MONASH University

Course progression map for 2020 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. This map is subject to updates. Update version: Update version: 23 September 2021

E6011 Master of Professional Engineering

Specialisation – Chemical engineering

Food engineering stream

YEAR 1 Semester 1	CHE5110 Advanced thermodynamics	CHE5881 Advanced reaction engineering	ENG5100 Professional engineer in organisation and society	**Chemical engineering enhancement units** **(Complete 24 points):** ENG5002 Engineering entrepreneurship *(Replacing CHE5002 from 2021)* CHE5883 Nanostructured membranes for separation and energy production CHE5886 Advanced biopolymers CHE5887 Lean bioproduct manufacturing ENG5008 Work integrated learning MEC5888 Renewable energy systems MTE5882 Advanced polymeric materials MTE5887 Additive manufacturing of polymeric and functional materials	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CHE5112 Advanced fluid dynamics	CHE5889 Food engineering and processing	CHE5113 Advanced separation processes		
YEAR 2 Semester 1	CHE5884 Process modelling and optimisation	ENG5001 Advanced engineering data analysis	ENG5005 Research methods		
YEAR 2 Semester 2	ENG5105 Integrated design	CHE5888 Sustainability and innovation	ENG5006 Research practice		

Bioprocessing engineering stream

YEAR 1 Semester 1	CHE5110 Advanced thermodynamics	CHE5881 Advanced reaction engineering	ENG5100 Professional engineer in organisation and society	**Chemical engineering enhancement units** **(Complete 24 points):** ENG5002 Engineering entrepreneurship *(Replacing CHE5002 from 2021)* CHE5883 Nanostructured membranes for separation and energy production CHE5886 Advanced biopolymers CHE5887 Lean bioproduct manufacturing CHE5889 Food engineering and processing ENG5008 Work integrated learning MEC5888 Renewable energy systems MTE5882 Advanced polymeric materials MTE5887 Additive manufacturing of polymeric and functional materials	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CHE5112 Advanced fluid dynamics	CHE5888 Sustainability and innovation	CHE5113 Advanced separation processes		
YEAR 2 Semester 1	CHE5884 Process modelling and optimisation	ENG5001 Advanced engineering data analysis	ENG5005 Research methods		
YEAR 2 Semester 2	ENG5105 Integrated design	CHE5882 Biomass and biorefineries	ENG5006 Research practice		

Part A. Engineering specialisation knowledge and application
Part B. Enhancement learning
Part C. Research and knowledge skills
Part D. Professional practice

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Engineering design stream

YEAR 1 Semester 1	CHE5110 Advanced thermodynamics	CHE5881 Advanced reaction engineering	ENG5100 Professional engineer in organisation and society	**Chemical engineering enhancement units** **(Complete 24 points):** ENG5002 Engineering entrepreneurship *(Replacing CHE5002 from 2021)* CHE5883 Nanostructured membranes for separation and energy production CHE5886 Advanced biopolymers CHE5887 Lean bioproduct manufacturing CHE5889 Food engineering and processing ENG5008 Work integrated learning MEC5888 Renewable energy systems MTE5882 Advanced polymeric materials MTE5887 Additive manufacturing of polymeric and functional materials	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CHE5112 Advanced fluid dynamics	CHE5888 Sustainability and innovation	CHE5113 Advanced separation processes		
YEAR 2 Semester 1	CHE5884 Process modelling and optimisation	ENG5001 Advanced engineering data analysis	ENG5005 Research methods		
YEAR 2 Semester 2	ENG5106 Integrated design project (12 points)		ENG5006 Research practice		

Part A. Engineering specialisation knowledge and application
Part B. Enhancement learning
Part C. Research and knowledge skills
Part D. Professional practice

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Continuous Professional Development (CPD)

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E6011 Master of Professional Engineering

Specialisation – Civil Engineering

Geomechanics stream

YEAR 1 Semester 1	CIV5170 Bridge design and assessment	CIV5178 Water treatment Unit title change from 2022	ENG5100 Professional engineer in organisation and society	CIV5886 Infrastructure geomechanics	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CIV5147 Advanced geomechanics	CIV5121 Building structures and technology	CIV5177 Road engineering Unit title change from 2022	CIV5148 Ground hazards engineering	
YEAR 2 Semester 1	ENG5008 Work integrated learning *or* CIV5899 Infrastructure information management	ENG5001 Advanced engineering data analysis	ENG5005 Research methods	CIV5885 Infrastructure dynamics	
YEAR 2 Semester 2	ENG5105 Integrated design	CIV5888 Advanced computational methods	ENG5006 Research practice	CIV5149 Foundation engineering	

Structure stream

YEAR 1 Semester 1	CIV5170 Bridge design and assessment	CIV5178 Water treatment Unit title change from 2022	ENG5100 Professional engineer in organisation and society	CIV5134 Advanced structural analysis Replace with CIV5899 from 2023	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CIV5147 Advanced geomechanics	CIV5121 Building structures and technology	CIV5177 Road engineering Unit title change from 2022	CIV5135 Advanced structural design Replace with CIV5136 from 2023	
YEAR 2 Semester 1	ENG5008 Work integrated learning *or* CIV5899 Infrastructure information management Replace with ENG5200 from 2023	ENG5001 Advanced engineering data analysis	ENG5005 Research methods	CIV5885 Infrastructure dynamics	
YEAR 2 Semester 2	ENG5105 Integrated design	CIV5888 Advanced computational methods	ENG5006 Research practice	CIV5887 Infrastructure rehabilitation and monitoring	

Part A. Engineering specialisation knowledge and application
Part B. Enhancement learning
Part C. Research and knowledge skills
Part D. Professional practice

Source: *Monash University 2020 Handbook - CRICOS Provider Number: 00008C*

MONASH University

Course progression map for 2020 commencing students

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Transport stream

YEAR 1 Semester 1	CIV5170 Bridge design and assessment	CIV5178 Water treatment Unit title change from 2022	ENG5100 Professional engineer in organisation and society	CIV5302 Traffic engineering and management	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CIV5147 Advanced geomechanics	CIV5121 Building structures and technology	CIV5177 Road engineering Unit title change from 2022	CIV5304 Intelligent transport systems	
YEAR 2 Semester 1	ENG5008 Work integrated learning *or* CIV5899 Infrastructure information management Replace with ENG5200 from 2023	ENG5001 Advanced engineering data analysis	ENG5005 Research methods	CIV5301 Advanced traffic engineering Replace with CIV5899 from 2023	
YEAR 2 Semester 2	ENG5105 Integrated design	CIV5888 Advanced computational methods	ENG5006 Research practice	CIV5314 Planning urban transport systems	

Water stream

YEAR 1 Semester 1	CIV5170 Bridge design and assessment	CIV5178 Water treatment Unit title change from 2022	ENG5100 Professional engineer in organisation and society	CIV5881 Ground water hydraulics Replace with CIV5899 from 2023	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	CIV5147 Advanced geomechanics	CIV5121 Building structures and technology	CIV5177 Road engineering Unit title change from 2022	CIV5882 Flood hydraulics and hydrology	
YEAR 2 Semester 1	ENG5008 Work integrated learning *or* CIV5899 Infrastructure information management Replace with ENG5200 from 2023	ENG5001 Advanced engineering data analysis	ENG5005 Research methods	CIV5884 Water sensitive stormwater design	
YEAR 2 Semester 2	ENG5105 Integrated design	CIV5888 Advanced computational methods	ENG5006 Research practice	CIV5883 Surface water hydrology	

Part A. Engineering specialisation knowledge and application
Part B. Enhancement learning
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MONASH University

Course progression map for 2020 commencing students

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E6011 Master of Professional Engineering

Specialisation – Electrical engineering

YEAR 1 Semester 1	ECE5883 Advanced signal processing	ENG5001 Advanced engineering data analysis	ENG5100 Professional engineer in organisation and society	**Electrical engineering enhancement units** **(Complete 24 points):** ECE5143 Optical communications; ECE5145 Network performance; ECE5153 Power system analysis; ECE5155 Power electronic converters; ECE5156 Advanced power electronics; ECE5176 Computer vision; ECE5178 Intelligent robotics; ECE5179 Neural networks and deep learning; ENG5008 Work integrated learning; MEC5882 Instrumentation, sensing and monitoring; MTE5884 Advanced photovoltaics and energy storage	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	ECE5122 Advanced electromagnetics	ECE5146 Multimedia technologies	ECE5886 Smart grids		
YEAR 2 Semester 1	ECE5881 Real-time system design	ENG5005 Research methods	Enhancement unit		
YEAR 2 Semester 2	ENG5105 Integrated design	ENG5006 Research practice	ECE5882 Advanced electronic design	ECE5884 Wireless communications	

Part A. Engineering specialisation knowledge and application
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Source: *Monash University 2020 Handbook - CRICOS Provider Number: 00008C*

MONASH University

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E6011 Master of Professional Engineering

Specialisation – Materials engineering

YEAR 1 Semester 1	MTE5884 Advanced photovoltaics and energy storage	ENG5001 Advanced engineering data analysis	ENG5100 Professional engineer in organisation and society	**Materials engineering enhancement units** **(Complete 24 points):** CHE5883 Nanostructured membranes for separation and energy production; ENG5008 Work integrated learning; MEC5885 Energy efficiency and sustainability engineering; MEC5891 Design for additive manufacturing; MTE5190 Advanced materials modelling; MTE5193 Materials and sustainability; MTE5194 Engineering alloy design, processing and selection; MTE5887 Additive manufacturing of polymeric and functional materials *(This unit cannot be taken as an enhancement unit from 2023)*	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	MTE5197 Engineering with nanomaterials Replace with MTE5887 from 2023	MTE5883 Environmental durability and protection of metals and engineering materials	MTE5881 Applied crystallography in advanced materials characterisation		
YEAR 2 Semester 1	MTE5885 Biomaterials and biomechanics	MTE5882 Advanced polymeric materials	ENG5005 Research methods		
YEAR 2 Semester 2	ENG5105 Integrated design	MTE5886 Additive manufacturing of metallic materials	ENG5006 Research practice		

Part A. Engineering specialisation knowledge and application
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E6011 Master of Professional Engineering

Specialisation – Mechanical engineering

YEAR 1 Semester 1	MEC5883 Mechanical systems design	ENG5001 Advanced engineering data analysis	ENG5100 Professional engineer in organisation and society	**Mechanical engineering enhancement units** **(Complete 24 points):** ENG5002 Engineering entrepreneurship; ENG5008 Work integrated learning; MEC5882 Instrumentation, sensing and monitoring; MEC5889 Medical device technologies; MEC5891 Design for additive manufacturing; MEC5897 Lean manufacturing; MTE5883 Environmental durability and protection of metals and engineering materials; MTE5885 Biomaterials and biomechanics; MTE5886 Additive manufacturing of metallic materials; MTE5887 Additive manufacturing of polymeric and functional materials	ENG0003 Continuous Professional Development
YEAR 1 Semester 2	MEC5881 Engineering systems performance analysis	MEC5888 Renewable energy systems	MEC5156 Advanced robotics in manufacturing		
YEAR 2 Semester 1	MEC5882 Instrumentation, sensing and monitoring	MEC5885 Energy efficiency and sustainability engineering	ENG5005 Research methods		
YEAR 2 Semester 2	ENG5105 Integrated design	MEC5884 Sustainable engineering systems	ENG5006 Research practice		

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