CHECKLIST Bachelor of Engineering (Honours) – Mechatronic Engineering Specialisation (2455): Transition to new program

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

Complete 64 units 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
	b. 16 units for Mechatronic Engineering Minor Options**, or
	c. 16 units for Mechatronic Engineering Specialisation No Major option, and
IV.	0 to 4 units from Preparatory Science and Mathematics Courses; and
V.	0 to 4 units from Program Electives; and
VI.	0 to 4 units from General Electives.

*Majors available in: Computer Engineering; Mining Engineering

**Minors available in: Data Science; Computing, Design

NB: Of the 64 units required for the program, students must complete at least 24 units of courses at level 3 or higher and no more than 24 units at level 1.

✓/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   **Checked by (Faculty: Name and Date):** _____

✓/x compl.	2021 Mechatronic 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	
	ENGG1700 Statics & Materials (NEW)	1,2	2	**1/21**	**ENGG1400** Engineering Mechanics: Statics & Dynamics (discontinued)	**2/20**
	CSSE2010 Introduction to Computer Systems	1,2	2		Course must be completed	
	ELEC2004 Circuits, Signals and Systems	2	2		Course must be completed	
	ELEC2300 Fundamentals of Electromagnetism and Electromechanics (NEW)	1	2	**1/22**	**ELEC2003** Electromechanics & Electronics (discontinued)	**1/21**
	MATH2001 Calculus & Linear Algebra II	1,2,S	2		**MATH2001** Advanced 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 1		**STAT2202** Probability Models for Engineering & Science (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	
	METR2800 Mechatronic System Design Project I	2	2		Course must be completed	
	METR3100 Control Systems Implementation	2	2		Course must be completed	
	METR4201 Control Engineering I	1	2		Course must be completed	
	METR4202 Robotics & Automation	2	2		Course must be completed	
	METR4810 Mechatronic System Design Project II	1	2	**Not offered in 2022**	Course must be completed	
	METR4910/METR4911 Thesis/Design Project (4)	1	4	**1/21**	**METR4900/METR4901** Thesis/Design Project (4) (discontinued)	**1/20**
	ENGG4900 Professional Practice and the Business Environment	1,2	2		Course must be completed	

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BE(Hons) Transition Plan – Mechatronic Engineering NEW   **Checked by (Faculty: Name and Date): _____**

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 Electives; and
- iii. 0 to 4 units from any Mechatronic Engineering Breadth Electives; and
- iv. 0 to 4 units from Program Electives; and
- v. 0 to 4 units from General Electives.

✓/X compl.	8 units for all: Mechatronic Engineering Extension Courses	Sem offering	#	First offered	Approved substitution	Last offered
	ELEC2400 Electronic Devices & Circuits (NEW)	1	2	**1/22**	**ELEC3400** Electronic Circuits (discontinued)	**1/21**
	ELEC3004 Signals, Systems & Control	1	2		Course must be completed	
	MECH3200 Advanced Dynamics & Vibrations	2	2		Course must be completed	
	METR6203 Control Engineering 2	1	2	**1/21**	**METR7203** Control Engineering 2 (discontinued)	**1/20**
	4 to 8 units from: Mechatronic Engineering Advanced Electives					
	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	
	COMP3702 Artificial Intelligence	2	2		No substitution	
	COMP3710 Pattern Recognition and Analysis	2	2		No substitution	
	COMP4702 Machine Learning	1	2		No substitution	
	CSSE3010 Embedded Systems Design & Interfacing	1	2		No substitution	
	CSSE4010 Digital System Design	1	2		No substitution	
	CSSE4011 Advanced Embedded Systems	1	2		No substitution	
	ELEC3100 Fundamentals of Electromagnetic Fields & Waves	2	2		No substitution	
	ELEC3310 Electrical Energy Conversion & Utilisation	2	2	**2/21**	**ELEC3300** Electrical Energy Conversion & Utilisation (discontinued)	**2/20**
	ELEC4310 Power Systems Analysis	1	2	**1/21**	**ELEC4300** Power Systems Analysis (discontinued)	**1/20**

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BE(Hons) Transition Plan – Mechatronic Engineering NEW   **Checked by (Faculty: Name and Date): _____**

	ELEC4620 Digital Signal Processing	2	2		No substitution	
	ELEC4630 Image Processing and Computer Vision	1	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	**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	
	TIMS3309 Technology and Innovation Management	2	2		No substitution	
	0 to 4 units from: **Mechatronic Engineering Breadth Electives**					
	Mechatronic Engineering Breadth Electives can be chosen from course lists for the following majors: Computer Engineering Mining Engineering					

Courses on this list may require pre-requisites. Please seek academic advice if required.

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BE(Hons) Transition Plan – Mechatronic Engineering NEW   **Checked by (Faculty: Name and Date): _____**

✓/X compl.	Major in Computer Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	12 units for: Computer Engineering Courses for Mechatronic Engineers <u>only</u>					
	COMP3506 Algorithms & Data Structures	2	2		Course must be completed	
	CSSE2002 Programming in the Large	1,2	2		Course must be completed	
	CSSE2310 Computer Systems Principles and Programming	1,2	2		Course must be completed	
	CSSE3010 Embedded Systems Design & Interfacing	1	2		Course must be completed	
	ELEC3004 Signs, Systems & Control	1	2		Course must be completed	
	MECH3200 Advanced Dynamics & Vibrations	1	2		Course must be completed	
	4 units for: Computer Engineering Compulsory Courses					
	CSSE4010 Digital System Design	2	2		Course must be completed	
	CSSE4011 Advanced Embedded Systems	1	2		Course must be completed	
	0 to 8 units from: Computer Engineering Electives (no more than 6 units at level 1 or 2)					
	COMP2140 Web/Mobile Programming (NEW)	2	2	2/22	No substitution	
	COMP3301 Operating Systems Architecture	2	2		No substitution	
	COMP3702 Artificial Intelligence	2	2		No substitution	
	COMP3710 Pattern Recognition and Analysis	2	2		No substitution	
	COMP4403 Compilers and Interpreters	1	2		No substitution	
	COMP4500 Advanced Algorithms & Data Structures	2	2		No substitution	
	COMP4702 Machine Learning	1	2		No substitution	
	CYBR3000 Information Security	2	2	2/21	**COMS3000** Information Security (discontinued)	**2/20**
	COMS3200 Computer Networks I	1	2		No substitution	
	COMS4113 Photonics	1	2	1/21	**COMS4103** Photonics (discontinued)	**1/20**
	COMS4104 Microwave Engineering	1	2		No substitution	
	COMS4105 Communication Systems	2	2		No substitution	

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	Course				Substitution	
	COMS4507 Advanced Topics in Security	1	2		No substitution	
	COMS6200 Computer Networks II	1	2	1/22	**COMS4200** Computer Networks II (discontinued)	1/21
	CSSE3012 The Software Process	1	2	1/21	**CSSE3002** The Software Process (discontinued)	1/20
	CSSE3100 Reasoning About Programs	1	2		No substitution	
	CSSE3200 Project Design Testing and Evaluation (NEW)	2	2	2/22	**DECO2800** Design Computing Studio 2 - Testing & Evaluation	
	CSSE4004 Distributed Computing	1	2		No substitution	1/21
	CSSE4400 Software Architecture (NEW)	1	2	1/22	**CSSE4004** Distributed Computing (discontinued)	1/21
	CSSE4630 Principles of Program Analysis	2	2		No substitution	
	COSC3500 High Performance Computing	2	2		No substitution	
	DECO1400 Introduction to Web Design	1	2		No substitution	
	DECO2500 Human-Computer Interaction	1	2		No substitution	
	ELEC3310 Electrical Energy Conversion & Utilisation	2	2	2/21	**ELEC3300** Electrical Energy Conversion & Utilisation (discontinued)	2/20
	ELEC4310 Power Systems Analysis	1	2	1/21	**ELEC4300** Power Systems Analysis (discontinued)	1/20
	ELEC4620 Digital Signal Processing	2	2		No substitution	
	ELEC4630 Image Processing and Computer Vision	1	2		No substitution	
	ENGG2800 Team Project I	1,2	2		No substitution	
	ENGG3800 Team Project II	2	2		No substitution	
	ENGG4800 Project Management	1	2		No substitution	
	INFS1200 Introduction to Information Systems	1,2	2		No substitution	
	INFS2200 Relational Database Systems	2	2		No substitution	
	METR3100 Control System Implementation	1	2		No substitution	
	METR4202 Robotics & Automation	2	2		No substitution	

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✓/X compl.	Major in Mining Engineering (16 units)	Sem offering	#	First offered	Approved substitution	Last offered
	4 units for: Mining Engineering Courses for Mechatronic Engineers only					
	ELEC3004 Signals, Systems & Control	1	2		Course must be completed	
	MECH3200 Advanced Dynamics & Vibrations	2	2		Course must be completed	
	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	**2/23**	**MINE3122** Mining Systems (renamed)	**1/22**
	MINE3123 Mine Planning & Sustainability	2	2	**1/23**	**MINE3123** Mine Planning	**2/22**
	MINE3129 Applied Mining Geomechanics (NEW)	1	2	**1/23**	**MINE3121** Mining Geomechanics (discontinued)	**1/22**
	MINE4124 Mine Design, Feasibility and Sustainability	1	2	**2/24**	**MINE4124** Hard Rock Mine Design & Feasibility	**1/23**
	MINE4129 Mine Process Optimisation (NEW)	2	2	**2/23**	**MINE3125** Explosives and Blasting Engineering (discontinued)	**2/22**

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BE(Hons) Transition Plan – Mechatronic Engineering NEW   **Checked by (Faculty: Name and Date):** _____

Mechatronic Engineering with Engineering Minor

Complete 16 units comprising:

8 units for one of the following minors:

        Data Science

        Computing

        Design

and

8 units from Mechatronic 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	**2/21**	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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