

Course progression map for 2027 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: 1 October 2026

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

Specialisation – Chemical engineering

Bioprocessing and food engineering stream

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

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

Please contact [Course Advisers](#) for enrolment advice.

Continuous Professional Development (CPD)

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Specialisation – Chemical engineering

Engineering design stream

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

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Chemical engineering enhancement units

ENG5002 Engineering entrepreneurship	MEC5888 Renewable energy systems
CHE5883 Nanostructured membranes for separation and energy production	MTE5882 Advanced polymeric materials
CHE5886 Advanced biopolymers	MTE5887 Additive manufacturing of polymeric and functional materials
ENG5008 Industry experience	MON5750 Monash Innovation Guarantee

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Specialisation – Civil Engineering

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

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Specialisation – Electrical engineering

YEAR 1 Semester 1	ECE2131 Electrical circuits	ECE3141 Information and networks	ECE3051 Electrical energy systems	ENG5001 Advanced data analytics for engineers	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	ECE2072 Digital systems	ECE3121 Engineering electromagnetics	ECE2111 Signals and systems	ECE3133 Control systems	
YEAR 2 Semester 1	ECE5883 Advanced signal processing	ECE5145 Network performance or ECE5143 Optical communications	ENG5100 Professional engineer in organisation and society This unit is offered in both Semester 1 and Semester 2	Electrical engineering enhancement units Complete 4 units (24 points): ECE5143 Optical communications ECE5145 Network performance ECE5146 Multimedia technologies ECE5153 Power system analysis ECE5156 Grid integration of renewable energy resources ECE5176 Computer vision ECE5178 Intelligent robotics ECE5179 Neural networks and deep learning ENG5008 Industry experience MEC5882 Instrumentation, sensing and monitoring MTE5884 Advanced photovoltaics and energy storage MON5750 Monash Innovation Guarantee	
YEAR 2 Semester 2	ECE3161 Analogue electronics	ECE5884 Wireless communications	ECE5886 Smart grids		
YEAR 3 Semester 1	ECE5155 Power electronic converters for modern power systems	ECE5882 Advanced electronic design	ENG5005 Research methods		
YEAR 3 Semester 2	ENG5105 Integrated design	ECE5122 Advanced electromagnetics	ENG5006 Research practice		

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Specialisation – Materials engineering

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

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Specialisation – Mechanical engineering

YEAR 1 Semester 1	MMA2001 Design 1	MMA2002 Solid mechanics 1	ENG5001 Advanced data analytics for engineers	ENG5100 Professional engineer in organisation and society This unit is offered in both Semester 1 and Semester 2	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	MMA2003 Thermofluids 1	MMA2004 Dynamics 1	MMA2005 Modelling and control	MEC3416 Mechanical design 2	
YEAR 2 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	
YEAR 2 Semester 2	MEC5881 Engineering systems performance analysis	MEC5888 Renewable energy systems	MEC5156 Advanced robotics in manufacturing		
YEAR 3 Semester 1	MEC5882 Instrumentation, sensing and monitoring	MEC5885 Energy efficiency and sustainability engineering	ENG5005 Research methods		
YEAR 3 Semester 2	ENG5105 Integrated design	MEC5884 Sustainable engineering systems	ENG5006 Research practice		

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