Work integrated learning *
- GCH5010 Introduction to green chemistry
- MGF5020 Business ethics in a global environment
- MGF5600 Managing innovation

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## Course progression map for 2022 commencing students

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### E6014 Master of Engineering

**Specialisation - Civil engineering**

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>Specialist core unit</th>
<th>Specialist core unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR 1</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>Specialist core unit</td>
<td>Specialist core unit</td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part A. Common core units

Part B. Specialist core units

Part C. Enhancement units

### Civil engineering enhancement units

- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- CIV5135 Advanced structural design
- CIV5177 Advanced road engineering
- CIV5301 Advanced traffic engineering
- CIV5314 Planning urban mobility futures
- CIV5820 Flood hydraulics and hydrology
- CIV5883 Surface water hydrology
- CIV5887 Infrastructure rehabilitation and monitoring
- CIV5988 Advanced computational methods
- ECE5146 Multimedia technologies
- ECE5179 Neural networks and deep learning
- ENG5002 Engineering entrepreneurship
- ENG5008 Work integrated learning *
- MEC5882 Instrumentation, sensing and monitoring
- MEC5888 Renewable energy systems
- MGF5020 Business ethics in a global environment
- MGF5060 Managing innovation
- MTE5197 Engineering with nanomaterials
- MTE5883 Environmental durability and protection of metals and engineering materials

### Civil engineering specialist core units

- Below are suggested units to guide you in focusing in a field of civil engineering suited to your previous study. You may also choose freely from the civil units listed below.

#### Structural engineering
- CIV5885 Infrastructure dynamics
- CIV5887 Infrastructure rehabilitation and monitoring
- CIV5888 Advanced computational methods from 2023
- CIV5899 Infrastructure information management

#### Geotechnical engineering
- CIV5886 Infrastructure geomechanics
- CIV5887 Infrastructure rehabilitation and monitoring or CIV5148 Ground hazards engineering
- CIV5888 Advanced computational methods
- CIV5899 Infrastructure information management

#### Transport engineering
- CIV5301 Advanced traffic engineering from 2023
- CIV5302 Traffic engineering and management
- CIV5304 Intelligent transport systems
- CIV5314 Planning urban mobility futures

#### Water engineering
- CIV5881 Ground water hydraulics from 2023
- CIV5882 Flood hydraulics and hydrology
- CIV5883 Surface water hydrology
- CIV5884 Water sensitive stormwater design

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Source: Monash University, 2022 Handbook

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E6014 Master of Engineering
Specialisation - Electrical engineering

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG5100</td>
<td>Professional</td>
<td>ENG5410</td>
</tr>
<tr>
<td>ENG5001</td>
<td>engineering in</td>
<td>Advanced</td>
</tr>
<tr>
<td></td>
<td>organisation and</td>
<td>engineering data</td>
</tr>
<tr>
<td></td>
<td>society</td>
<td>analysis</td>
</tr>
<tr>
<td>ECE5881</td>
<td>Real-time</td>
<td>ECE5882</td>
</tr>
<tr>
<td></td>
<td>system design</td>
<td>Advanced electronics design</td>
</tr>
<tr>
<td>ECE5883</td>
<td>Advanced</td>
<td>Wireless</td>
</tr>
<tr>
<td></td>
<td>signal processing</td>
<td>communications</td>
</tr>
</tbody>
</table>

Part A. Common core units
Part B. Specialist core units
Part C. Enhancement units

Electrical engineering enhancement units

- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- CHE5882 Biomass and biorefineries
- CHE5883 Nanostructured membranes for separation and energy production
- ECE5122 Advanced electromagnetics
- ECE5143 Optical communications
- ECE5146 Multimedia technologies
- ECE5153 Power system analysis
- ECE5156 Advanced power electronics
- ECE5178 Intelligent robotics
- ECE5179 Neural networks and deep learning
- ECE5886 Smart grids
- ENG5007 Translation and commercialisation of medical technologies
- ENG5008 Work integrated learning *
- MEC5881 Engineering systems performance analysis
- MGF5020 Business ethics in a global environment
- MGF5600 Managing innovation
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

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E6014 Master of Engineering
Specialisation - Materials engineering

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>Specialist core unit</th>
<th>Specialist core unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>Specialist core unit</td>
<td>Specialist core unit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Materials engineering enhancement units</th>
<th>Materials engineering specialist core units</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BEX5411 Creativity and entrepreneurship</td>
<td>• MTE5190 Advanced materials modelling</td>
</tr>
<tr>
<td>• BEX5413 Technology and innovation for start-ups</td>
<td>• MTE5193 Materials and sustainability</td>
</tr>
<tr>
<td>• CHE5883 Nanostructured membranes for separation and energy production</td>
<td>• MTE5194 Engineering alloy design, processing and selection</td>
</tr>
<tr>
<td>• ENG5008 Work integrated learning *</td>
<td>• MTE5197 Engineering with nanomaterials</td>
</tr>
<tr>
<td>• MGF5020 Business ethics in a global environment</td>
<td>• MTE5881 Applied crystallography in advanced materials characterisation</td>
</tr>
<tr>
<td>• MGF5600 Managing innovation</td>
<td>• MTE5882 Advanced polymeric materials</td>
</tr>
<tr>
<td>• MTE5194 Engineering alloy design, processing and selection</td>
<td>• MTE5883 Environmental durability and protection of metals and engineering materials</td>
</tr>
<tr>
<td>• MTE5197 Engineering with nanomaterials</td>
<td>• MTE5884 Advanced photovoltaics and energy storage</td>
</tr>
<tr>
<td>• MTE5881 Applied crystallography in advanced materials characterisation</td>
<td>• MTE5885 Biomaterials and biomechanics</td>
</tr>
<tr>
<td>• MTE5883 Environmental durability and protection of metals and engineering materials</td>
<td>• MTE5886 Additive manufacturing of metallic materials</td>
</tr>
<tr>
<td>• MTE5886 Additive manufacturing of metallic materials</td>
<td>• MTE5887 Additive manufacturing of polymeric and functional materials</td>
</tr>
</tbody>
</table>

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E6014 Master of Engineering
Specialisation - Mechanical engineering

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>MEC5883 Mechanical systems design</th>
<th>MEC5885 Energy efficiency and sustainability engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>ENG5100 Professional engineering in organisation and society</td>
<td>ENG5001 Advanced engineering data analysis</td>
<td>MEC5883 Mechanical systems design</td>
<td>MEC5885 Energy efficiency and sustainability engineering</td>
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<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5410 Research practice in engineering</th>
<th>Enhancement unit</th>
<th>MEC5881 Engineering systems performance and analysis</th>
<th>MEC5884 Sustainable engineering systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>MEC5881 Engineering systems performance and analysis</td>
<td>MEC5884 Sustainable engineering systems</td>
</tr>
</tbody>
</table>

Part A. Common core units  Part B. Specialist core units  Part C. Enhancement units

Mechanical engineering enhancement units

- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- ENG5002 Engineering entrepreneurship
- ENG5008 Work integrated learning *
- MEC5156 Advanced robotics in manufacturing
- MEC5882 Instrumentation, sensing and monitoring
- MEC5888 Renewable energy systems
- MEC5897 Lean manufacturing
- MGF5020 Business ethics in a global environment
- MGF5600 Managing innovation
- MTE5193 Materials and sustainability
- MTE5882 Advanced polymeric materials
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5884 Advanced photovoltaics and energy storage
- MTE5886 Additive manufacturing of metallic materials

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