

## CHECKLIST Bachelor of Engineering (Honours) – Civil Engineering Specialisation: Transition to new program (commencing 2024)

\* This checklist is for the BE(Hons) component ONLY for dual programs with Bachelor of Computer Science

### Important Notes:

- The information contained in this document is intended as general advice only. Students must follow the program rules & requirements listed on the [Programs and Courses Website](#) relevant to the year they commence. This planner must be used in conjunction with your program duration course list and program rules.
- Students need to check future course offerings, prerequisites, incompatibilities and restrictions for all courses as these are subject to change.
- Students cannot take courses that are incompatible with courses already counted towards their program, and cannot count the same course twice.
- Please view the Bachelor of Computer Science transition checklist for the requirements for the BCompSc Core, BCompSc Major and No Major Options

For the BE(Hons) component, with a specialisation in Civil Engineering:

(a) 60 units from the BE(Hons) component, comprising—

- I. 8 units for all [BE\(Hons\) Core Courses](#); and
- II. 36 units for one [Specialisation in Civil Engineering](#); and
- III. One of the following:

- a. 16 units for one Major from Civil Engineering Major Options\*, or  
\*Majors available in: [Environmental Engineering](#); [Geotechnical Engineering](#); [Mining Engineering](#); [Structural Engineering](#); [Transport Engineering](#); [Water and Marine Engineering](#)
- b. 16 units for Civil Engineering Specialisation [No Major option](#)

✓/X compl.	BE(Hons) Core Courses (8 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>8 units for all Core Courses</b>						
	<b>ENGG1100</b> Professional Engineering	1,2	2		Course must be completed [ENGG1211 (4 units) will count as 2 units towards Part A in lieu of ENGG1100, and 2 units towards program electives]	
	<b>ENGG1001</b> Programming for Engineers or <b>CSSE1001</b> Introduction to Software Engineering	1,2 1,2	2 2		Course must be completed	
	<b>MATH1051</b> Calculus and Linear Algebra I or <b>MATH1071</b> Advanced Calculus & Linear Algebra I	1,2 1	2 2		Course must be completed	
	<b>MATH1052</b> Multivariate Calculus & Ordinary Differential Equations or <b>MATH1072</b> Advanced Multivariate Calculus & Ordinary Differential Equations	1,2 2	2 2		Course must be completed	

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## Specialisation in Civil Engineering

Complete 36 units comprising:

- i. 28 units for all [Civil Engineering Compulsory Courses](#), and
- ii. 2 to 4 units from [Civil Engineering Research Courses](#), and
- iii. 2 to 4 units from [Civil Engineering Advanced Elective Courses](#), and
- iv. 2 units from [BE\(Hons\) Program Elective Courses](#)

✓/X compl.	Civil Engineering Specialisation (36 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>28 units for all Compulsory Courses</b>						
	<b>ENGG1700</b> Statics and Materials	1,2	2		<b>ENGG1400</b> Engineering Mechanics: Statics and Dynamics (discontinued)	<b>2/20</b>
	<b>CIVL2131</b> Environmental Fluid Mechanics	1	2		Course must be completed	
	<b>CIVL2135</b> Environmental Engineering: An Introduction for Civil Engineers	1	2		<b>CIVL2135</b> Environmental Issues and Sustainability in Engineering	
	<b>CIVL2210</b> Soil Mechanics	2	2		Course must be completed	
	<b>CIVL2330</b> Structural Mechanics	1	2		Course must be completed	
	<b>CIVL2420</b> Fundamentals of Transport Engineering	2	2		<b>CIVL2410</b> Sustainable Transport Engineering - Traffic Analysis (discontinued)	<b>1/21</b>
	<b>CIVL2530</b> Statistics and Data Analysis	1	2		<b>CIVL2530</b> Probability and Statistics in Engineering	
	<b>CIVL3155</b> Hydrology and Free Surface Flows	2	2		<b>CIVL3141</b> Hydrology and Hydrological Risk (discontinued) and <b>CIVL3140</b> Hydraulics of Engineered and Natural Waterways (discontinued)  <b>[Both courses are required to have been completed to exempt students from CIVL3155; therefore 2 units will count as a Compulsory Course and 2 units will count towards Civil Engineering Advanced Electives]</b>	<b>2/21</b>  <b>1/21</b>
	<b>CIVL3210</b> Geotechnical Engineering	1	2		Course must be completed	
	<b>CIVL3360</b> Reinforced Concrete Design	2	2		<b>CIVL2360</b> Design of Concrete Structures (discontinued)	<b>2/21</b>
	<b>CIVL3520</b> Project Management and Professional Practice	2	2		<b>CIVL3510</b> Project Management with Building Information Modelling (discontinued) OR <b>ENGG4900</b> Professional Practice and the Business Environment (discontinued)	<b>2/22</b>  <b>2/23</b>
	<b>CIVL3530</b> Data Analytics in Civil Engineering	1	2		Course must be completed	
	<b>CIVL4170</b> Risk Analysis in Civil Engineering	1	2		Course must be completed	
	<b>CIVL4518</b> Integrated Design for the Built Environment (NEW) OR <b>CIVL4516</b> Integrated Design for Environmental Management	2 2	2	<b>2/24</b>	<b>CIVL4514</b> Integrated Design (discontinued) OR <b>CIVL4516</b> Integrated Design for the Natural Environment <b>If both courses are completed, 2 units will count as a Compulsory Course and 2 units will count towards Civil Engineering Advanced Electives</b>	<b>1/23</b>

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2 to 4 units from Civil Engineering Research Courses						
	CIVL4600 Research Project	1,2	2		CIVL4560 Project (discontinued)	2/22
	CIVL4604 Research Thesis or CIVL4606 Research Thesis	1 2	4 4	1/23 2/23	CIVL4580 Research Thesis (discontinued) OR CIVL4583 Research Thesis (discontinued) OR CIVL4582 Research Thesis (discontinued) OR CIVL4584 Research Thesis (discontinued)	2/20 2/22 1/21 1/23

[2 to 4 units from Civil Engineering Advanced Elective Courses](#)

2 units from BE(Hons) Program Elective Courses

### Civil Engineering No Major Option

Complete 16 units comprising:

- i. 8 to 16 units from [Civil Engineering Advanced Elective Courses](#), and
- ii. 0 to 8 units from [Civil Engineering Breadth Elective Courses](#), and
- iii. 0 to 4 units from [BE\(Hons\) Program Elective Courses](#), and
- iv. 0 to 4 units from [General Elective Courses](#)

✓/x compl.	Civil Engineering No Major (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	<a href="#">8 to 16 units from Civil Engineering Advanced Elective Courses</a>					

0 to 8 units from Civil Engineering Breadth Elective Courses						
	<b>MATH2001</b> Calculus and Linear Algebra II	1,2	2		<b>MATH2000</b> Calculus and Linear Algebra II (discontinued)	2/20
	<p><b>Civil Engineering Breadth Electives</b> can also be chosen from course lists for the following majors:</p> <ul style="list-style-type: none"> <li>o <a href="#">Environmental Engineering</a></li> <li>o <a href="#">Geotechnical Engineering</a></li> <li>o <a href="#">Mining Engineering</a></li> <li>o <a href="#">Structural Engineering</a></li> <li>o <a href="#">Transport Engineering</a></li> <li>o <a href="#">Water and Marine Engineering</a></li> </ul> <p><i>Courses on this list may require pre-requisites. Please seek academic advice if required.</i></p>					

0 to 4 units from BE(Hons) Program Elective Courses
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0 to 4 units from General Elective Courses
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## Environmental Engineering Major Option

Complete 16 units comprising:

- i. 8 units for all [Environmental Engineering Compulsory Courses](#), and
- ii. 4 to 8 units from [Environmental Engineering Elective Courses](#), and
- iii. 0 to 4 units from [Environmental Engineering Research Elective Courses](#), and
- iv. 0 to 4 units from [Environmental Engineering Breadth Elective Courses](#), and
- v. 0 to 4 units from [Chemical Engineering Advanced Elective Courses](#), and
- vi. 0 to 4 units from [Civil Engineering Advanced Elective Courses](#)

✓/X compl.	Major in Environmental Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>8 units for all Environmental Engineering Compulsory Courses</b>						
	<b>ENVE2501</b> Environmental Systems	2	2		<b>CHEE2501</b> Environmental Systems Engineering I: Processes (discontinued)	<b>2/20</b>
	<b>ENVE3150</b> Environmental System Dynamics and Modelling	2	2		<b>CIVL3150</b> Modelling of Environmental Systems (discontinued)	<b>2/20</b>
	<b>ENVE3160</b> Environmental Phenomena	1	2		Course must be completed	
	<b>ENVE4610</b> Engineering the Circular Economy	1	2	<b>1/24</b>	Course must be completed	

<b>4 to 8 units from Environmental Engineering Elective Courses</b>						
	<b>CIVL3430</b> Sustainable Transport Engineering	1	2	<b>1/24</b>	<b>CIVL3420</b> Sustainable Transport Engineering – Planning and Design (discontinued)	<b>1/23</b>
	<b>CIVL4145</b> Groundwater Modelling and Management	2	2		<b>CIVL4140</b> Contaminant Transport Modelling (discontinued)	<b>1/21</b>
	<b>CIVL4525</b> Sustainable Infrastructure Design	2	2		<b>CIVL4180</b> Sustainable Built Environment (discontinued)	<b>1/20</b>
	<b>CIVL6111</b> Ocean, Coastal and Estuarine Engineering	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * <b>CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both</b>	<b>2/21</b>
	<b>CIVL6112</b> Hydro and Marine Power Renewable Energy Systems	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * <b>CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both</b>	<b>2/21</b>
	<b>CIVL6121</b> Environmental Hydraulics and Flood Management	1	2		<b>CIVL4120</b> Advanced Hydraulic Engineering and Structures (discontinued)	<b>2/20</b>
	<b>ENGY4000</b> Energy Systems	1	2		No substitution	
	<b>ENVM3103</b> Regulatory Frameworks for Environmental Management and Planning	1	2		No substitution	
	<b>WATR6103</b> Advanced Wastewater and Biosolids Treatment	2	2		<b>CHEE4012</b> Industrial Wastewater & Solid Waste Management (discontinued)	<b>2/22</b>
	<b>WATR6105</b> Integrated Urban Water Management	1	2		<b>WATR7105</b> Integrated Urban Water Management (discontinued)	<b>1/20</b>

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	<b>WATR6106</b> Emerging Issues in the Urban Water Cycle and Public Water	2	2		<b>WATR7106</b> Emerging Issues in the Urban Water Cycle and Public Water (discontinued)	<b>1/20</b>
	<b>WATR6108</b> Advanced Unit Operations in Water Management	1	2		<b>WATR7108</b> Advanced Unit Operations in Water Management (discontinued)	<b>1/20</b>
	<b>WATR6109</b> Drinking Water Supply: Source, Treatment and Distribution	1	2		<b>WATR7109</b> Drinking Water Supply: Source, Treatment and Distribution (discontinued)	<b>1/20</b>

## 0 to 4 units from Environmental Engineering Research Elective Courses

	<b>CHEE4006</b> Research Project	1	2		<b>CHEE4006</b> Individual Inquiry	
	<b>CHEE4007</b> Research Project	2	2		<b>CHEE4007</b> Individual Inquiry	
	<b>CHEE4026</b> Research Thesis OR <b>CHEE4027</b> Research Thesis	1 2	4 4		<b>CHEE4026</b> Thesis Project OR <b>CHEE4027</b> Thesis Project	

## 0 to 4 units from Environmental Engineering Breadth Elective Courses

	<b>CIVL2135</b> Introduction to Environmental Engineering	1	2		<b>CIVL2135</b> Environmental Issues and Sustainability in Engineering	
	<b>ENVM2100</b> Sustainable Development	2	2		<b>ENVM2100</b> Sustainable Development	
	<b>ENVM3201</b> Catchment Processes and Management	1	2		No substitution	
	<b>ERTH1501</b> Earth Processes and Geological Materials for Engineers	1	2		No substitution	
	<b>ERTH2004</b> Structural Geology	2	2		No substitution	
	<b>ERTH3250</b> Groundwater Processes and Resources	2	2		<b>ERTH3250</b> Hydrogeology	
	<b>GEOM1000</b> Fundamentals of Geographic Information and Technologies	2	2		No substitution	
	<b>GEOM2001</b> Geographical Information Systems	1	2		No substitution	
	<b>GEOS1100</b> Environment and Society	1,2	2		No substitution	
	<b>GEOS2100</b> Environmental Systems	1	2		No substitution	
	<b>GEOS3102</b> Global Change: Problems and Prospects	2	2		No substitution	

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0 to 4 units from Chemical Engineering Advanced Elective Courses						
	<b>BIOE3001</b> Quantitative Methods in Biomedical Engineering	2	2		No substitution	
	<b>BIOE4020</b> Bioprocess Engineering	1	2		<b>CHEE4020</b> Bioprocess Engineering (discontinued)	1/21
	<b>BIOE4305</b> Biomaterials: Materials in Medicine	2	2		<b>CHEE4305</b> Biomaterials: Materials in Medicine (discontinued)	2/20
	<b>BIOE6028</b> Metabolic Engineering	2	2		<b>CHEE4028</b> Metabolic Engineering (discontinued)	2/20
	<b>BIOE6034</b> Cell and Tissue Engineering	1	2		<b>CHEE4034</b> Cell & Tissue Engineering (discontinued)	1/20
	<b>CHEE3008</b> Special Topics C	1,2	2		No substitution	
	<b>CHEE3301</b> Polymer Engineering	1	2		No substitution	
	<b>CHEE4003</b> Special Topics A	2	2		No substitution	
	<b>CHEE4009</b> Transport Phenomena	1	2		No substitution	
	<b>ENGY4000</b> Energy Systems	1	2		No substitution	
	<b>ENVE3150</b> Environmental Systems Dynamics and Modelling	2	2		<b>CIVL3150</b> Modelling of Environmental Systems (discontinued)	2/20
	<b>ENVE3160</b> Environmental Phenomena	1	2		No substitution	
	<b>ENVE4610</b> Engineering the Circular Economy	1	2	1/24	No substitution	
	<b>MATE4302</b> Electrochemistry and Corrosion	2	2		<b>CHEE4302</b> Electrochemistry & Corrosion (discontinued)	2/20
	<b>MATE6301</b> Nanomaterials	2	2		<b>CHEE4301</b> Nanomaterials (discontinued)	2/20
	<b>MECH4304</b> Net Shape Manufacturing	1	2		No substitution	
	<b>METL3219</b> Process Mineralogy and Comminution	1	2		<b>MINE3219</b> Process Mineralogy and Comminution (discontinued)	1/21
	<b>METL3220</b> Physical Separations and Interfacial Engineering	2	2		No substitution	
	<b>METL6204</b> Hydrometallurgy and Electrometallurgy	1	2		<b>MINE4204</b> Aqueous Solution Processing & Electrometallurgy (discontinued)	1/21
	<b>METL6212</b> Pyrometallurgy	1	2		<b>MINE3212</b> Pyrometallurgy (discontinued)	2/21
	<b>WATR6103</b> Advanced Wastewater and Biosolids Treatment <b>MECH4304</b> Net Shape Manufacturing	21	22		<b>CHEE4012</b> Industrial Wastewater & Solid Waste Management (discontinued) No substitution	2/22

[0 to 4 units from Civil Engineering Advanced Elective Courses](#)

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### Geotechnical Engineering Major Option

Complete 16 units comprising:

- i. 8 units for all [Geotechnical Engineering Compulsory Courses](#), and
- ii. 2 to 8 units from [Geotechnical Engineering Elective Courses](#), and
- iii. 0 to 4 units from [Geotechnical Engineering Breadth Elective Courses](#), and
- iv. 0 to 4 units from [Civil Engineering Advanced Elective Courses](#)

✓/X compl.	Major in Geotechnical Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>8 units for all Geotechnical Engineering Compulsory Courses</b>						
	<b>CIVL3220</b> Rock Mechanics	2	2		<b>MINE3121</b> Mining Geomechanics (discontinued)	<b>1/22</b>
	<b>CIVL4230</b> Advanced Soil Mechanics	2	2		Course must be completed	
	<b>CIVL4270</b> Geotechnical Investigations	1	2		Course must be completed	
	<b>CIVL6215</b> Ground Improvement	1	2		Course must be completed	

<b>2 to 8 units from Geotechnical Engineering Elective Courses</b>						
	<b>CIVL4280</b> Applied Rock Mechanics	2	2		No substitution	
	<b>CIVL6210</b> Dam Engineering	2	2		No substitution	
	<b>CIVL6220</b> Mine Waste Management	1	2		<b>MINE4000</b> Mine Waste Management & Landform Design (discontinued)	<b>1/22</b>
	<b>CIVL6250</b> Underground Structures	2	2	<b>2/24</b>	No substitution	

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0 to 4 units from Geotechnical Engineering Breadth Elective Courses						
	<b>CIVL4460</b> Highway Geometric Design	2	2		No substitution	
	<b>CIVL4340</b> Wind Engineering	1	2		No substitution	
	<b>CIVL4525</b> Sustainable Infrastructure Design	2	2		<b>CIVL4180</b> Sustainable Built Environment (discontinued)	<b>1/20</b>
	<b>CIVL6111</b> Ocean, Coastal and Estuarine Engineering	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * <b>CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both</b>	<b>2/21</b>
	<b>CIVL6112</b> Hydro and Marine Power Renewable Energy Systems	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * <b>CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both</b>	<b>2/21</b>
	<b>CIVL6121</b> Environmental Hydraulics and Flood Management	1	2		<b>CIVL4120</b> Advanced Hydraulic Engineering and Structures (discontinued)	<b>2/20</b>
	<b>ERTH3250</b> Groundwater Processes and Resources	1	2		No substitution	
	<b>FIRE3700</b> Introduction to Fire Safety Engineering	1	2		No substitution	
	<b>MINE3129</b> Applied Mining Geomechanics	1	2		No substitution	

[0 to 4 units from Civil Engineering Advanced Elective Courses](#)

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**Mining Engineering Major Option**

Complete 16 units comprising:

- i. 12 units for all [Mining Engineering Compulsory Courses](#), and
- ii. 4 units from [Mining Engineering Courses for Civil Engineers](#)

✓/X compl.	Major in Mining Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>12 units for Mining Engineering Compulsory Courses</b>						
	<b>MINE3110</b> Integrated Orebody Knowledge	2	2		<b>MINE3120</b> Resource Estimation (discontinued)	<b>1/22</b>
	<b>MINE3122</b> Mining Systems and Automation	2	2		<b>MINE3122</b> Mining Systems	
	<b>MINE3123</b> Mine Planning and Sustainability	1	2		<b>MINE3123</b> Mine Planning	
	<b>MINE3129</b> Applied Mining Geomechanics	1			<b>MINE3121</b> Mining Geomechanics (discontinued) OR <b>MINE4120</b> Mine Geotechnical Engineering (discontinued)	<b>1/22</b> <b>1/23</b>
	<b>MINE4124</b> Mine Design and Feasibility	2	2		<b>MINE4124</b> Hard Rock Mine Design & Feasibility	
	<b>MINE4129</b> Mine Process Optimisation	2	2		<b>MINE3125</b> Explosives and Blasting Engineering (discontinued)	<b>2/22</b>

[4 units for Mining Engineering Courses for Civil Engineers only](#)

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### Structural Engineering Major Option

Complete 16 units comprising:

- i. 10 units for all [Structural Engineering Compulsory Courses](#), and
- ii. 4 to 6 units from [Structural Engineering Elective Courses](#), and
- iii. 0 to 2 units from [Civil Engineering Advanced Elective Courses](#)

✓/X compl.	Major in Structural Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>10 units for all Structural Engineering Compulsory Courses</b>						
	<b>CIVL3340</b> Structural Analysis	1	2		Course must be completed	
	<b>CIVL3380</b> Structural and Steel Design	1	2		<b>CIVL2340</b> Design of Steel Structures (discontinued)	2/22
	<b>CIVL3390</b> Integrated Structural Design	2	2		<b>CIVL3350</b> Integrated Structural Design (discontinued)	2/22
	<b>CIVL4333</b> Advanced Concrete Design	1	2		Course must be completed	
	<b>CIVL4334</b> Design of Timber Structures	2	2		Course must be completed	

<b>4 to 6 units from Structural Engineering Elective Courses</b>						
	<b>CIVL4230</b> Advanced Soil Mechanics	2	2		No substitution	
	<b>CIVL4340</b> Wind Engineering	1	2		No substitution	
	<b>CIVL4522</b> Analytical methods for the Design of Construction Operations	2	2		No substitution	
	<b>CIVL4525</b> Sustainable Infrastructure Design	2	2		<b>CIVL4180</b> Sustainable Built Environment (discontinued)	1/20
	<b>CIVL6360</b> Advanced Structural Analysis	2	2		<b>CIVL4332</b> Advanced Structural Analysis (discontinued)	2/22
	<b>FIRE4610</b> Fire Engineering Design: Solutions for Implicit Safety	1	2		No substitution	

[0 to 2 units from Civil Engineering Advanced Elective Courses](#)

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**Transport Engineering Major Option**

Complete 16 units comprising:

- i. 10 units for all [Transport Engineering Compulsory Courses](#), and
- ii. 6 units from [Civil Engineering Advanced Elective Courses](#)

✓/X compl.	Major in Transport Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
10 units for all Transport Engineering Compulsory Courses						
	<b>CIVL3430</b> Sustainable Transport Engineering	1	2	1/24	<b>CIVL3420</b> Sustainable Transport Engineering – Planning and Design (discontinued)	1/23
	<b>CIVL4450</b> Traffic Flow Theory and Emerging Technologies	2	2		Course must be completed	
	<b>CIVL4460</b> Highway Geometric Design	2	2		Course must be completed	
	<b>CIVL6410</b> Transport Network Modelling	1	2		Course must be completed	
	<b>CIVL6415</b> Traffic Analysis and Simulation	2	2		Course must be completed	

[6 units from Civil Engineering Advanced Elective Courses](#)

## Water and Marine Engineering Major Option

Complete 16 units comprising:

- i. 8 units for all [Water and Marine Engineering Compulsory Courses](#), and
- ii. 4 to 8 units from [Water and Marine Engineering Elective Courses](#), and
- iii. 0 to 4 units from [Civil Engineering Advanced Elective Courses](#)

✓/X compl.	Major in Water and Marine Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>8 units for all Water and Marine Engineering Compulsory Courses</b>						
	<b>CIVL4340</b> Wind Engineering	1	2		<b>CIVL4120</b> Advanced Hydraulic Engineering and Structures (discontinued)	<b>2/20</b>
	<b>CIVL6111</b> Ocean, Coastal and Estuarine Engineering	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both	<b>2/21</b>
	<b>CIVL6112</b> Hydro and Marine Power Renewable Energy Systems	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both	<b>2/21</b>
	<b>CIVL6121</b> Environmental Hydraulics and Flood Management	1	2		<b>CIVL4120</b> Advanced Hydraulic Engineering and Structures (discontinued)	<b>2/20</b>

<b>4 to 8 units from Water and Marine Engineering Elective Courses</b>						
	<b>CIVL3430</b> Sustainable Transport Engineering	1	2	<b>1/24</b>	<b>CIVL3420</b> Sustainable Transport Engineering – Planning and Design (discontinued)	<b>1/23</b>
	<b>CIVL4145</b> Groundwater Modelling and Management	2	2		<b>CIVL4140</b> Contaminant Transport Modelling (discontinued)	<b>1/21</b>
	<b>CIVL4525</b> Sustainable Infrastructure Design	2	2		<b>CIVL4180</b> Sustainable Built Environment (discontinued)	<b>1/20</b>
	<b>CIVL6210</b> Dam Engineering	2	2		No substitution	
	<b>ENVE3150</b> Environmental Systems Dynamics and Modelling	2	2		<b>CIVL3150</b> Modelling of Environmental System (discontinued)	<b>2/20</b>
	<b>ENVE3160</b> Environmental Phenomena	1	2		No substitution	
	<b>ENVM3103</b> Regulatory Frameworks for Environmental Management and Planning	1	2		No substitution	
	<b>ENVM3115</b> Climate Change and Environmental Management	1	2		No substitution	
	<b>ENVM3201</b> Catchment Processes and Management	1	2		No substitution	
	<b>ERTH3250</b> Groundwater Processes and Resources	1	2		No substitution	
	<b>WATR6105</b> Integrated Urban Water Management	1	2		<b>WATR7105</b> Integrated Urban Water Management (discontinued)	<b>1/20</b>

[0 to 4 units from Civil Engineering Advanced Elective Courses](#)

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Civil Engineering Advanced Elective Courses						
	<b>CIVL3220</b> Rock Mechanics	2	2		<b>MINE3121</b> Mining Geomechanics (discontinued)	<b>1/22</b>
	<b>CIVL3340</b> Structural Analysis	1	2		No substitution	
	<b>CIVL3380</b> Structural Steel Design	1	2		<b>CIVL2340</b> Design of Steel Structures (discontinued)	<b>2/22</b>
	<b>CIVL3390</b> Integrated Structural Design	2	2		<b>CIVL3350</b> Integrated Structural Design (discontinued)	<b>2/22</b>
	<b>CIVL3430</b> Sustainable Transport Engineering	1	2	<b>1/24</b>	<b>CIVL3420</b> Sustainable Transport Engineering – Planning and Design (discontinued)	<b>1/23</b>
	<b>CIVL4145</b> Groundwater Modelling and Management	2	2		<b>CIVL4140</b> Contaminant Transport Modelling (discontinued)	<b>1/21</b>
	<b>CIVL4230</b> Advanced Soil Mechanics	2	2		No substitution	
	<b>CIVL4270</b> Geotechnical Investigation	1	2		<b>CIVL4270</b> Geotechnical Investigation & Testing	
	<b>CIVL4280</b> Applied Rock Mechanics	2	2		No substitution	
	<b>CIVL4333</b> Advanced Concrete Design	1	2		No substitution	
	<b>CIVL4334</b> Design of Timber Structures	2	2		No substitution	
	<b>CIVL4340</b> Wind Engineering	1	2		No substitution	
	<b>CIVL4450</b> Traffic Flow Theory and Emerging Technologies	2	2		No substitution	
	<b>CIVL4460</b> Highway Geometric Design	2	2		No substitution	
	<b>CIVL4522</b> Analytical Methods for the Design of Construction Operations	2	2		No substitution	
	<b>CIVL4525</b> Sustainable Infrastructure Design	1	2		<b>CIVL4180</b> Sustainable Built Environment (discontinued)	<b>1/20</b>
	<b>CIVL6111</b> Ocean, Coastal and Estuarine Engineering	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both	<b>2/21</b>
	<b>CIVL6112</b> Hydro and Marine Power Renewable Energy Systems	2	2		<b>CIVL4110</b> Coastal & Estuarine Engineering (discontinued) * CIVL4110 may only be used as approved substitution for CIVL6111 OR CIVL6112 – not both	<b>2/21</b>
	<b>CIVL6121</b> Environmental Hydraulics and Flood Management	1	2		<b>CIVL4120</b> Advanced Hydraulic Engineering and Structures (discontinued)	<b>2/20</b>
	<b>CIVL6210</b> Dam Engineering	2	2		No substitution	
	<b>CIVL6215</b> Ground Improvement	1	2		No substitution	
	<b>CIVL6220</b> Mine Waste Management	1	2		<b>MINE4000</b> Mine Waste Management & Landform Design (discontinued)	<b>2/22</b>

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	<b>CIVL6250</b> Underground Structures	2	2	<b>2/24</b>	No substitution	
	<b>CIVL6360</b> Advanced Structural Analysis	2	2		<b>CIVL4332</b> Advanced Structural Analysis (discontinued)	<b>2/22</b>
	<b>CIVL6410</b> Transport Network Modelling	1	2		No substitution	
	<b>CIVL6415</b> Traffic Analysis and Simulation	2	2		No substitution	
	<b>ENVE3150</b> Environmental System Dynamics and Modelling	2	2		<b>CIVL3150</b> Modelling of Environmental Systems (discontinued)	<b>2/20</b>
	<b>ENVE3160</b> Environmental Phenomena	1	2		No substitution	
	<b>ENVE4610</b> Engineering the Circular Economy	1	2	<b>1/24</b>	No substitution	
	<b>FIRE3700</b> Introduction to Fire Safety Engineering	1	2		No substitution	
	<b>FIRE4610</b> Fire Engineering Design: Solutions for Implicit Safety	1	2		No substitution	

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