Course progression map for 2024 commencing students

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E6014 Master of Engineering
Specialisation – Engineering management

| 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 |

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

<table>
<thead>
<tr>
<th>Engineering management enhancement units</th>
<th>Engineering management specialist core units</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CHE5888 Sustainability and innovation</td>
<td>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.</td>
</tr>
<tr>
<td>• CIV5302 Traffic engineering and management</td>
<td>Contemporary management</td>
</tr>
<tr>
<td>• CIV5305 Travel demand modelling</td>
<td>• MGF5020 Business ethics in a global environment</td>
</tr>
<tr>
<td>• CIV5884 Water sensitive stormwater design</td>
<td>• MGF5130 Managing diversity and inclusion</td>
</tr>
<tr>
<td>• CIV5899 Infrastructure information management</td>
<td>• MGF5600 Managing innovation</td>
</tr>
<tr>
<td>• ENG5008 Work integrated learning *</td>
<td>• MGF5928 Strategic leadership</td>
</tr>
<tr>
<td>• MEC5885 Energy efficiency and sustainability</td>
<td>Entrepreneurship</td>
</tr>
<tr>
<td>• MTE5893 Environmental durability and protection of metals and engineering materials</td>
<td>• BEX5114 Value creation and start-up capital optimisation for founders</td>
</tr>
<tr>
<td>• MTE5884 Advanced photovoltaics and energy storage</td>
<td>• BEX5120 Startup fundamentals: From setting up to securing investment</td>
</tr>
<tr>
<td></td>
<td>• BEX5411 Creativity and entrepreneurship</td>
</tr>
<tr>
<td></td>
<td>• BEX5413 Technology and Innovation for start-ups</td>
</tr>
<tr>
<td></td>
<td>Project management</td>
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<tr>
<td></td>
<td>• OPM5901 Managing the project context (Semester 1)</td>
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<tr>
<td></td>
<td>• OPM5000 Organising the project function (Semester 1, Corequisite: OPM5901)</td>
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<tr>
<td></td>
<td>• OPM5903 Delivering projects (Semester 2)</td>
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<tr>
<td></td>
<td>• OPM5001 Project as a social system (Semester 2, Corequisite: OPM5903)</td>
</tr>
</tbody>
</table>

* 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 2024 commencing students

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#### 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

- CHE5883 Nanostructured membranes for separation and energy production
- CHE5888 Food engineering and processing
- ENG5008 Work integrated learning *
- GCH5010 Introduction to green chemistry
- MGF5020 Business ethics in a global environment
- MGF5600 Managing innovation

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E6014 Master of Engineering
Specialisation - Civil engineering

**YEAR 1**

<table>
<thead>
<tr>
<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>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>

**Civil engineering enhancement units**

- 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 *
- MEC5221 Railway engineering
- 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**

- CIV5885 Infrastructure dynamics
- 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
- CIV5305 Travel demand modelling
- 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

* 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 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

| YEAR 1 | Semester 1 | ENG5100 Professional engineering in organisation and society | ENG5200 Engineering project risk management | ECE5881 Real-time system design | ECE5883 Advanced signal processing |
| YEAR 1 | Semester 2 | ENG5410 Research practice in engineering | Enhancement unit | ECE5882 Advanced electronics design | ECE5884 Wireless communications |

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

Electrical engineering enhancement units
- 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

| 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 |

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

Materials engineering enhancement units
- CHE5883 Nanostructured membranes for separation and energy production
- ENG5008 Work integrated learning *
- MGF5020 Business ethics in a global environment
- MGF5600 Managing innovation
- MTE5194 Engineering alloy design, processing and selection
- MTE5197 Engineering with nanomaterials
- MTE5881 Applied crystallography in advanced materials characterisation
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

Materials engineering specialist core units
- MTE5190 Advanced materials modelling
- MTE5193 Materials and sustainability
- MTE5194 Engineering alloy design, processing and selection
- MTE5197 Engineering with nanomaterials
- MTE5881 Applied crystallography in advanced materials characterisation
- MTE5882 Advanced polymeric materials
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5884 Advanced photovoltaics and energy storage
- MTE5886 Biomaterials and biomechanics
- MTE5886 Additive manufacturing of metallic materials
- MTE5887 Additive manufacturing of polymeric and functional materials

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E6014 Master of Engineering
Specialisation - Mechanical engineering

## YEAR 1

<table>
<thead>
<tr>
<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>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
- ENG5002 Engineering entrepreneurship
- ENG5008 Work integrated learning *
- MEC5156 Advanced robotics in manufacturing
- MEC5221 Railway engineering
- 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

### Part B. Specialist core units

### Part C. Enhancement unit

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E6014 Master of Engineering
Specialisation – Renewable energy 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>MTE5884 Advanced photovoltaics and energy storage</th>
<th>MEC5885 Energy efficiency and sustainability engineering</th>
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<tbody>
<tr>
<td>Semester 1</td>
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</tr>
<tr>
<td>YEAR 1</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>ECE5886 Smart grids</td>
<td>MEC5888 Renewable energy systems</td>
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<tr>
<td>Semester 2</td>
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</tbody>
</table>

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

Mechanical engineering enhancement units

- CHE5888 Sustainability and innovation
- ENG5008 Work integrated learning *
- MEC5881 Engineering systems performance analysis
- MTE5883 Environmental durability and protection of metals and engineering materials
- MEC5884 Sustainable engineering systems

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E6014 Master of Engineering
Specialisation – Smart manufacturing 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>MTE5887 Additive manufacturing of polymeric functional materials</th>
<th>MEC5882 Instrumentation, sensing and monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
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</table>

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

### Mechanical engineering enhancement units

- ECE5179 Neural networks and deep learning
- ENG5008 Work integrated learning *
- MEC5881 Engineering systems performance analysis
- MEC5884 Sustainable engineering systems
- MTE5886 Additive manufacturing of metallic materials

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