# PROGRAM PLAN

# BACHELOR OF MECHATRONICS ENGINEERING (HONOURS)

**PROGRAM OPTION:**
Full time or part time

**START DATE:**
Semester 1 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.

PROGRAM HANDBOOK
COURSE HANDBOOK

**NAME:**

**STUDENT NO.:**

**COURSE STATUS KEY**
**C** = Completed
**En** = Enrolled
**NS** = Not Started

## 2021 PROGRAM PLAN FOR STUDENTS WHO COMPLETED YEAR 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| YEAR 1 | SEMESTER 1 | ENGG1003 Introduction to Procedural Programming<br>CORE | ENGG1500 Introduction to Professional Engineering<br>CORE | MATH1110 Mathematics for Engineering, Science and Technology 1<br>CORE<br>*Replaces option of MATH1110 OR MATH1210* | MECH1110 Introduction to Mechanical Engineering Design<br>CORE<br>*In 2021 changed from Sem 2 to Sem 1* | SEMESTER 2 | CIVL1100 Fundamentals of Engineering Mechanics<br>CORE | ELEC1310 Introduction to Electrical Engineering<br>CORE | MATH1120 Mathematics for Engineering, Science and Technology 2<br>CORE<br>*Replaces option of MATH1120 OR MATH1220* | MECH1750 Engineering Materials 1<br>CORE<br>*# From 2021 MECH1750 will count in place of PHYS1210* |
| YEAR 2 | SEMESTER 1 | ELEC2320 Electrical & Electronic Circuits<br>CORE | MATH2310 Calculus of Science & Engineering<br>CORE | MECH2110 Mechanical Engineering Design 1<br>CORE | MECH2360 Dynamics of Machines<br>CORE | SEMESTER 2 | ELEC1710 Digital and Computer Engineering 1<br>CORE | ELEC2430 Circuits and Signals<br>CORE | ENGG2440 Modelling and Control<br>CORE | ENGG2500 Sustainable Engineering Practice<br>CORE<br>*In 2021 changed from Sem 1 to Sem 2* |
| YEAR 3 | SEMESTER 1 | AERO3600 Embedded Control Systems<br>CORE | ENGG2100 Engineering Risk & Uncertainty<br>CORE<br>*# From 2021 ENGG2100 will count in place of MECH3695* | ENGG3500 Managing Engineering Projects<br>CORE | MCHA3400 Embedded Systems Engineering<br>*Replaced ELEC3730*<br>CORE | SEMESTER 2 | ELECTIVE** | ENGG2300 Engineering Fluid Mechanics<br>CORE<br>*# From 2021 ENGG2300 will count in place of MECH2710* | ENGG4440 Nonlinear Control and Estimation<br>CORE | MCHA3500 Mechatronics Design 1<br>CORE |
| YEAR 4 | SEMESTER 1 | ELECTIVE<br>*This can be of any level, and can be taken in any term, including summer or winter* | ENGG4801A* Engineering Final Year Project A<br>CORE | MCHA4100* Mechatronics Systems (20 units)<br>CORE | | SEMESTER 2 | ELECTIVE<br>*At least 10 units of electives must be 2000 level or higher. This can be taken in any term, including summer or winter* | ELECTIVE*** | ENGG4500 Engineering Complexity<br>CORE | ENGG4801B* Engineering Final Year Project B<br>CORE<br>*This must be completed in the semester immediately following ENGG4801A* |

**COMPULSORY REQUIREMENT: EXPOSURE TO PROFESSIONAL PRACTICE (EEP)/INDUSTRIAL EXPERIENCE (IE) 12 WEEKS**

*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.

# PROGRAM PLAN

# BACHELOR OF MECHATRONICS ENGINEERING (HONOURS)

## 2021 PROGRAM PLAN FOR STUDENTS WHO COMPLETED YEAR 1 AND 2

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| YEAR 1 | SEMESTER 1 | **ENGG1003** Introduction to Procedural Programming **CORE** | **ENGG1500** Introduction to Professional Engineering **CORE** | **MATH1110** Mathematics for Engineering, Science and Technology 1 **CORE** *Replaces option of MATH1110 OR MATH1210* | **MECH1110** Introduction to Mechanical Engineering Design **CORE** *In 2021 changed from Sem 2 to Sem 1* | SEMESTER 2 | **CIVL1100** Fundamentals of Engineering Mechanics **CORE** | **ELEC1310** Introduction to Electrical Engineering **CORE** | **MATH1120** Mathematics for Engineering, Science and Technology 2 **CORE** *Replaces option of MATH1120 OR MATH1220* | **MECH1750** Engineering Materials 1 **CORE** *# From 2021 MECH1750 will count in place of PHYS1210* |
| YEAR 2 | SEMESTER 1 | **ELEC2320** Electrical & Electronic Circuits **CORE** | **ENGG2500** Sustainable Engineering Practice **CORE** *In 2021 changed from Sem 1 to Sem 2* | **MATH2310** Calculus of Science & Engineering **CORE** | **MECH2360** Dynamics of Machines **CORE** | SEMESTER 2 | **ELEC1710** Digital and Computer Engineering 1 **CORE** | **ELEC2430** Circuits and Signals **CORE** | **ENGG2300** Engineering Fluid Mechanics **CORE** *# From 2021 ENGG2300 will count in place of MECH2710* | **ENGG2440** Modelling and Control **CORE** |
| YEAR 3 | SEMESTER 1 | **AERO3600** Embedded Control Systems **CORE** | **ENGG2100** Engineering Risk & Uncertainty **CORE** *# From 2021 ENGG2100 will count in place of MECH3695* | **MCHA3400** Embedded Systems Engineering *Replaced ELEC3730* **CORE** | **MECH2110** Mechanical Engineering Design 1 **CORE** | SEMESTER 2 | **ELECTIVE**** | **ELECTIVE** *This can be of any level, and can be taken in any term, including summer or winter* | **ENGG4440** Nonlinear Control and Estimation **CORE** | **MCHA3500** Mechatronics Design 1 **CORE** |
| YEAR 4 | SEMESTER 1 | **ENGG3500** Managing Engineering Projects **CORE** | **ENGG4801A*** Engineering Final Year Project A **CORE** | **MCHA4100*** Mechatronics Systems (20 units) **CORE** | | SEMESTER 2 | **ELECTIVE***** | **ELECTIVE** *At least 10 units of electives must be 2000 level or higher. This can be taken in any term, including summer or winter* | **ENGG4500** Engineering Complexity **CORE** | **ENGG4801B*** Engineering Final Year Project B **CORE** *This must be completed in the semester immediately following ENGG4801A* |

**COMPULSORY REQUIREMENT: EXPOSURE TO PROFESSIONAL PRACTICE (EEP)/INDUSTRIAL EXPERIENCE (IE) 12 WEEKS**

*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.

# PROGRAM PLAN

# BACHELOR OF MECHATRONICS ENGINEERING (HONOURS)

## 2021 PROGRAM PLAN FOR STUDENTS WHO COMPLETED YEAR 1, 2 AND 3

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| YEAR 1 | SEMESTER 1 | **ENGG1003** Introduction to Procedural Programming **CORE** | **ENGG1500** Introduction to Professional Engineering **CORE** | **MATH1110** Mathematics for Engineering, Science and Technology 1 **CORE** *Replaces option of MATH1110 **OR** MATH1210* | **MECH1110** Introduction to Mechanical Engineering Design **CORE** *In 2021 changed from Sem 2 to Sem 1* |
| | SEMESTER 2 | **CIVL1100** Fundamentals of Engineering Mechanics **CORE** | **ELEC1310** Introduction to Electrical Engineering **CORE** | **MATH1120** Mathematics for Engineering, Science and Technology 2 **CORE** *Replaces option of MATH1120 **OR** MATH1220* | **MECH1750** Engineering Materials 1 **CORE** *# From 2021 MECH1750 will count in place of PHYS1210* |
| YEAR 2 | SEMESTER 1 | **ELEC2320** Electrical & Electronic Circuits **CORE** | **ENGG2500** Sustainable Engineering Practice **CORE** *In 2021 changed from Sem 1 to Sem 2* | **MATH2310** Calculus of Science & Engineering **CORE** | **MECH2360** Dynamics of Machines **CORE** |
| | SEMESTER 2 | **ELEC1710** Digital and Computer Engineering 1 **CORE** | **ELEC2430** Circuits and Signals **CORE** | **ENGG2300** Engineering Fluid Mechanics **CORE** *# From 2021 ENGG2300 will count in place of MECH2710* | **ENGG2440** Modelling and Control **CORE** |
| YEAR 3 | SEMESTER 1 | **AERO3600** Embedded Control Systems **CORE** | **ENGG3500** Managing Engineering Projects **CORE** | **MCHA3400** Embedded Systems Engineering *Replaced ELEC3730* **CORE** | **MECH2110** Mechanical Engineering Design 1 **CORE** |
| | SEMESTER 2 | **ELECTIVE**** | **ELECTIVE** *This can be of any level, and can be taken in any term, including summer or winter* | **ENGG4440** Nonlinear Control and Estimation **CORE** | **MCHA3500** Mechatronics Design 1 **CORE** |
| YEAR 4 | SEMESTER 1 | **ENGG2100** Engineering Risk & Uncertainty **CORE** *# From 2021 ENGG2100 will count in place of MECH3695* | **ENGG4801A*** Engineering Final Year Project A **CORE** | **MCHA4100*** Mechatronics Systems (20 units) **CORE** | |
| | SEMESTER 2 | **ELECTIVE***** | **ELECTIVE** *At least 10 units of electives must be 2000 level or higher. This can be taken in any term, including summer or winter* | **ENGG4500** Engineering Complexity **CORE** | **ENGG4801B*** Engineering Final Year Project B **CORE** *This must be completed in the semester immediately following ENGG4801A* |

**COMPULSORY REQUIREMENT: EXPOSURE TO PROFESSIONAL PRACTICE (EEP)/INDUSTRIAL EXPERIENCE (IE) 12 WEEKS**

*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.

PROGRAM PLAN

# BACHELOR OF MECHATRONICS ENGINEERING (HONOURS)

**To be eligible to graduate make sure you have completed 320 units (10 units = 1 course unless otherwise specified) which meet the following criteria:**

- Core courses – 280 units
  ***Prior to 2021*****,** students could choose to complete either MATH1110 and MATH1120, ***OR*** MATH1210 and MATH1220. Choice of maths courses is based 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.
  ***#*** *Students are required to complete just one of these two courses. Refer to the transition document in the* **Program Handbook** *for further information.*
- **Electives** – 40 units. Students can choose from any **unrestricted** courses taught at the University (as long as it is not already a core course of this degree). Visit the **Program Handbook** and **Course Handbook** to see a list of available 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**
  Please note, completion of MATH1002 counts as 10 units of electives
- At least 40 units must be taken at each level from the 2000 level and above in this program.
- Students must not exceed 120 units at 1000 level in this program.
- Students must undertake 12 weeks of approved **industrial experience.**
- The duration of this program is 4 year full-time (40 units per semester) or part-time equivalent.
- The maximum time to complete this program is 10 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**.