CHECKLIST Bachelor of Engineering (Honours) – Mechanical Engineering: Transition to new program

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

Full name:_____ Student Number:_____ Date:_____

Points to note

- You need to ensure that you meet minimum program and major requirements (listed below)
- You cannot count the same course twice
- You need to ensure that you don't take courses that are incompatible with courses that you have already counted towards your program, and that any prerequisites have been met
- Please ensure you read the program rules to check for any special rules with your dual program, as course restrictions may apply
- Please contact the relevant Faculty for information regarding the other component of your dual program

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

b. 16 units for Mechanical Engineering Minor Options**, or

c. 16 units for Mechanical Engineering Specialisation No Major option

*Majors available in: Aerospace Engineering; Biomedical Engineering; Fire Safety Engineering; Materials Engineering; Mining Engineering
**Minors available in: Data Science; Computing, Design

✓/X compl.	You must complete (NEW Program requirements)	Sem offering	#	First offered	Approved substitution	Last offered
	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 (NEW) **or** **CSSE1001** Introduction to Software Engineering	1,2	2	**1/21**	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	

✓ - course already completed **X** – course to be undertaken

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✓/X compl.	2021 Mechanical Engineering specialisation list (36 units)	Sem offering	#	First offered	Approved substitution	Last offered
	36 units for all: 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 (NEW)	1,2	2	**1/21**	**ENGG1400** Engineering Mechanics: Statics & Dynamics (discontinued)	**2/20**
	MECH2100 Machine Element Design	2	2		Course must be completed	
	MECH2210 Dynamics I	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	
	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	
	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 (NEW)	1	2	**1/23**	**MECH3600** Engineering Management & Communication (discontinued)	**1/22**
	ENGG4900 Professional Practice and the Business Environment	1,2	2		Course must be completed	
	METR4201 Control Engineering I	1	2		Course must be completed	
	ENGG4552 Major Design Project (4) **ENGG4600** Engineering Thesis (4) **ENGG4601** Engineering Thesis (4) or **ENGG4013** Professional Engineering Project (NEW) (4)	1,2 1 2 2	6 4 	 **TBA**	**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 -

1. 6 units for all Mechanical Engineering Extension Courses; and
2. 4 to 10 units from Mechanical Engineering Advanced Electives; and
3. 0 to 6 units from Mechanical Engineering Breadth Electives; and
4. 0 to 4 units from Program Electives; and
5. 0 to 4 units from General Electives.

✓/X compl.	6 units for all: Mechanical Engineering Extension Courses	Sem offering	#	First offered	Approved substitution	Last offered
	MECH2700 Computational Engineering & Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics (NEW)	1	2	**1/23**	**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	MECH3410 Fluid Mechanics	2	2		Course must be completed	

✓/X compl.	4 to 10 units from: Mechanical Engineering Advanced Electives	Sem offering	#	First offered	Approved substitution	Last offered
	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	
	ENGY4000 Energy Systems	1	2		No substitution	
	FIRE3700 Introduction to Fire Safety Engineering	1	2		No substitution	
	MATE4302 Electrochemistry and Corrosion	2	2	**2/21**	**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	
	TIMS3309 Technology and Innovation Management	2	2		No substitution	

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✓/X compl.	0 to 6 units from: Mechanical Engineering Breadth Electives	Sem offering	#	First offered	Approved substitution	Last offered
	ELEC2300 Electromagnetism and Electromechanics (NEW)	1	2	**1/22**	**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
Fire Safety Engineering
Materials Engineering
Mining Engineering
Courses on this list may require pre-requisites. Please seek academic advice if required.

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✓/X compl.	Major in Aerospace Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	MECH2700 Computational Engineering & Data Analysis	2	2		Course must be completed	
	MECH3780 Computational Mechanics (NEW)	1	2	**1/23**	**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 Electives**					
	AERO4300 Aerospace Composites	2	2		No substitution	
	AERO4470 Hypersonics	1	2		No substitution	
	AERO4800 Space Engineering	2	2		No substitution	

✓/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 (NEW)	1	2	**1/23**	**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	8 units for: Biomedical Engineering Compulsory Courses					
	BIOE1001 Principles of Biomedical & Bioprocess Engineering	1	2	**1/21**	**CHEE1001** Principles of Biological Engineering (discontinued)	**1/20**
	BIOE3001 Quantitative Methods in Biomedical Engineering (NEW)	2	2	**2/22**	Course must be completed	
	BIOE4305 Biomaterials: Materials in Medicine	2	2	**2/21**	**CHEE4305** Biomaterials: Materials in Medicine (discontinued)	**2/20**
	BIOE6901 Medical Device Engineering	1	2	**1/21**	**ELEC7901** Advanced Medical Device Engineering (discontinued)	**1/20**
	4 units from: Biomedical Engineering Electives					
	BIOC2000 Biochemistry & Molecular Biology	1	2		No substitution	
	BIOE6028 Metabolic Engineering	2	2	**2/21**	**CHEE4028** Metabolic Engineering (discontinued)	**2/20**
	BIOE6403 Biomedical Instrumentation	2	2	**2/21**	**ELEC4403/ELEC6403** Biomedical Instrumentation (discontinued)	**2/20**

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	BIOE6601 Medical Imaging	2	2	**2/21**	**ELEC6601** Medical Imaging (discontinued)	**2/20**
	BIOL1040 Cells to Organisms	1,2	2		No substitution	
	BIOL2200 Cell Structure & Function	1	2		No substitution	
	BIOL2202 Genetics	2	2		No substitution	
	BINF3014 Advanced Bioinformatics	2	2	**2/21**	**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	
	BIPH2000 Foundations of Biophysics	2	2		No substitution	
	COMP4702 Machine Learning	1	2		No substitution	
	COMS4113 Photonics	1	2	**1/21**	**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	**2/21**	**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 Introduction to Bioinformatics	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)	

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✓/X compl.	Major in Fire Safety Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	6 units for: **Fire Safety Engineering Courses for Mechanical Engineers only**					
	MECH2700 Computational Engineering & Data Analysis	2	2		**MECH2700** Engineering Analysis I	
	MECH3780 Computational Mechanics (NEW)	1	2	**1/23**	**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	2 units from Mechanical Engineering Advanced Electives list		2			
	10 units for: **Fire Safety Engineering Compulsory Courses**					
	FIRE3700 Introduction to Fire Safety Engineering	1	2		Course must be completed	
	FIRE4610 Fire Engineering Design: Solutions for Implicit Safety	1	2		Course must be completed	
	FIRE6090 Fire Dynamics (NEW)	2	2	**2/23**	**FIRE7620** Fire Dynamics (discontinued)	
	FIRE6100 Fire Engineering Design: Explicit Quantification of Safety (NEW)	2	2	**2/23**	**FIRE7680** Fire Engineering Design: Explicit Quantification of Safety (discontinued)	
	FIRE6110 Structural Fire Engineering (NEW)	1	2	**1/23**	**FIRE7660** Structural Fire Engineering (discontinued)	

✓/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	**1/23**	**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 Polymers	1	2		**CHEE3301** Polymer Engineering	
	MECH3301 Materials Selection	2	2		Course must be completed	
	CHEE4302 Electrochemistry & Corrosion	2	2		Course must be completed	

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	4 units from: Materials Engineering Electives					
	AERO4300 Aerospace Composites	2	2		No substitution	
	BIOE4305 Biomaterials: Materials in Medicine	2	2	**2/21**	**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	**2/21**	**CHEE4301** Nanomaterials (discontinued)	**2/20**
	MECH2305 Introduction to Engineering Design and Manufacturing	1	2		No substitution	
	MECH4304 Net Shape Manufacturing	1	2		No substitution	

✓/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 (NEW)	1	2	**1/23**	**MECH3300** Finite Element Method & Fracture Mechanics (discontinued)	**1/22**
	12 units for: Mining Engineering Compulsory Courses					
	MINE3110 Integrated Orebody Knowledge (NEW)	2	2	**2/23**	**MINE3120** Resource Estimation (discontinued)	**1/22**
	MINE3122 Mining Systems & Automation	1	2		**MINE3122** Mining Systems (renamed)	
	MINE3123 Mine Planning & Sustainability	2	2		**MINE3123** Mine Planning	
	MINE3129 Applied Mining Geomechanics (NEW)	1	2	**1/23**	**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 (NEW)	2	2	**2/23**	**MINE3125** Explosives and Blasting Engineering (discontinued)	**2/22**

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Mechanical Engineering with Engineering Minor

Complete 16 units comprising:

8 units for one of the following minors:

- Data Science
- Computing
- Design

and

8 units from Mechanical Engineering Advanced Electives

✓/X compl.	Minor in Computing (8 units)	Sem offering	#	First offered	Approved substitution	Last offered
	4 units for all: **Computing Minor Compulsory Courses**					
	CSSE2002 Programming in the Large	1,2	2		Course must be completed	
	COMP3506 Algorithms and Data Structures	2	2		Course must be completed	
	4 units from: **Computing Electives**					
	COMP4702 Machine Learning	1	2		No substitution	
	COSC2500 Numerical Methods in Computational Science	2	2		No substitution	
	COSC3000 Visualization, Computer Graphics & Data Analysis	1	2		No substitution	
	COSC3500 High Performance Computing	2	2		No substitution	
	INFS1200 Introduction to Information Systems	1,2	2		No substitution	
	INFS3208 Cloud Computing	2	2		No substitution	
	MATH3202 Operations Research & Mathematical Planning	1	2		No substitution	

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✓/X compl.	Minor in Data Science (8 units)	Sem offering	#	First offered	Approved substitution	Last offered
	4 units for all: Data Science Minor Compulsory Courses					
	DATA2001 Introduction to Data Science (NEW)	2	2	**2/22**	Course must be completed	
	INFS1200 Introduction to Information Systems	1,2	2		Course must be completed	
	4 units from: Data Science Electives					
	COMP4702 Machine Learning	1	2		No substitution	
	INFS2200 Relational Database Systems	2	2		No substitution	
	INFS3208 Cloud Computing	2	2		No substitution	
	INFS4203 Data Mining	2	2		No substitution	
	STAT2003 Mathematical Probability	1	2		No substitution	
	STAT2004 Statistical Modelling & Analysis	2	2		No substitution	

✓/X compl.	Minor in Design (8 units)	Sem offering	#	First offered	Approved substitution	Last offered
	2 units for all: Design Minor Compulsory Courses					
	DSGN1500 Design for a Better World	2	2		Course must be completed	
	6 units from: Design Electives					
	DSGN1100 Design: Interaction	1	2		No substitution	
	DSGN1200 Design: Experience	2	2		No substitution	
	DSGN2100 Design: Organisation	1	2		No substitution	
	DSGN2200 Design: Environment	2	2		No substitution	
	DSGN3100 Design: Infrastructure	1	2		No substitution	

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