

## CHECKLIST Bachelor of Engineering (Honours) – Mechatronic 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 Mechatronic 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 Mechatronic Engineering](#); and
- III. One of the following:
  - a. 16 units for one Major from Mechatronic Engineering Major Options\*, or  
\*Majors available in: [Computer Engineering](#); [Mining Engineering](#)
  - b. 16 units for Mechatronic 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	2		Course must be completed	
	<b>MATH1051</b> Calculus & Linear Algebra I or <b>MATH1071</b> Advanced Calculus & Linear Algebra I	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		Course must be completed	

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## Specialisation in Mechatronic Engineering

Complete 36 units comprising:

- i. 36 units for all [Mechatronic Engineering Compulsory Courses](#)

✓/X compl.	Mechatronic Engineering Specialisation (36 units)	Sem offering	#	First offered	Approved substitution	Last offered
36 units for all Mechatronic Engineering Compulsory Courses						
	<b>CSSE2010</b> Introduction to Computer Systems	1,2	2		Course must be completed	
	<b>ELEC2004</b> Circuits, Signals and Systems	2	2		Course must be completed	
	<b>ELEC2300</b> Electromagnetism and Electromechanics	1	2		<b>ELEC2003 Electromechanics &amp; Electronics (discontinued).</b>	<b>1/21</b>
	<b>ENGG1300</b> Introduction to Electrical Systems	1,2	2		Course must be completed	
	<b>ENGG1700</b> Statics & Materials	1,2	2		<b>ENGG1400 Engineering Mechanics: Statics &amp; Dynamics (discontinued)</b>	<b>2/20</b>
	<b>MATH2001</b> Calculus & Linear Algebra II	1,2,5	2		<b>MATH2001</b> Advanced Calculus & Linear Algebra II	
	<b>MATH2010</b> Analysis of Ordinary Differential Equations (1) and <b>STAT2201</b> Probability Models and Data Analysis for Engineering (1)	1,2 1,2	1 1		<b>STAT2202 Probability Models for Engineering &amp; Science (discontinued)</b>	<b>2/20</b>
	<b>MECH2100</b> Machine Element Design	2	2		Course must be completed	
	<b>MECH2210</b> Intermediate Mechanical and Space Dynamics	2	2		Course must be completed	
	<b>MECH2300</b> Structures and Materials	1	2		Course must be completed	
	<b>METR2800</b> Mechatronic System Design Project I	2	2		Course must be completed	
	<b>METR3100</b> Control Systems Implementation	2	2		Course must be completed	
	<b>METR4201</b> Control Engineering I	1	2		Course must be completed	
	<b>METR4202</b> Robotics & Automation	2	2		Course must be completed	
	<b>METR4911</b> Thesis/Design Project or <b>METR4912</b> Thesis/Design Project	1 2	4 4		<b>METR4900/METR4901 Thesis/Design Project (4) (discontinued)</b>	<b>1/20</b>
	<b>ENGG4901</b> Professional Practice and the Business Environment A Or <b>ENGG4902</b> Professional Practice and the Business Environment B	1 2	2 2	1/24	<b>ENGG4900 Professional Practice and the Business Environment (discontinued)</b>	<b>2/23</b>

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## Mechatronic Engineering No Major Option

Complete 16 units comprising:

- i. 8 units for all [Mechatronic Engineering Extension Courses](#); and
- ii. 4 to 8 units from [Mechatronic Engineering Advanced Elective Courses](#); and
- iii. 0 to 4 units from any [Mechatronic Engineering Breadth Elective Courses](#); and
- iv. 0 to 4 units from [BE\(Hons\) Program Elective Courses](#); and
- v. 0 to 4 units from [General Elective Courses](#).

✓/x compl.	Mechatronic Engineering No Major (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>8 units for all Mechatronic Engineering Extension Courses</b>						
	<b>ELEC2400</b> Electronic Circuits and Amplifiers	1	2		<b>ELEC3400</b> Electronic Circuits (discontinued)	<b>1/21</b>
	<b>ELEC3004</b> Signals, Systems & Control	1	2		Course must be completed	
	<b>MECH3200</b> Advanced Dynamics & Vibrations	2	2		Course must be completed	
	<b>METR6203</b> Control Engineering 2	1	2		<b>METR7203</b> Control Engineering 2 (discontinued)	<b>1/20</b>

<b>4 to 8 units from Mechatronic Engineering Advanced Elective Courses</b>						
	<b>AERO4300</b> Aerospace Composites	2	2		No substitution	
	<b>AERO4450</b> Aerospace Propulsion	1	2		No substitution	
	<b>AERO4470</b> Hypersonics	1	2		No substitution	
	<b>AERO4800</b> Space Engineering	2	2		No substitution	
	<b>COMP3702</b> Artificial Intelligence	2	2		No substitution	
	<b>COMP3710</b> Pattern Recognition and Analysis	2	2		No substitution	
	<b>COMP4702</b> Machine Learning	1	2		No substitution	
	<b>CSSE3010</b> Embedded Systems Design & Interfacing	1	2		No substitution	
	<b>CSSE4010</b> Digital System Design	1	2		No substitution	
	<b>CSSE4011</b> Advanced Embedded Systems	1	2		No substitution	
	<b>ELEC3100</b> Fundamentals of Electromagnetic Fields & Waves	2	2		No substitution	

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<b>ELEC3310</b> Electrical Energy Conversion & Utilisation	2	2		<b>ELEC3300</b> Electrical Energy Conversion & Utilisation (discontinued)	<b>2/20</b>
<b>ELEC4310</b> Power Systems Analysis	1	2		<b>ELEC4300</b> Power Systems Analysis (discontinued)	<b>1/20</b>
<b>ELEC4410</b> Advanced Electronic and Power Electronics Design	2	2		No substitution	
<b>ELEC4620</b> Digital Signal Processing	2	2		No substitution	
<b>ELEC4630</b> Image Processing and Computer Vision	1	2		No substitution	
<b>ENGG4103</b> Engineering Asset Management	1	2		No substitution	
<b>ENGY4000</b> Energy Systems	1	2		No substitution	
<b>MECH3301</b> Materials Selection	2	2		No substitution	
<b>MECH3250</b> Engineering Acoustics	2	2		No substitution	
<b>MECH4304</b> Net Shape Manufacturing	1	2		No substitution	
<b>MECH4950</b> Advanced Manufacturing in Practice	2	2		No substitution	
<b>MECH4951</b> Special Topics D	1	1		No substitution	
<b>TIMS3309</b> Technology and Innovation Management	2	2		No substitution	

**0 to 4 units from Mechatronic Engineering Breadth Elective Courses**

<p>Mechatronic Engineering Breadth Electives can be chosen from course lists for the following majors:</p> <ul style="list-style-type: none"> <li>○ <a href="#">Computer Engineering</a></li> <li>○ <a href="#">Mining Engineering</a></li> </ul> <p><i>Courses on this list may require pre-requisites. Please seek academic advice if required.</i></p>					
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**0 to 4 units from BE(Hons) Program Elective Courses**

**0 to 4 units from General Elective Courses**

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## Computer Engineering Major Option

Complete 16 units comprising:

- i. 12 units for all [Computer Engineering Courses for Mechatronic Engineers](#), and
- ii. 4 units for all [Computer Engineering Compulsory Courses](#), and
- iii. 0 to 8 units from [Computer Engineering Elective Courses](#)

✓/x compl.	Major in Computer Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>4 units for Computer Engineering Courses for Mechatronic Engineers <u>only</u></b>						
	<b>COMP3506</b> Algorithms & Data Structures	2	2		Course must be completed	
	<b>CSSE2002</b> Programming in the Large	1,2	2		Course must be completed	
	<b>CSSE2310</b> Computer Systems Principles and Programming	1,2	2		Course must be completed	
	<b>CSSE3010</b> Embedded Systems Design & Interfacing	1	2		Course must be completed	
	<b>ELEC3004</b> Signals, Systems & Control	1	2		Course must be completed	
	<b>MECH3200</b> Advanced Dynamics & Vibrations	2	2		Course must be completed	
<b>4 units for Computer Engineering Compulsory Courses</b>						
	<b>CSSE4010</b> Digital System Design	2	2		Course must be completed	
	<b>CSSE4011</b> Advanced Embedded Systems	1	2		Course must be completed	
<b>0 to 8 units from Computer Engineering Elective Courses</b>						
	<b>COMP2140</b> Web/Mobile Programming	2	2		No substitution	
	<b>COMP3301</b> Operating Systems Architecture	2	2		No substitution	
	<b>COMP3702</b> Artificial Intelligence	2	2		No substitution	
	<b>COMP3710</b> Pattern Recognition and Analysis	2	2		No substitution	
	<b>COMP4403</b> Compilers and Interpreters	1	2		No substitution	
	<b>COMP4500</b> Advanced Algorithms & Data Structures	2	2		No substitution	
	<b>COMP4702</b> Machine Learning	1	2		No substitution	
	<b>CYBR3000</b> Information Security	2	2		<b>COMS3000</b> Information Security (discontinued)	<b>2/20</b>

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	<b>COMS3200</b> Computer Networks I	1	2		No substitution	
	<b>COMS4113</b> Photonics	1	2		<b>COMS4103</b> Photonics (discontinued)	<b>1/20</b>
	<b>COMS4104</b> Microwave Engineering	1	2		No substitution	
	<b>COMS4105</b> Communication Systems	2	2		No substitution	
	<b>COMS4507</b> Advanced Topics in Security	1	2		No substitution	
	<b>COMS6200</b> Computer Networks II	1	2		<b>COMS4200</b> Computer Networks II (discontinued)	<b>1/21</b>
	<b>COSC3500</b> High Performance Computing	2	2		No substitution	
	<b>CSSE3012</b> The Software Process	1	2		<b>CSSE3002</b> The Software Process (discontinued)	<b>1/20</b>
	<b>CSSE3100</b> Reasoning About Programs	1	2		No substitution	
	<b>CSSE3200</b> Project Design Testing and Evaluation	2	2		<b>DECO2800</b> Design Computing Studio 2 - Testing & Evaluation (discontinued)	<b>2/22</b>
	<b>CSSE4630</b> Principles of Program Analysis	2	2		No substitution	
	<b>CSSE6400</b> Software Architecture	1	2		No substitution	
	<b>DECO1400</b> Introduction to Web Design	1	2		No substitution	
	<b>DECO2500</b> Human-Computer Interaction	1	2		No substitution	
	<b>ELEC3310</b> Electrical Energy Conversion & Utilisation	2	2		<b>ELEC3300</b> Electrical Energy Conversion & Utilisation (discontinued)	<b>2/20</b>
	<b>ELEC4310</b> Power Systems Analysis	1	2		<b>ELEC4300</b> Power Systems Analysis (discontinued)	<b>1/20</b>
	<b>ELEC4620</b> Digital Signal Processing	2	2		No substitution	
	<b>ELEC4630</b> Image Processing and Computer Vision	1	2		No substitution	
	<b>ENGG2800</b> Team Project I	1,2	2		No substitution	
	<b>ENGG3800</b> Team Project II	2	2		No substitution	
	<b>ENGG4800</b> Project Management	1	2		No substitution	
	<b>INFS1200</b> Introduction to Information Systems	1,2	2		No substitution	
	<b>INFS2200</b> Relational Database Systems	2	2		No substitution	
	<b>MATH1061</b> Discrete Mathematics	1,2	2		No substitution	
	<b>METR3100</b> Control System Implementation	1	2		No substitution	

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	<b>METR4202</b> Robotics & Automation	2	2		No substitution	
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### Mining Engineering Major Option

Complete 16 units comprising:

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

✓/x compl.	Major in Mining Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
<b>4 units for Mining Engineering Courses for Mechatronic Engineers only</b>						
	<b>ELEC3004</b> Signals, Systems & Control	1	2		Course must be completed	
	<b>MECH3200</b> Advanced Dynamics & Vibrations	2	2		Course must be completed	

<b>12 units for Mining Engineering Compulsory Courses</b>						
	<b>MINE3110</b> Integrated Orebody Knowledge	2	2	<b>2/23</b>	<b>MINE3120</b> Resource Estimation (discontinued)	<b>1/22</b>
	<b>MINE3122</b> Mining Systems & Automation	1	2		<b>MINE3122</b> Mining Systems (renamed)	
	<b>MINE3123</b> Mine Planning & Sustainability	2	2		<b>MINE3123</b> Mine Planning	
	<b>MINE3129</b> Applied Mining Geomechanics	1	2	<b>1/23</b>	<b>MINE4120</b> Mine Geotechnical Engineering (discontinued)	<b>1/22</b>
	<b>MINE4124</b> Mine Design, Feasibility and Sustainability	1	2		<b>MINE4124</b> Hard Rock Mine Design & Feasibility	
	<b>MINE4129</b> Mine Process Optimisation	2	2	<b>2/23</b>	<b>MINE3125</b> Explosives and Blasting Engineering (discontinued)	<b>2/22</b>

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