MONASH University

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: 26 May 2025

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

Engineering management enhancement units	Engineering management specialist core units
• CHE5888 Sustainability and innovation • CIV5302 Traffic engineering and management • CIV5304 Intelligent transport systems Replace with CIV5305 from 2024 • CIV5884 Water sensitive stormwater design • CIV5899 Infrastructure information management • ENG5008 Industry experience * • MEC5885 Energy efficiency and sustainability • MTE5883 Environmental durability and protection of metals and engineering materials • MTE5884 Advanced photovoltaics and energy storage	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 Value creation and start-up capital optimisation for founders • BEX5120 Startup fundamentals: From setting up to securing investment • BEX5411 Creativity and entrepreneurship • BEX5413 Technology and innovation for start-ups Project management • OPM5000 Organising the project function Replace with ENG5220 from 2025 • OPM5001 Project as a social system Replace with ENG5221 from 2025 • OPM5901 Managing the project context Replace with MGF5901 from 2025 • OPM5903 Delivering projects Replace with MGF5903 from 2025

** 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 - Biological engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5200 Engineering project risk management	CHE5886 Advanced biopolymers	CHE5321 Advanced bioprocess technology
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	CHE5882 Biomass and biorefineries	CHE5322 Advanced biochemical engineering

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 • CHE5889 Food engineering and processing • ENG5008 Industry experience * • 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 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

Civil engineering enhancement units	Civil engineering specialist core 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 • ENE5043 Quantifying sustainability in urban systems • ENE5044 AI applications for civil and environmental engineers • ENG5002 Engineering entrepreneurship • ENG5008 Industry experience * • 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	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 • CIV5304 Intelligent transport systems Replace with CIV5305 from 2024 • 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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Course progression map for 2023 commencing students

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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 From 2025: Replace with ECE5122 * (Semester 2 offering)	ECE5883 Advanced signal processing
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	ECE5882 Advanced electronics design Semester 1 offering from 2025	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 Industry experience ** • 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

* ***ECE5122:*** *If you have not completed ECE5881 by 2024, replace it with ECE5122 from 2025. If you have completed ECE5122 as an enhancement unit before 2025 or if you need a Semester 1 unit to complete your course on time, you may substitute it with another unit from the enhancement list.*

** ***ENG5008*** *is industry experience 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

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	Materials engineering specialist core units
• CHE5883 Nanostructured membranes for separation and energy production • ENG5008 Industry experience * • 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	• 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 • MTE5885 Biomaterials and biomechanics • MTE5886 Additive manufacturing of metallic materials • MTE5887 Additive manufacturing of polymeric and functional materials

** 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 - Mechanical engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5200 Engineering project risk management	MEC5883 Mechanical systems design	MEC5885 Energy efficiency and sustainability engineering
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	MEC5881 Engineering systems performance and analysis	MEC5884 Sustainable engineering systems

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

Mechanical engineering enhancement units
• ENG5002 Engineering entrepreneurship • ENG5008 Industry experience * • 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

** 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.*