

CHECKLIST Bachelor of Engineering (Honours) – Mechanical Engineering (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 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, 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: Aerospace Engineering; Biomedical Engineering; Materials 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 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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BE(Hons) Transition Plan – Mechanical Engineering NEW

Checked by (Faculty: Name and Date): _____

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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BE(Hons) Transition Plan – Mechanical Engineering NEW

Checked by (Faculty: Name and Date): _____

| ✓/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

Materials Engineering

Mining Engineering

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

| ✓/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 | |

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Checked by (Faculty: Name and Date): _____

| ✓/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 |
| | 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 |

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| | | | | | | |
|--|---|--------|---|-------------|--|-------------|
| | 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) | |

| ✓/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 | |
| | 4 units from: Materials Engineering Electives | | | | | |

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| | | | | | | |
|--|--|--------|---|-------------|--|-------------|
| | 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 <u>only</u> | | | | | |
| | 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 | 1/23 | MINE3122 Mining Systems (renamed) | |
| | MINE3123 Mine Planning & Sustainability | 2 | 2 | 1/23 | MINE3123 Mine Planning | |
| | MINE3129 Applied Mining Geomechanics (NEW) | 1 | 2 | 1/23 | MINE3121 Mining Geomechanics (discontinued) | 1/22 |
| | MINE4124 Mine Design and Feasibility | 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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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 | |

| ✓/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 | |

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| | | | | | | |
|--|--|---|---|--|-----------------|--|
| | 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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