

## Course progression map for 2024 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: 1 December 2023

### E6014 Master of Engineering Specialisation – Engineering management

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	Specialist core unit	Specialist core unit
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> 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

Engineering management enhancement units	Engineering management specialist core units
<ul style="list-style-type: none"> <li><a href="#">CHE5888</a> Sustainability and innovation</li> <li><a href="#">CIV5302</a> Traffic engineering and management</li> <li><a href="#">CIV5305</a> Travel demand modelling</li> <li><a href="#">CIV5884</a> Water sensitive stormwater design</li> <li><a href="#">CIV5899</a> Infrastructure information management</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">MEC5885</a> Energy efficiency and sustainability</li> <li><a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> <li><a href="#">MTE5884</a> Advanced photovoltaics and energy storage</li> </ul>	<p>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.</p> <p>Contemporary management</p> <ul style="list-style-type: none"> <li><a href="#">MGF5020</a> Business ethics in a global environment</li> <li><a href="#">MGF5130</a> Managing diversity and inclusion</li> <li><a href="#">MGF5600</a> Managing innovation</li> <li><a href="#">MGF5928</a> Strategic leadership</li> </ul> <p>Entrepreneurship</p> <ul style="list-style-type: none"> <li><a href="#">BEX5114</a> Value creation and start-up capital optimisation for founders</li> <li><a href="#">BEX5120</a> Startup fundamentals: From setting up to securing investment</li> <li><a href="#">BEX5411</a> Creativity and entrepreneurship</li> <li><a href="#">BEX5413</a> Technology and innovation for start-ups</li> </ul> <p>Project management</p> <ul style="list-style-type: none"> <li><a href="#">OPM5901</a> Managing the project context (Semester 1)</li> <li><a href="#">OPM5000</a> Organising the project function (Semester 1, Corequisite: OPM5901)</li> <li><a href="#">OPM5903</a> Delivering projects (Semester 2)</li> <li><a href="#">OPM5001</a> Project as a social system (Semester 2, Corequisite: OPM5903)</li> </ul>

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### E6014 Master of Engineering Specialisation - Biological engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	<a href="#">CHE5886</a> Advanced biopolymers	<a href="#">CHE5321</a> Advanced bioprocess technology
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> Research practice in engineering	Enhancement unit	<a href="#">CHE5882</a> Biomass and biorefineries	<a href="#">CHE5322</a> Advanced biochemical engineering

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

Biological engineering enhancement units
<ul style="list-style-type: none"> <li><a href="#">CHE5883</a> Nanostructured membranes for separation and energy production</li> <li><a href="#">CHE5889</a> Food engineering and processing</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">GCH5010</a> Introduction to green chemistry</li> <li><a href="#">MGF5020</a> Business ethics in a global environment</li> <li><a href="#">MGF5600</a> Managing innovation</li> </ul>

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### E6014 Master of Engineering Specialisation - Civil engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	Specialist core unit	Specialist core unit
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> 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

Civil engineering enhancement units	Civil engineering specialist core units
<ul style="list-style-type: none"> <li><a href="#">CIV5136</a> Structural analysis</li> <li><a href="#">CIV5177</a> Advanced road engineering</li> <li><a href="#">CIV5301</a> Advanced traffic engineering</li> <li><a href="#">CIV5314</a> Planning urban mobility futures</li> <li><a href="#">CIV5882</a> Flood hydraulics and hydrology</li> <li><a href="#">CIV5883</a> Surface water hydrology</li> <li><a href="#">CIV5887</a> Infrastructure rehabilitation and monitoring</li> <li><a href="#">CIV5888</a> Advanced computational methods</li> <li><a href="#">ECE5146</a> Multimedia technologies</li> <li><a href="#">ECE5179</a> Neural networks and deep learning</li> <li><a href="#">ENG5002</a> Engineering entrepreneurship</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">MEC5221</a> Railway engineering</li> <li><a href="#">MEC5882</a> Instrumentation, sensing and monitoring</li> <li><a href="#">MEC5888</a> Renewable energy systems</li> <li><a href="#">MGF5020</a> Business ethics in a global environment</li> <li><a href="#">MGF5600</a> Managing innovation</li> <li><a href="#">MTE5197</a> Engineering with nanomaterials</li> <li><a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> </ul>	<p>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.</p> <p><b>Structural engineering</b></p> <ul style="list-style-type: none"> <li><a href="#">CIV5885</a> Infrastructure dynamics</li> <li><a href="#">CIV5887</a> Infrastructure rehabilitation and monitoring</li> <li><a href="#">CIV5888</a> Advanced computational methods <b>or</b> <a href="#">CIV5136</a> Structural analysis</li> <li><a href="#">CIV5899</a> Infrastructure information management</li> </ul> <p><b>Geotechnical engineering</b></p> <ul style="list-style-type: none"> <li><a href="#">CIV5886</a> Infrastructure geomechanics</li> <li><a href="#">CIV5887</a> Infrastructure rehabilitation and monitoring <b>or</b> <a href="#">CIV5148</a> Ground hazards engineering</li> <li><a href="#">CIV5888</a> Advanced computational methods</li> <li><a href="#">CIV5899</a> Infrastructure information management</li> </ul> <p><b>Transport engineering</b></p> <ul style="list-style-type: none"> <li><a href="#">CIV5302</a> Traffic engineering and management</li> <li><a href="#">CIV5305</a> Travel demand modelling</li> <li><a href="#">CIV5314</a> Planning urban mobility futures</li> <li><a href="#">CIV5899</a> Infrastructure information management</li> </ul> <p><b>Water engineering</b></p> <ul style="list-style-type: none"> <li><a href="#">CIV5882</a> Flood hydraulics and hydrology</li> <li><a href="#">CIV5883</a> Surface water hydrology</li> <li><a href="#">CIV5884</a> Water sensitive stormwater design</li> <li><a href="#">CIV5899</a> Infrastructure information management</li> </ul>

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## Course progression map for 2024 commencing students

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### E6014 Master of Engineering Specialisation - Electrical engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	<a href="#">ECE5881</a> Real-time system design	<a href="#">ECE5883</a> Advanced signal processing
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> Research practice in engineering	Enhancement unit	<a href="#">ECE5882</a> Advanced electronics design	<a href="#">ECE5884</a> Wireless communications

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

Electrical engineering enhancement units
<ul style="list-style-type: none"> <li>• <a href="#">CHE5882</a> Biomass and biorefineries</li> <li>• <a href="#">CHE5883</a> Nanostructured membranes for separation and energy production</li> <li>• <a href="#">ECE5122</a> Advanced electromagnetics</li> <li>• <a href="#">ECE5143</a> Optical communications</li> <li>• <a href="#">ECE5146</a> Multimedia technologies</li> <li>• <a href="#">ECE5153</a> Power system analysis</li> <li>• <a href="#">ECE5156</a> Advanced power electronics</li> <li>• <a href="#">ECE5178</a> Intelligent robotics</li> <li>• <a href="#">ECE5179</a> Neural networks and deep learning</li> <li>• <a href="#">ECE5886</a> Smart grids</li> <li>• <a href="#">ENG5007</a> Translation and commercialisation of medical technologies</li> <li>• <a href="#">ENG5008</a> Work integrated learning *</li> <li>• <a href="#">MEC5881</a> Engineering systems performance analysis</li> <li>• <a href="#">MGF5020</a> Business ethics in a global environment</li> <li>• <a href="#">MGF5600</a> Managing innovation</li> <li>• <a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> <li>• <a href="#">MTE5886</a> Additive manufacturing of metallic materials</li> </ul>

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### E6014 Master of Engineering Specialisation - Materials engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	Specialist core unit	Specialist core unit
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> 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	Materials engineering specialist core units
<ul style="list-style-type: none"> <li><a href="#">CHE5883</a> Nanostructured membranes for separation and energy production</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">MGF5020</a> Business ethics in a global environment</li> <li><a href="#">MGF5600</a> Managing innovation</li> <li><a href="#">MTE5194</a> Engineering alloy design, processing and selection</li> <li><a href="#">MTE5197</a> Engineering with nanomaterials</li> <li><a href="#">MTE5881</a> Applied crystallography in advanced materials characterisation</li> <li><a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> <li><a href="#">MTE5886</a> Additive manufacturing of metallic materials</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">MTE5190</a> Advanced materials modelling</li> <li><a href="#">MTE5193</a> Materials and sustainability</li> <li><a href="#">MTE5194</a> Engineering alloy design, processing and selection</li> <li><a href="#">MTE5197</a> Engineering with nanomaterials</li> <li><a href="#">MTE5881</a> Applied crystallography in advanced materials characterisation</li> <li><a href="#">MTE5882</a> Advanced polymeric materials</li> <li><a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> <li><a href="#">MTE5884</a> Advanced photovoltaics and energy storage</li> <li><a href="#">MTE5885</a> Biomaterials and biomechanics</li> <li><a href="#">MTE5886</a> Additive manufacturing of metallic materials</li> <li><a href="#">MTE5887</a> Additive manufacturing of polymeric and functional materials</li> </ul>

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### E6014 Master of Engineering Specialisation - Mechanical engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	<a href="#">MEC5883</a> Mechanical systems design	<a href="#">MEC5885</a> Energy efficiency and sustainability engineering
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> Research practice in engineering	Enhancement unit	<a href="#">MEC5881</a> Engineering systems performance and analysis	<a href="#">MEC5884</a> Sustainable engineering systems

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

Mechanical engineering enhancement units
<ul style="list-style-type: none"> <li><a href="#">ENG5002</a> Engineering entrepreneurship</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">MEC5156</a> Advanced robotics in manufacturing</li> <li><a href="#">MEC5221</a> Railway engineering</li> <li><a href="#">MEC5882</a> Instrumentation, sensing and monitoring</li> <li><a href="#">MEC5888</a> Renewable energy systems</li> <li><a href="#">MEC5897</a> Lean manufacturing</li> <li><a href="#">MGF5020</a> Business ethics in a global environment</li> <li><a href="#">MGF5600</a> Managing innovation</li> <li><a href="#">MTE5193</a> Materials and sustainability</li> <li><a href="#">MTE5882</a> Advanced polymeric materials</li> <li><a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> <li><a href="#">MTE5884</a> Advanced photovoltaics and energy storage</li> <li><a href="#">MTE5886</a> Additive manufacturing of metallic materials</li> </ul>

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### E6014 Master of Engineering Specialisation – Renewable energy engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	<a href="#">MTE5884</a> Advanced photovoltaics and energy storage	<a href="#">MEC5885</a> Energy efficiency and sustainability engineering
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> Research practice in engineering	Enhancement unit	<a href="#">ECE5886</a> Smart grids	<a href="#">MEC5888</a> Renewable energy systems

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

Mechanical engineering enhancement units
<ul style="list-style-type: none"> <li><a href="#">CHE5888</a> Sustainability and innovation</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">MEC5881</a> Engineering systems performance analysis</li> <li><a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials</li> <li><a href="#">MEC5884</a> Sustainable engineering systems</li> </ul>

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### E6014 Master of Engineering Specialisation – Smart manufacturing engineering

<b>YEAR 1</b> Semester 1	<a href="#">ENG5100</a> Professional engineering in organisation and society	<a href="#">ENG5200</a> Engineering project risk management	<a href="#">MTE5887</a> Additive manufacturing of polymeric functional materials	<a href="#">MEC5882</a> Instrumentation, sensing and monitoring
<b>YEAR 1</b> Semester 2	<a href="#">ENG5410</a> Research practice in engineering	Enhancement unit	<a href="#">MEC5897</a> Lean manufacturing	<a href="#">MEC5156</a> Advanced robotics in manufacturing

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

Mechanical engineering enhancement units
<ul style="list-style-type: none"> <li><a href="#">ECE5179</a> Neural networks and deep learning</li> <li><a href="#">ENG5008</a> Work integrated learning *</li> <li><a href="#">MEC5881</a> Engineering systems performance analysis</li> <li><a href="#">MEC5884</a> Sustainable engineering systems</li> <li><a href="#">MTE5886</a> Additive manufacturing of metallic materials</li> </ul>

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