CHECKLIST Bachelor of Engineering (Honours) – Mechanical Engineering: 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 Mechanical 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 Mechanical Engineering; and

III. One of the following:

a. 16 units for one Major from Mechanical Engineering Major Options*, or
*Majors available in: Aerospace Engineering; Biomedical Engineering; Materials Engineering; Mining Engineering

b. 16 units for Mechanical Engineering Specialisation No Major option

✓/X compl.	BE(Hons) Core Courses (8 units)	Sem offering	#	First offered	Approved substitution	Last offered
	8 units for all Core Courses					
	ENGG1100 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]	
	ENGG1001 Programming for Engineers **or** **CSSE1001** Introduction to Software Engineering	1,2	2		Course must be completed	
	MATH1051 Calculus & Linear Algebra I **or** **MATH1071** Advanced Calculus & Linear Algebra I	1,2	2		Course must be completed	
	MATH1052 Multivariate Calculus & Ordinary Differential Equations **or** **MATH1072** Advanced Multivariate Calculus & Ordinary Differential Equations	1,2	2		Course must be completed	

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Specialisation in Mechanical Engineering

Complete 36 units comprising:

i. 32 units for all Mechanical Engineering Compulsory Courses, and

ii. 4 units from Mechanical Engineering Research Courses

✓/x compl.	Specialisation Mechanical Engineering (36 units)	Sem offering	#	First offered	Approved substitution	Last offered
	32 units for all Mechanical Engineering Compulsory Courses					
	ENGG1300 Introduction to Electrical Systems	1,2	2		Course must be completed	
	ENGG1500 Thermodynamics: Energy and the Environment	1,2	2		**ENGG1500** Engineering Thermodynamics	
	ENGG1700 Statics & Materials	1,2	2		**ENGG1400** Engineering Mechanics: Statics & Dynamics (discontinued)	**2/20**
	MATH2001 Calculus & Linear Algebra II	1,2	2		**MATH2001** Advanced Calculus & Linear Algebra II **MATH2000** Calculus & Linear Algebra II	
	MATH2010 Analysis of Ordinary Differential Equations (1) and **STAT2201** Probability Models and Data Analysis for Engineering (1)	1,2 1,2	1		Course must be completed	
	MECH2100 Machine Element Design	2	2		Course must be completed	
	MECH2210 Intermediate Mechanical and Space Dynamics	2	2		Course must be completed	
	MECH2300 Structures and Materials	1	2		Course must be completed	
	MECH2305 Introduction to Engineering Design and Manufacturing	1	2		Course must be completed	
	MECH2410 Fundamentals of Fluid Mechanics	1	2		Course must be completed	
	MECH3100 Systems Engineering Practice	2	2		Course must be completed	
	MECH3200 Advanced Dynamics and Vibrations	2	2		Course must be completed	
	MECH3400 Thermodynamics and Heat Transfer	1	2		Course must be completed	
	MECH3610 Systems Engineering Principles	1	2		**MECH3600** Engineering Management & Communication (discontinued)	**1/22**
	METR4201 Control Engineering I	1	2		Course must be completed	
	ENGG4901 Professional Practice and the Business Environment A **Or** **ENGG4902** Professional Practice and the Business Environment B	1 2	2 2	**1/24**	**ENGG4900** Professional Practice and the Business Environment (discontinued)	**2/23**

	4 units from Mechanical Engineering Research Courses					
	ENGG4552 Major Design Project **or** **ENGG4600** Engineering Thesis (4) **or** **ENGG4601** Engineering Thesis (4)	1 1 2	4 4 4		**MECH4552** Major Design Project (4) (discontinued) **MECH4500** Engineering Thesis (4) (discontinued) **or MECH4501** Engineering Thesis (4) (discontinued) **or ENGG4011** Professional Engineering Project (6) (discontinued)	**2/20**

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Mechanical Engineering No Major Option

Complete 16 units comprising -

i. 6 units for all Mechanical Engineering Extension Courses; and
ii. 4 to 10 units from Mechanical Engineering Advanced Elective Courses; and
iii. 0 to 6 units from Mechanical Engineering Breadth Elective Courses; and
iv. 0 to 4 units from BE(Hons) Program Electives; and
v. 0 to 4 units from General Elective Courses.

✓/x compl.	Mechanical Engineering No Major (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	6 units for all Mechanical Engineering Extension Courses					
	MECH2700 Computational Engineering & Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics	1	2		**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	MECH3410 Fluid Mechanics	2	2		Course must be completed	
	4 to 10 units from Mechanical Engineering Advanced Elective Courses					
	AERO4300 Aerospace Composites	2	2		No substitution	
	AERO4450 Aerospace Propulsion	1	2		No substitution	
	AERO4470 Hypersonics	1	2		No substitution	
	AERO4800 Space Engineering	2	2		No substitution	
	ENGG4103 Engineering Asset Management	1	2		No substitution	
	ENGY4000 Energy Systems	1	2		No substitution	
	FIRE3700 Introduction to Fire Safety Engineering	1	2		No substitution	
	MATE4302 Electrochemistry and Corrosion	2	2		**CHEE4302** Electrochemistry & Corrosion (discontinued)	**2/20**
	MECH3250 Engineering Acoustics	2	2		No substitution	
	MECH3301 Materials Selection	2	2		No substitution	
	MECH4304 Net Shape Manufacturing	1	2		No substitution	
	MECH4950 Advanced Manufacturing in Practice	2	2		No substitution	
	MECH4951 Special Topics D	1	1		No substitution	
	METR3100 Control System Implementation	1	2		No substitution	
	METR4202 Robotics & Automation	2	2		No substitution	

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	TIMS3309 Technology and Innovation Management	2	2		No substitution	

	0 to 6 units from Mechanical Engineering Breadth Elective Courses					
	ELEC2300 Electromagnetism and Electromechanics	1	2		**ELEC2003** Electromechanics & Electronics (discontinued)	**1/21**
	ENGG1600 Introduction to Research Practices - The Big Issues	2	2		No substitution	
	FIRE3700 Introduction to Fire Safety Engineering	1	2		No substitution	
	MECH2310 Science and Engineering of Metals	2	2		No substitution	
	PHYS2082 Space Science & Stellar Astrophysics	2	2		No substitution	
	Mechanical Engineering Breadth Electives can also be chosen from course lists for the following majors: ○ Aerospace Engineering ○ Biomedical Engineering ○ Materials Engineering ○ Mining Engineering *Courses on this list may require pre-requisites. Please seek academic advice if required.*					

0 to 4 units from BE(Hons) Program Electives

0 to 4 units from General Elective Courses

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Aerospace Engineering Major Option

Complete 16 units comprising:

i. 12 units for all Aerospace Engineering Compulsory Courses, and

ii. 4 units from Aerospace Engineering Elective Courses

✓/x compl.	Major in Aerospace Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	12 units for all Aerospace Engineering Compulsory Courses					
	MECH2700 Computational Engineering & Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics	1	2		**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	MECH3410 Fluid Mechanics	2	2		Course must be completed	
	AERO4100 Aerospace Design & Manufacturing	2	2		Course must be completed	
	AERO4200 Flight Mechanics & Avionics	1	2		Course must be completed	
	AERO4450 Aerospace Propulsion	1	2		Course must be completed	

	4 units from Aerospace Engineering Elective Courses					
	AERO4300 Aerospace Composites	2	2		No substitution	
	AERO4470 Hypersonics	1	2		No substitution	
	AERO4800 Space Engineering	2	2		No substitution	

Biomedical Engineering Major Option

Complete 16 units comprising:

i. 4 units for all Biomedical Engineering courses for Mechanical Engineers, and
ii. 8 units for all Biomedical Engineering Compulsory Courses, and
iii. 4 units from Biomedical Engineering Elective Courses

✓/x compl.	Major in Biomedical Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	4 units for Biomedical Engineering courses for Mechanical Engineers only					
	MECH2700 Computational Engineering & Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics	1	2		**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	8 units for Biomedical Engineering Compulsory Courses					
	BIOE1001 Principles of Biomedical & Bioprocess Engineering	1	2		**CHEE1001** Principles of Biological Engineering (discontinued)	**1/20**
	BIOE3001 Quantitative Methods in Biomedical Engineering	2	2		Course must be completed	
	BIOE4305 Biomaterials: Materials in Medicine	2	2		**CHEE4305** Biomaterials: Materials in Medicine (discontinued)	**2/20**
	BIOE6901 Medical Device Engineering	1	2		**ELEC7901** Advanced Medical Device Engineering (discontinued)	**1/20**
	4 units from Biomedical Engineering Elective Courses					
	BIOC2000 Biochemistry & Molecular Biology	1	2		No substitution	
	BIOC2001 Molecular Biophysics	2	2		No substitution	
	BIOE6028 Metabolic Engineering	2	2		**CHEE4028** Metabolic Engineering (discontinued)	**2/20**
	BIOE6034 Cell and Tissue Engineering	1	2		No substitution	
	BIOE6403 Biomedical Instrumentation	2	2		**ELEC4403/ELEC6403** Biomedical Instrumentation (discontinued)	**2/20**
	BIOE6601 Medical Imaging	2	2		**ELEC6601** Medical Imaging (discontinued)	**2/20**
	BIOL1040 Cells to Organisms	1,2	2		No substitution	
	BIOL2200 Molecular Cell Biology I	1	2		No substitution	
	BIOL2202 Genetics	2	2		No substitution	

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	BINF3014 Advanced Bioinformatics (discontinued)	2	2		**BIOL3014** Advanced Bioinformatics (discontinued)	**2/20**
	BIOM2011 Integrative Cell & Tissue Biology	1	2		No substitution	
	BIOM2012 Systems Physiology	2	2		No substitution	
	BIOM2020 Human Anatomy	1	2		No substitution	
	COMP3820 Digital Health Software Project	2	2		No substitution	
	COMP4702 Machine Learning	1	2		No substitution	
	COMS4113 Photonics	1	2		**COMS4103** Photonics (discontinued)	**1/20**
	COMS4104 Microwave Engineering	1	2		No substitution	
	CSSE2002 Programming in the Large	1,2	2		No substitution	
	CSSE4011 Advanced Embedded Systems	1	2		No substitution	
	ELEC4620 Digital Signal Processing	2	2		No substitution	
	ELEC4630 Image Processing and Computer Vision	1	2		No substitution	
	MATE6301 Nanomaterials	2	2		**CHEE4301** Nanomaterials (discontinued)	**2/20**
	MECH3301 Materials Selection	2	2		No substitution	
	MECH4950 Advanced Manufacturing in Practice	2	2		No substitution	
	METR4202 Robotics & Automation	2	2		No substitution	
	MICR2000 Microbiology & Immunology	2	2		No substitution	
	SCIE2100 Bioinformatics 1: Introduction	1	2		No substitution	
	CHEE4026 Thesis Project or **CHEE4027** Thesis Project	1 2	4		**CHEE4006** Individual Inquiry OR **CHEE4007** Individual Inquiry (plus 2 units electives)	

Materials Engineering Major Option

Complete 16 units comprising:

i. 4 units for all Materials Courses for Mechanical Engineers, and
ii. 8 units for all Materials Engineering Compulsory Courses, and
iii. 4 units from Materials Engineering Elective Courses

✓/x compl.	Major in Materials Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	4 units for Materials Engineering Courses for Mechanical Engineers only					
	MECH2700 Computational Engineering & Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics (NEW)	1	2		**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	8 units for Materials Engineering Compulsory Courses					
	MECH2310 Science and Engineering of Metals	2	2		Course must be completed	
	CHEE3301 Polymer Engineering	1	2		**CHEE3301** Polymers	
	MECH3301 Materials Selection	2	2		Course must be completed	
	CHEE4302 Electrochemistry & Corrosion	2	2		Course must be completed	
	4 units from Materials Engineering Elective Courses					
	AERO4300 Aerospace Composites	2	2		No substitution	
	BIOE4305 Biomaterials: Materials in Medicine	2	2		**CHEE4305** Biomaterials: Materials in Medicine (discontinued)	**2/20**
	CHEE4006 Individual Inquiry	1	2		No substitution	
	CHEE4007 Individual Inquiry	2	2		No substitution	
	CHEE4026 Thesis Project or **CHEE4027** Thesis Project	1 2	4		No substitution	
	MATE6301 Nanomaterials	2	2		**CHEE4301** Nanomaterials (discontinued)	**2/20**
	MECH2305 Introduction to Engineering Design and Manufacturing	1	2		No substitution	
	MECH4304 Net Shape Manufacturing	1	2		No substitution	

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Mining Engineering Major Option

Complete 16 units comprising:

i. 4 units for all Mining Engineering Courses for Mechanical 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
	4 units for Mining Engineering Courses for Mechanical Engineers only					
	MECH2700 Computational Engineering and Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics	1	2		**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	12 units for Mining Engineering Compulsory Courses					
	MINE3110 Integrated Orebody Knowledge	2	2		**MINE3120** Resource Estimation (discontinued)	**1/22**
	MINE3122 Mining Systems & Automation	1	2		**MINE3122** Mining Systems (renamed)	
	MINE3123 Mine Planning and Sustainability	1	2		No substitution	
	MINE3123 Mine Planning & Sustainability	2	2		**MINE3123** Mine Planning	
	MINE3129 Applied Mining Geomechanics	1	2		**MINE4120** Mine Geotechnical Engineering (discontinued)	**1/22**
	MINE4124 Mine Design, Feasibility and Sustainability	1	2		**MINE4124** Hard Rock Mine Design & Feasibility	
	MINE4129 Mine Process Optimisation	2	2		**MINE3125** Explosives and Blasting Engineering (discontinued)	**2/22**