**PROGRAM PLAN**

**BACHELOR OF MECHANICAL ENGINEERING (HONOURS)/ BACHELOR OF MECHATRONICS ENGINEERING (HONOURS)**

**PROGRAM OPTION:**
Full time or Part time

**START DATE:** Semester 2 2017 - 2020

**LOCATION:** Callaghan

This program plan is an enrolment guide to ensure you are on track to graduate. If at any time you wish to vary from this program plan seek advice from your Academic Program Advisor to ensure you remain on track.

**COURSE STATUS KEY**

- **C** = Completed
- **En** = Enrolled
- **NS** = Not Started

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### Program Year 1

#### Semester 1
- **ENGG1003** Introduction to Procedural Programming
  - CORE
- **ENGG1500** Introduction to Professional Engineering
  - CORE
- **MATH1120** Maths for Engineering, Science & Technology 2
  - CORE
  - (Replaces option of MATHY120 OR MATH1220)
- **MECH1110** Introduction to Mechanical Engineering
  - Design
  - CORE
  - In 2021 changed from Sem 2 to Sem 1

#### Semester 2
- **ENGG2500** Sustainable Engineering Practice
  - CORE
  - In 2021 changed from Sem 1 to Sem 2
- **MATH2310** Calculus of Science & Engineering
  - CORE
- **MECH2430** Mechanics of Solids 1
  - CORE
- **MECH2450** Engineering Computations 2
  - CORE

### Program Year 2

#### Semester 1
- **ENGG2100** Engineering Risk & Uncertainty
  - CORE
  - From 2021 ENGG2100 will count in place of PHYS1210
- **MECH2110** Mechanical Engineering Design 1
  - CORE

#### Semester 2
- **ENGG4801A** Engineering Final Year Project A
  - CORE
- **ENGG4500** Engineering Complexity
  - CORE
- **MCHA3500** Mechatronics Design 1
  - CORE

### Program Year 3

#### Semester 1
- **ENGG2360** Dynamics of Machines
  - CORE
- **MECH2360** Mechanical Engineering Design 1
  - CORE

#### Semester 2
- **ENGG2430** Circuits & Signals
  - CORE
- **MECH2450** Engineering Computations 2
  - CORE
- **ENGG2440** Modelling & Control
  - CORE

### Program Year 4

#### Semester 1
- **AERO3600** Embedded Control Systems
  - CORE
- **ENGG3500** Managing Engineering Projects
  - CORE
- **MCHA3400** Embedded Systems Engineering
  - CORE
  - Replaced ELEC3730

#### Semester 2
- **MECH3695** Heat Transfer
  - CORE
- **MECH3400** Materials Science & Engineering 2
  - CORE
- **ENGG4801B** Engineering Final Year Project B
  - CORE
  - This must be completed in the semester immediately following ENGG4801A

### Program Year 5

#### Semester 1
- **MCHA4100** Mechatronics Systems
  - (20 units)
  - CORE
- **MECH4410** Mechanics of Solids 2 & FEA
  - CORE
- **ENG4801B** Engineering Final Year Project B
  - CORE
  - (Replaces option of MATHY1110 OR MATH1220)
- **MCHA4500** Mechatronics Design 1
  - CORE

### Program Year 6

#### Semester 1
- **MCHA4100** Mechatronics Systems
  - (20 units)
  - CORE
- **MECH4410** Mechanics of Solids 2 & FEA
  - CORE

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*Prior to 2021 students were required to complete MCHA4000 (10 units) PLUS MECH4841A / MECH4841B OR ELEC4840A / ELEC4840B (30 units total). From 2021, students will be required to follow the new arrangement: MCHA4100 (20 units) PLUS ENGG4801A / ENGG4801B (20 units total). Refer to the transition document in the program handbook for more information.

Students who have already completed 310 units towards their program and who have not yet completed MCHA4000 will be required to contact their Program Convenor.
To be eligible to graduate make sure you have completed 400 units (10 units = 1 course unless otherwise specified) which meet the following criteria:

- **Core courses** – 360 units
  - Prior to 2021, students could choose to complete either MATH1110 and MATH1120 or MATH1210 and MATH1220, depending on your assumed knowledge. To find out which MATH course you should enrol in please see the Enrolling in Maths information. More information is in your Program Handbook.
  - After 2021, the option to do MATH1210 and MATH1220 has been removed from the program. From 2021 onwards: 1) if you have not yet completed MATH1210 you must complete MATH1110; and 2) if you haven’t completed MATH1220 then you must complete MATH1120. To find out which MATH courses you should enrol in please see the Enrolling in Maths information. More information in your Program Handbook.
  
- # Students are required to complete just one of these two courses.

- **Directed** – 20 units, see the Directed Course list below.
  - Please note you can choose to study these directed courses in a different semester, depending on the availability/timetable.

- **Electives** – 20 units of any level. Students can choose from any unrestricted course taught at the University (as long as it is not already a core course of this degree).
  - Visit the Course Handbook to see a list of available electives.
  - Please note MATH1002 counts as 10 units of electives.
  - **Elective** – you can study this as an elective, if you like ENGG3300 Machine Learning for Engineers. Alternatively, you can choose from any unrestricted course, of any level.
  - ***Elective*** – you can study this as an elective, if you like MCHA4400 Vision-based Navigation. Alternatively, you can choose from any unrestricted course, of any level.
  - At least 10 units must be 2000 level or higher.
  - No more than 12 units at the 1000 level will count towards each individual degree.
  - Students must undertake 12 weeks of approved industrial experience.
  - The duration of this program is 5 year full-time (40 units per semester) or part-time equivalent.
  - The maximum time to complete this program is 12 years.

Some courses have assumed knowledge and/or requisites, please refer to the individual Course Handbook. Please refer to the Program Handbook for specific information on program structure. If you are intending varying from this program plan please seek advice from your Academic Program Advisor.

Directed Courses (subject to change – please refer to the Program Handbook for up to date information)

Complete 10 units:

- ELEC3400 Signal Processing
- ELEC3540 Analog and Digital Communications
- ELEC4160 Advanced Drives and Power Electronics
- ELEC4210 Electronics Design
- MECH3130 Mechanics of Bulk Solids and Particulates
- MECH4220 Bulk Materials Handling and Transportation
- MECH4580 Computer Aided Engineering and Manufacturing (see the course handbook for enrolment restrictions)
- MECH4830 Engineering Economic Analysis (no longer offered)
- RENE3000 Solar and Wind (replaces MECH3760 Renewable Energy Conversion)