

## Course progression map for 2026 commencing students






This progression map provides advice on the optimal sequencing of units and guidance on planning unit enrolment for each semester of study in conjunction with the required units outlined in the course 'Requirements' section of the [Handbook](#). Please note that the map may be updated to reflect changes to course requirements. Be sure to review it for the latest information before re-enrolling. *Last updated: 18 February 2025*

### E6011 Master of Professional Engineering – 3 years program [Entry level 1]

#### Specialisation – Chemical engineering

#### *Bioprocessing and food engineering stream*

<b>YEAR 1</b> Semester 1	<b>CHE3161</b> Chemistry and chemical thermodynamics	<b>CHE5888</b> Sustainability and innovation	<b>ENG5001</b> Advanced data analytics for engineers	<b>ENG5100</b> Professional engineer in organisation and society <small>This unit is offered in both Semester 1 and Semester 2</small>	<b>ENG0003</b> Continuous Professional Development
<b>YEAR 1</b> Semester 2	<b>CHE2161</b> Mechanics of fluids	<b>CHE2162</b> Materials and energy balance	<b>CHE2163</b> Heat and mass transfer	<b>CHE3162</b> Process control	
<b>YEAR 2</b> Semester 1	<b>CHE3165</b> Separations processes	<b>CHE5881</b> Advanced reaction engineering	<b>CHE5884</b> Process modelling and optimisation	Chemical engineering enhancement unit	
<b>YEAR 2</b> Semester 2	<b>CHE3164</b> Reaction engineering	<b>CHE3166</b> Process design	<b>CHE5112</b> Advanced fluid dynamics	<b>CHE5113</b> Advanced separation processes	
<b>YEAR 3</b> Semester 1	<b>ENG5005</b> Research methods	<b>CHE5110</b> Advanced thermodynamics	Chemical engineering enhancement unit	Chemical engineering enhancement unit	
<b>YEAR 3</b> Semester 2	<b>ENG5006</b> Research practice	<b>ENG5105</b> Integrated design	<b>CHE5882</b> Biomass and biorefineries	<b>CHE5889</b> Food engineering and processing	

 Part A. Engineering foundation knowledge and application	 Part B. Engineering specialist knowledge and application	 Enhancement learning
 Part D. Research and knowledge skills	 Part E. Professional practice	

#### Chemical engineering enhancement units

<b>ENG5002</b> Engineering entrepreneurship	<b>ENG5008</b> Industry experience
<b>CHE5321</b> Advanced bioprocess technology	<b>MEC5888</b> Renewable energy systems
<b>CHE5322</b> Advanced biochemical engineering	<b>MTE5882</b> Advanced polymeric materials
<b>CHE5883</b> Nanostructured membranes for separation and energy production	<b>MTE5887</b> Additive manufacturing of polymeric and functional materials
<b>CHE5886</b> Advanced biopolymers	<b>MON5750</b> Monash Innovation Guarantee

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### E6011 Master of Professional Engineering – 3 years program [Entry level 1]

#### Specialisation – Chemical engineering


#### Engineering design stream

<b>YEAR 1</b> Semester 1	<a href="#">CHE3161</a> Chemistry and chemical thermodynamics	Chemical engineering enhancement unit	<a href="#">ENG5001</a> Advanced data analytics for engineers	<a href="#">ENG5100</a> Professional engineer in organisation and society <small>This unit is offered in both Semester 1 and Semester 2</small>	<a href="#">ENG0003</a> Continuous Professional Development
<b>YEAR 1</b> Semester 2	<a href="#">CHE2161</a> Mechanics of fluids	<a href="#">CHE2162</a> Materials and energy balance	<a href="#">CHE2163</a> Heat and mass transfer	<a href="#">CHE3162</a> Process control	
<b>YEAR 2</b> Semester 1	<a href="#">CHE3165</a> Separations processes	<a href="#">CHE5881</a> Advanced reaction engineering	<a href="#">CHE5884</a> Process modelling and optimisation	<a href="#">CHE5110</a> Advanced thermodynamics	
<b>YEAR 2</b> Semester 2	<a href="#">CHE3164</a> Reaction engineering	<a href="#">CHE3166</a> Process design	<a href="#">CHE5112</a> Advanced fluid dynamics	<a href="#">CHE5113</a> Advanced separation processes	
<b>YEAR 3</b> Semester 1	<a href="#">ENG5005</a> Research methods	Chemical engineering enhancement unit	Chemical engineering enhancement unit	Chemical engineering enhancement unit	
<b>YEAR 3</b> Semester 2	<a href="#">ENG5006</a> Research practice	<a href="#">ENG5106</a> Integrated design project (12 points)		<a href="#">CHE5888</a> Sustainability and innovation	

 Part A. Engineering foundation knowledge and application

 Part B. Engineering specialist knowledge and application

 Enhancement learning

 Part D. Research and knowledge skills

 Part E. Professional practice

#### Chemical engineering enhancement units

[ENG5002](#) Engineering entrepreneurship

[CHE5883](#) Nanostructured membranes for separation and energy production

[CHE5886](#) Advanced biopolymers

[ENG5008](#) Industry experience

[MEC5888](#) Renewable energy systems

[MTE5882](#) Advanced polymeric materials

[MTE5887](#) Additive manufacturing of polymeric and functional materials

[MON5750](#) Monash Innovation Guarantee

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


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### E6011 Master of Professional Engineering – 3 years program [Entry level 1]

#### Specialisation – Civil Engineering

<b>YEAR 1</b> Semester 1	<a href="#">CIV2206</a> Structural mechanics	<a href="#">CIV2282</a> Transport and traffic engineering	<a href="#">CIV2263</a> Water systems	<a href="#">CIV3285</a> Engineering hydrology	<b>ENG0003</b> Continuous Professional Development
<b>YEAR 1</b> Semester 2	<a href="#">CIV2242</a> Geomechanics 1	<a href="#">CIV2235</a> Structural materials	<a href="#">ENG5221</a> Project as a social system	<a href="#">ENG5100</a> Professional engineer in organisation and society <small>This unit is offered in both Semester 1 and Semester 2</small>	
<b>YEAR 2</b> Semester 1	<a href="#">CIV3294</a> Structural design	<a href="#">CIV5178</a> Advanced water treatment	<a href="#">ENG5001</a> Advanced data analytics for engineers	Civil engineering enhancement units Complete 4 units (24 points):  <a href="#">CIV5136</a> Structural analysis <a href="#">CIV5302</a> Traffic engineering and management <a href="#">CIV5305</a> Travel demand modelling <a href="#">CIV5314</a> Planning urban transport systems <a href="#">CIV5883</a> Surface water hydrology <a href="#">CIV5884</a> Water sensitive stormwater design <a href="#">CIV5885</a> Infrastructure dynamics <a href="#">CIV5887</a> Infrastructure rehabilitation and monitoring <a href="#">CIV5899</a> Infrastructure information management <a href="#">ENE5043</a> Quantifying sustainability in urban systems <a href="#">ENE5044</a> AI applications for civil and environmental engineers <a href="#">ENG5331</a> Railway engineering <a href="#">ENG5008</a> Industry experience <a href="#">MON5750</a> Monash Innovation Guarantee	
<b>YEAR 2</b> Semester 2	<a href="#">CIV5147</a> Advanced geomechanics	<a href="#">CIV5121</a> Building structures and technology	<a href="#">CIV5177</a> Advanced road engineering		
<b>YEAR 3</b> Semester 1	<a href="#">ENG5200</a> Engineering project risk management	<a href="#">CIV5170</a> Bridge design and assessment	<a href="#">ENG5005</a> Research methods		
<b>YEAR 3</b> Semester 2	<a href="#">ENG5105</a> Integrated design	<a href="#">CIV5888</a> Advanced computational methods	<a href="#">ENG5006</a> Research practice		

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


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### E6011 Master of Professional Engineering – 3 years program [Entry level 1]

#### Specialisation – Electrical engineering

<b>YEAR 1</b> Semester 1	<a href="#">ECE2131</a> Electrical circuits	<a href="#">ECE3141</a> Information and networks	<a href="#">ECE3051</a> Electrical energy systems	<a href="#">ENG5001</a> Advanced data analytics for engineers	<b>ENG0003</b> Continuous Professional Development
<b>YEAR 1</b> Semester 2	<a href="#">ECE2072</a> Digital systems	<a href="#">ECE3121</a> Engineering electromagnetics	<a href="#">ECE2111</a> Signals and systems	<a href="#">ECE4132</a> Control system design	
<b>YEAR 2</b> Semester 1	<a href="#">ECE5883</a> Advanced signal processing	<a href="#">ECE5145</a> Network performance or <a href="#">ECE5143</a> Optical communications	<a href="#">ENG5100</a> Professional engineer in organisation and society <small>This unit is offered in both Semester 1 and Semester 2</small>	Electrical engineering enhancement units Complete 4 units (24 points):  <a href="#">ECE5143</a> Optical communications <a href="#">ECE5145</a> Network performance <a href="#">ECE5146</a> Multimedia technologies <a href="#">ECE5153</a> Power system analysis <a href="#">ECE5156</a> Advanced power electronics <a href="#">ECE5176</a> Computer vision <a href="#">ECE5178</a> Intelligent robotics <a href="#">ECE5179</a> Neural networks and deep learning <a href="#">ENG5008</a> Industry experience <a href="#">MEC5882</a> Instrumentation, sensing and monitoring <a href="#">MTE5884</a> Advanced photovoltaics and energy storage <a href="#">MON5750</a> Monash Innovation Guarantee	
<b>YEAR 2</b> Semester 2	<a href="#">ECE3161</a> Analogue electronics	<a href="#">ECE5884</a> Wireless communications	<a href="#">ECE5886</a> Smart grids		
<b>YEAR 3</b> Semester 1	<a href="#">ECE5155</a> Power electronic converters	<a href="#">ECE5882</a> Advanced electronic design	<a href="#">ENG5005</a> Research methods		
<b>YEAR 3</b> Semester 2	<a href="#">ENG5105</a> Integrated design	<a href="#">ECE5122</a> Advanced electromagnetics	<a href="#">ENG5006</a> Research practice		

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


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### E6011 Master of Professional Engineering – 3 years program [Entry level 1]

#### Specialisation – Materials engineering

<b>YEAR 1</b> Semester 1	<b>MTE2102</b> Phase equilibria and phase transformations	<b>MTE2103</b> Mechanical properties of materials	<b>ENG5001</b> Advanced data analytics for engineers	<b>ENG5100</b> Professional engineer in organisation and society <small>This unit is offered in both Semester 1 and Semester 2</small>	<b>ENG0003</b> Continuous Professional Development
<b>YEAR 1</b> Semester 2	<b>MTE3104</b> Electronic and photonic materials <small>(Sem 1 offering)</small> or <b>MTE2201</b> Plastics and the planet: Health, impact and sustainability <small>(Sem 2 offering)</small>	<b>MTE3202</b> Magnetic and spintronic materials	<b>MTE3203</b> Introduction to ceramics: Properties, processing and applications	<b>MTE4596</b> Biomaterials 2	
<b>YEAR 2</b> Semester 1	<b>MTE5882</b> Advanced polymeric materials	<b>MTE3102</b> Plasticity of metals and alloys	<b>MTE4102</b> Advanced materials processing and manufacturing	Materials engineering enhancement units Complete 4 units (24 points):  <b>CHE5883</b> Nanostructured membranes for separation and energy production <b>CHE5886</b> Advanced biopolymers <b>CHE5888</b> Sustainability and innovation <b>ENG5008</b> Industry experience <b>MEC5884</b> Sustainable engineering systems <b>MEC5885</b> Energy efficiency and sustainability engineering <b>MEC5891</b> Design for additive manufacturing <b>MEC5897</b> Lean manufacturing <b>MTE5190</b> Advanced materials modelling <b>MTE5193</b> Materials and sustainability <b>MTE5194</b> Engineering alloy design, processing and selection <b>MTE5197</b> Engineering with nanomaterials <b>MON5750</b> Monash Innovation Guarantee	
<b>YEAR 2</b> Semester 2	<b>MTE5885</b> Biomaterials and biomechanics	<b>MTE5883</b> Environmental durability and protection of metals and engineering materials	<b>MTE5881</b> Applied crystallography in advanced materials characterisation		
<b>YEAR 3</b> Semester 1	<b>MTE5887</b> Additive manufacturing of polymeric and functional materials	<b>MTE5884</b> Advanced photovoltaics and energy storage	<b>ENG5005</b> Research methods		
<b>YEAR 3</b> Semester 2	<b>ENG5105</b> Integrated design	<b>MTE5886</b> Additive manufacturing of metallic materials	<b>ENG5006</b> Research practice		

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### E6011 Master of Professional Engineering – 3 years program [Entry level 1]

#### Specialisation – Mechanical engineering

<b>YEAR 1</b> Semester 1	MMA2001 Design 1	MMA2002 Solid mechanics 1	ENG5001 Advanced data analytics for engineers	ENG5100 Professional engineer in organisation and society <small>This unit is offered in both Semester 1 and Semester 2</small>	ENG0003 Continuous Professional Development
<b>YEAR 1</b> Semester 2	MMA2003 Thermofluids 1	MMA2004 Dynamics 1	MMA2005 Modelling and control	MEC3416 Mechanical design 2	
<b>YEAR 2</b> Semester 1	MEC5883 Mechanical systems design	MEC3451 Fluid mechanics 2	MEC4408 Thermodynamics 2 and heat transfer	Mechanical engineering enhancement units Complete 4 units (24 points):  ENG5002 Engineering entrepreneurship ENG5008 Industry experience ENG5331 Railway engineering MEC5891 Design for additive manufacturing MEC5897 Lean manufacturing MTE5193 Materials and sustainability MTE5882 Advanced polymeric materials MTE5883 Environmental durability and protection of metals and engineering materials MTE5884 Advanced photovoltaics and energy storage MTE5885 Biomaterials and biomechanics MTE5886 Additive manufacturing of metallic materials MTE5887 Additive manufacturing of polymeric and functional materials MON5750 Monash Innovation Guarantee	
<b>YEAR 2</b> Semester 2	MEC5881 Engineering systems performance analysis	MEC5888 Renewable energy systems	MEC5156 Advanced robotics in manufacturing		
<b>YEAR 3</b> Semester 1	MEC5882 Instrumentation, sensing and monitoring	MEC5885 Energy efficiency and sustainability engineering	ENG5005 Research methods		
<b>YEAR 3</b> Semester 2	ENG5105 Integrated design	MEC5884 Sustainable engineering systems	ENG5006 Research practice		

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