Course progression map for 2023 commencing students

This progression map provides advice on the suitable sequencing of units and guidance on how to plan unit enrolment for each semester of study. It should be used in conjunction with the requirements of the course as specified in the Handbook. Please note that the map and unit listings are subject to updates. Update version: 13 Oct 2022

E6014 Master of Engineering
Specialisation - Biological engineering

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>Semester 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5200 Engineering project risk management</th>
<th>CHE5886 Advanced biopolymers</th>
<th>CHE5321 Advanced bioprocess technology</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>CHE5882 Biomass and biorefineries</td>
<td>CHE5322 Advanced biochemical engineering</td>
</tr>
</tbody>
</table>

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

Biological engineering enhancement units
- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- CHE5883 Nanstructured membranes for separation and energy production
- CHE5889 Food engineering and processing
- ENG5008 Work integrated learning *
- GCH5010 Introduction to green chemistry
- MGF5020 Business ethics in a global environment
- MGF5600 Managing innovation

* ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements. If you commenced the course in the July semester intake: If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.
Course progression map for 2023 commencing students

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E6014 Master of Engineering
Specialisation - Civil engineering

| YEAR 1 | Semester 1 | ENG5100 Professional engineering in organisation and society | ENG5200 Engineering project risk management | Specialist core unit | Specialist core unit |
| YEAR 1 | Semester 2 | ENG5410 Research practice in engineering | Enhancement unit | Specialist core unit | Specialist core unit |

**Civil engineering enhancement units**
- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- CIV5136 Structural analysis
- CIV5177 Advanced road engineering
- CIV5301 Advanced traffic engineering
- CIV5314 Planning urban mobility futures
- CIV5882 Flood hydraulics and hydrology
- CIV5883 Surface water hydrology
- CIV5887 Infrastructure rehabilitation and monitoring
- CIV5888 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
- MGF5600 Managing innovation
- MTE5197 Engineering with nanomaterials
- MTE5883 Environmental durability and protection of metals and engineering materials

**Civil engineering specialist core units**
You must complete four units (24 points). 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**
  - CIV5884 Infrastructure geomechanics
  - CIV5887 Infrastructure rehabilitation and monitoring
  - CIV5888 Advanced computational methods or CIV5136 Structural analysis
  - 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**
  - CIV5302 Traffic engineering and management
  - CIV5304 Intelligent transport systems
  - CIV5314 Planning urban mobility futures
  - CIV5899 Infrastructure information management

- **Water engineering**
  - CIV5882 Flood hydraulics and hydrology
  - CIV5883 Surface water hydrology
  - CIV5884 Water sensitive stormwater design
  - CIV5899 Infrastructure information management

* ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements. If you commenced the course in the July semester intake: If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.
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E6014 Master of Engineering
Specialisation - Electrical engineering

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5200 Engineering project risk management</th>
<th>ECE5881 Real-time system design</th>
<th>ECE5883 Advanced signal processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
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<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5410 Research practice in engineering</th>
<th>Enhancement unit</th>
<th>ECE5882 Advanced electronics design</th>
<th>ECE5884 Wireless communications</th>
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</thead>
<tbody>
<tr>
<td>Semester 2</td>
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</table>

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

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
- ENGS007 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

* ENGS008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements. **If you commenced the course in the July semester intake:** If you plan to enrol in ENGS008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.
Course progression map for 2023 commencing students

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E6014 Master of Engineering
Specialisation – Engineering management

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5200 Engineering project risk management</th>
<th>Specialist core unit</th>
<th>Specialist core unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</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>

Part A. Common core units

<table>
<thead>
<tr>
<th>Part B. Specialist core units</th>
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</thead>
<tbody>
<tr>
<td>Part C. Enhancement unit</td>
</tr>
</tbody>
</table>

Engineering management enhancement units

- CIV5302 Traffic engineering and management
- CIV5304 Intelligent transport systems
- CIV5884 Water sensitive stormwater design
- CIV5899 Infrastructure information management
- ENG5008 Work integrated learning *
- MEC5885 Energy efficiency and sustainability

Engineering management specialist core units

You must complete four units (24 points). Below are suggested units to guide you in focusing in a field of engineering management. You may also choose freely from the units listed below.

**Contemporary management**
- MGF5020 Business ethics in a global environment
- MGF5130 Managing diversity and inclusion
- MGF5600 Managing innovation
- MGF5928 Strategic leadership

**Entrepreneurship**
- BEX5114 Start-up finance and accounting
- BEX5120 Law for entrepreneurs
- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups

**Project management**
- OPM5000 Organising the project function
- OPM5001 Project as a social system
- OPM5901 Managing the project context
- OPM5903 Delivering projects

* ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements. If you commenced the course in the July semester intake: If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.
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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>ENG5200 Engineering project risk management</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>• ENGS5008 Work integrated learning</td>
<td>• MTE5197 Engineering with nanomaterials</td>
</tr>
<tr>
<td>• MGF5004 Business ethics in a global environment</td>
<td>• MTE5881 Advanced 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>Semester 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5200 Engineering project risk management</th>
<th>MEC5883 Mechanical systems design</th>
<th>MEC5885 Energy efficiency and sustainability engineering</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>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 unit

**Mechanical engineering enhancement units**

- BEX5411 Creativity and entrepreneurship
- BEX5413 Technology and innovation for start-ups
- ENG5002 Engineering entrepreneurship [No offering in 2023]
- 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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