

Course progression map for 2021 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 does not substitute for the list of required units as described in the course 'Requirements' section of the [Handbook](#). Update version: 26 November 2020

E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Common first year

If no foundation units are required:					
Year	Sem	Units			
1	1	ENG1001 Engineering design: lighter, faster, stronger	ENG1005 Engineering mathematics	ENG1060 Computing for engineers	Arts major
	2	ENG1002 Engineering design: cleaner, safer, smarter	ENG1003 Engineering mobile apps	First Year engineering elective unit	Arts major

Tip: You can swap the semester of your engineering elective and your semester 1 Arts unit.

If you need to enrol in foundation physics and maths*:					
1	1	ENG1002 Engineering design: cleaner, safer, smarter	PHS1001 Foundation physics	ENG1090 Foundation mathematics	Arts major
	2	ENG1001 Engineering design: lighter, faster, stronger	ENG1005 Engineering mathematics	ENG1060 Computing for engineers	Arts major

- If you are requiring two foundation units, you will need to take the remaining core unit [ENG1003](#) Engineering mobile apps in semester one of year two as an overload, and increase the total credit points needed for the double by 6 points. You cannot swap the semesters of any of the units.
- If you want to complete Software Engineering, you must complete [ENG1003](#) Engineering mobile apps in Year 1 (Semester 1) and [ENG1001](#) Engineering design: Lighter, faster, stronger in Year 2 (Semester 1) as an overload.

If you need to enrol in foundation maths:					
1	1	ENG1002 Engineering design: cleaner, safer, smarter	ENG1003 Engineering mobile apps	ENG1090 Foundation mathematics	Arts major
	2	ENG1001 Engineering design: lighter, faster, stronger	ENG1005 Engineering mathematics	ENG1060 Computing for engineers	Arts major

Tip: You can swap the semester of [ENG1003](#) and your semester 2 Arts unit.

If you need to enrol in foundation physics:					
1	1	ENG1002 Engineering design: cleaner, safer, smarter	ENG1003 Engineering mobile apps	PHS1001 Foundation physics	Arts major
	2	ENG1001 Engineering design: lighter, faster, stronger	ENG1005 Engineering mathematics	ENG1060 Computing for engineers	Arts major

Tip: You can swap the semester of [ENG1003](#) and your semester 2 Arts unit.

Note:

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Aerospace engineering

	Bachelor of Aerospace Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year				
Year 1 Semester 2					
Year 2 Semester 1	ENG2005 Advanced engineering mathematics	MAE2412 Aerospace design	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	MAE2404 Aerodynamics 1	MAE2402 Thermodynamics and gas dynamics	Arts elective	Arts major	
Year 3 Semester 1	MAE2401 Aerospace structures and materials	MAE3401 Aerodynamics 2	Arts elective	Arts major	
Year 3 Semester 2	MAE2505 Aerospace dynamics	MAE3405 Aerospace propulsion	Arts elective	Arts major	
Year 4 Semester 1	MAE3456 Aerospace computational mechanics	MAE3404 Flight vehicle dynamics	Arts Professional Futures	Arts major	
Year 4 Semester 2	MAE3411 Aerospace structural mechanics	MAE3408 Aerospace control	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	MEC4401 Final year project	MAE4410 Flight vehicle design	MAE4416 Orbital mechanics and spaceflight dynamics	Arts major	
Year 5 Semester 2	MEC4402 Final year – thesis	MAE4404 Aerospace practices and airworthiness	MAE4426 Finite element analysis and composite materials	Arts Professional Futures	

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Chemical engineering

	Bachelor of Chemical Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year			Arts major	
Year 1 Semester 2				Arts major	
Year 2 Semester 1	CHM1011 Chemistry 1 (if not already completed at level 1) or CHM1051 Chemistry 1 Advanced	ENG2005 Advanced engineering mathematics	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	CHE2162 Material and energy balances	CHE2161 Mechanics of fluids	Arts elective	Arts major	
Year 3 Semester 1	CHE2164 Thermodynamics 1	CHE3167 Transport phenomena and numerical methods	Arts elective	Arts major	
Year 3 Semester 2	CHE2163 Heat and mass transfer	CHE3162 Process control	Arts elective	Arts major	
Year 4 Semester 1	CHE3161 Chemistry and chemical thermodynamics	CHE3165 Separation processes	Arts Professional Futures	Arts major	
Year 4 Semester 2	CHE3166 Process design	CHE3164 Reaction engineering	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	CHE4164 Integrated industrial project (18 points) For selected students taking a period of integrated industrial training in the first semester of their final year. This will replace the three core units below [CHE4181, CHE4182 and CHE4161]			Arts Professional Futures	ENG0001 Continuous Professional Development (0 credit points)
	OR				
Year 5 Semester 1	CHE4181 Chemical engineering project A	CHE4162 Particle technology	CHE4161 Engineer in society	Arts Professional Futures	
Year 5 Semester 2	CHE4182 Chemical engineering project B	CHE4170 Design project (12 points)		Arts major	

Note:

- If you choose CHE4164 and depending on placement location, you may have to overload a semester or extend an additional semester in order to complete your course requirement.
- You should not overload in the semester of undertaking CHE4170.
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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Civil engineering

	Bachelor of Civil Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year				Arts major
Year 1 Semester 2					Arts major
Year 2 Semester 1	CIV2282 Transport and traffic engineering	CIV2206 Structural mechanics	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	ENG2005 Advanced engineering mathematics	CIV2235 Structural materials	Arts elective	Arts major	
Year 3 Semester 1	CIV2263 Water systems	CIV3294 Structural design	Arts elective	Arts major	
Year 3 Semester 2	CIV2242 Geomechanics 1	CIV3204 Engineering investigation	Arts elective	Arts major	
Year 4 Semester 1	CIV3248 Groundwater and environmental geomechanics	CIV3285 Engineering hydrology	Arts Professional Futures	Arts major	
Year 4 Semester 2	CIV3247 Geomechanics 2	CIV3221 Building structures and technology	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	CIV4210 Project A	CIV4286 Project management for civil engineers	CIV4280 Bridge design and assessment	Arts major	
Year 5 Semester 2	CIV4212 Civil engineering practice 4	CIV4287 Road engineering	CIV4288 Water treatment	Arts Professional Futures	

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Electrical and computer systems engineering

	Bachelor of Electrical and Computer Systems Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year				
Year 1 Semester 2					
Year 2 Semester 1	ENG2005 Advanced engineering mathematics	ECE2071 Computer organisation and programming	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	ECE2072 Digital systems (if not already taken at level one)	ECE2191 Probability models in engineering	Arts elective	Arts major	
Year 3 Semester 1	ECE2131 Electrical circuits	ECE3073 Computer systems	Arts elective	Arts major	
Year 3 Semester 2	ECE2111 Signals and systems	ECE3121 Engineering electromagnetics	Arts elective	Arts major	
Year 4 Semester 1	ECE3161 Analogue electronics	ECE3141 Information and networks	Arts Professional Futures	Arts major	
Year 4 Semester 2	ECE3091 Engineering design	Level four ECSE technical elective	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	ECE4094 Project A	ECE3051 Electrical energy systems	Level four ECSE technical elective	Arts major	
Year 5 Semester 2	ECE4095 Project B	ECE4132 Control system design	ECE4099 Professional practice	Arts Professional Futures	

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Environmental engineering

	Bachelor of Environmental Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year				
Year 1 Semester 2					
Year 2 Semester 1	BTX3100 Sustainability regulation for business	ENE2021 Energy and the environment	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	ENG2005 Advanced engineering mathematics	CHE2162 Material and energy balances	Arts elective	Arts major	
Year 3 Semester 1	ENE3031 Building sustainability <i>(offered in 2020)</i>	CIV2263 Water systems	Arts elective	Arts major	
Year 3 Semester 2	CHE2164 Thermodynamics 1 <i>*Unit offering changed to Sem 1 from 2020</i>	ENE2503 Materials properties and recycling	Arts elective	Arts major	
Year 4 Semester 1	CIV3248 Groundwater and environmental geomechanics	CIV3285 Engineering hydrology	Arts Professional Futures	Arts major	
Year 4 Semester 2	ENE3032 Fate and transport of contaminants	ENE3606 The air environment	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	CIV4286 Project management for civil engineers	Level four environmental engineering technical elective	ENE4042 Environment impact and risk assessment	Arts major	ENG0001 Continuous Professional Development (0 credit points)
Year 5 Semester 2	ENE4041 Soil remediation and solid waste management <i>(offered in 2021)</i>	CIV4212 Civil and environmental engineering practice	CIV4210 Project A	Arts Professional Futures	

Note:

- The Sustainable processing stream is not available in a double degree as it requires extra prerequisites in the elective space.
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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Materials engineering

	Bachelor of Materials Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year			Arts major	
Year 1 Semester 2				Arts major	
Year 2 Semester 1	MTE2101 Atomic-scale structure of materials	MTE2102 Phase equilibria and phase transformations	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	MTE2202 Functional materials 1	ENG2005 Advanced engineering mathematics	Arts elective	Arts major	
Year 3 Semester 1	MTE2103 Mechanical properties of materials	MTE3103 Materials life-cycle	Arts elective	Arts major	
Year 3 Semester 2	MTE2201 Polymers	MTE3202 Functional materials 2	Arts elective	Arts major	
Year 4 Semester 1	MTE3101 Materials in a complex world 1: Data and modelling	MTE3102 Structural materials	Arts Professional Futures	Arts major	
Year 4 Semester 2	MTE3201 Materials in a complex world 2: Characterisation, identification and selection	MTE3203 Ceramics	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	MTE4101 Materials in a complex world 3: Design, build and create	MTE4525 Project 1	MTE4102 Advanced materials processing and manufacturing	Arts major	ENG0001 Continuous Professional Development (0 credit points)
Year 5 Semester 2	MTE4201 Materials in a complex world 4: Impact in society	MTE4526 Project 2	Level four (or above) materials technical elective	Arts Professional Futures	

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Mechanical engineering

	Bachelor of Mechanical Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year				Arts major
Year 1 Semester 2					Arts major
Year 2 Semester 1	MEC2403 Mechanics of materials	MEC2401 Dynamics 1	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1003 Engineering mobile apps
Year 2 Semester 2	ENG2005 Advanced engineering mathematics	MEC2404 Mechanics of fluids	Arts elective	Arts major	
Year 3 Semester 1	MEC2402 Design methods	MEC3456 Engineering computational mechanics	Arts elective	Arts major	
Year 3 Semester 2	MEC2405 Thermodynamics	MEC3457 Systems and control	Arts elective	Arts major	
Year 4 Semester 1	MEC3455 Solid mechanics	MEC3451 Fluid mechanics 2	Arts Professional Futures	Arts major	
Year 4 Semester 2	MEC3416 Machine design	MEC3453 Dynamics 2	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	MEC4408 Thermodynamics and heat transfer	MEC4401 Final year project	MEC4404 Professional practice	Arts major	ENG0001 Continuous Professional Development (0 credit points)
Year 5 Semester 2	MEC4426 Computer-aided design	MEC4402 Final year project – Thesis	MEC4407 Design project	Arts Professional Futures	

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation – Robotics and Mechatronics engineering

	Bachelor of Robotics and Mechatronics Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year			Arts major	
Year 1 Semester 2				Arts major	
Year 2 Semester 1	ECE2071 Computer organisation and programming	ECE2131 Electrical circuits	Arts elective	Arts major	
Year 2 Semester 2	ENG2005 Advanced engineering mathematics	TRC2201 Mechanics	Arts elective	Arts major	
Year 3 Semester 1	MEC2402 Design methods	TRC3200 Dynamical systems	Arts elective	Arts major	
Year 3 Semester 2	ECE2072 Digital systems	Automation stream TRC4802 Thermo-fluids and power systems Artificial intelligence stream ECE4179 Neural networks and deep learning	Arts elective	Arts major	
Year 4 Semester 1	TRC3500 Sensors and artificial perception	ECE3161 Analogue electronics	Arts Professional Futures	Arts major	
Year 4 Semester 2	TRC3600 Modelling and control	Automation stream TRC3000 Automation project Artificial intelligence stream ECE3091 Engineering design	Arts Professional Futures	Arts Professional Futures	

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Year 5 Semester 1	TRC4000 Robotics and mechatronics final year project 1	TRC4800 Robotics	Automation stream TRC4200 Engineering cyber-physical systems Artificial intelligence stream ECE4076 Computer vision	Arts major	ENG0001 Continuous Professional Development (0 credit points)
Year 5 Semester 2	TRC4001 Robotics and mechatronics final year project 2	Automation stream TRC4902 Mechatronics and manufacturing Artificial intelligence stream ECE4078 Intelligent robotics	TRC4002 Professional practice	Arts Professional Futures	

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E3002 Bachelor of Engineering (Honours) and Bachelor of Arts

Specialisation - Software engineering

	Bachelor of Software Engineering (Honours)		Bachelor of Arts		
Year 1 Semester 1	Common first year				Arts major
Year 1 Semester 2					Arts major
Year 2 Semester 1	MAT1830 Discrete mathematics for computer science	FIT2085 Introduction to computer science	Arts elective	Arts major	If two foundation units are required then overload is required for ENG1001 Engineering design: lighter, faster, stronger
Year 2 Semester 2	FIT2004 Algorithms and data structures	FIT2101 Software engineering process and management	Arts elective	Arts major	
Year 3 Semester 1	FIT2099 Object oriented design and implementation	FIT3159 Computer architecture	Arts elective	Arts major	
Year 3 Semester 2	FIT2107 Software quality and testing	FIT2100 Operating systems	Arts elective	Arts major	
Year 4 Semester 1	FIT3170 Software engineering practice (12 points)	FIT3077 Software engineering: architecture and design	Arts Professional Futures	Arts major	
Year 4 Semester 2		FIT3171 Databases	Arts Professional Futures	Arts Professional Futures	
Year 5 Semester 1	FIT4002 Software engineering industry experience studio project (12 points)	FIT4165 Computer networks	Level four software engineering technical elective	Arts major	ENG0001 Continuous Professional Development (0 credit points)
Year 5 Semester 2		FIT4003 Software engineering research project (12 points)		Arts Professional Futures	

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