

# Bachelor of Engineering (Mechanical) (Honours)



Sunshine Coast, Semester 2 2022

## Program structure

Introductory courses (8) 96 units

ENG101 Foundations of Engineering  
ENG102 Engineering Statics  
ENG103 Introduction to the Internet of Things  
ENG104 Introduction to Engineering Design  
MTH103 Introduction to Applied Mathematics  
MTH104 Introductory Calculus  
SCI107 Physics  
SCI110 Science Research Methods

Developing courses (8) 96 units

MEC200 Thermofluids 1  
MEC205 Dynamics 1  
MEC221 Mechanics of Materials  
MEC225 Engineering Materials  
MEC226 Manufacturing Technology  
MEC227 Mechanical Design 1  
MTH201 Calculus II and Linear Algebra  
MTH203 Numerical Analysis

Graduate courses (12) 144 units

ENG302 Engineering Project Management  
ENG304 Engineering Research Methodology  
ENG401 Engineering Project 1  
ENG402 Engineering Project 2  
MEC300 Mechanical Design 2  
MEC301 Materials Technology  
MEC302 Thermofluids 2  
MEC303 Computational Mechanics  
MEC335 Production Engineering  
MEC336 Engineering System Design  
MEC400 Thermofluids 3  
MEC405 Advanced Dynamics and Control

Minor courses (4) 48 units

Students must select one minor (48 units) from the following:

- Electrical and Electronic Engineering (for Mechanical Engineers)\*\*
- Mechatronic Engineering (for Mechanical Engineers)\*\*
- Civil Engineering (for Mechanical and Mechatronic Engineers)
- Climate Change and Coastal Zone Studies
- Environmental Studies for Engineers^
- Management for Engineers^
- Town Planning Studies^
- Public Health for Engineers^
- Visualisation and Animation

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- Wider Engineering Studies

^Not available at Moreton Bay campus

\*\*Not available at Sunshine Coast campus

- Honours

The Bachelor of Engineering (Civil) (Honours) may be awarded with Honours. The class of Honours to be awarded to a student is dependent upon:

- the percentage results achieved by study or transfer in twelve courses (144 units) as specified in the table below; and
- the student achieving at least 65% in ENG402 Engineering Project 2.

## COURSES

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MTH203 Numerical Analysis

MEC301 Materials Technology

ENG302 Engineering Project Management

MEC303 Computational Mechanics

MEC335 Production Engineering

MEC336 Engineering System Design

MEC300 Mechanical Design 2

ENG304 Engineering Research Methodology

ENG401 Engineering Project 1

ENG402 Engineering Project 2

MEC405 Advanced Dynamics and Control

MEC400 Thermofluids 3

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A student must complete a minimum of 8 courses (96 units) in the table and the research project for an honours grade to be awarded.

The minimum levels of achievement normally required for each class of honours are shown in the following table:

HONOURS RESULTS CLASSIFICATION	OVERALL PERCENTAGE ATTAINED IN SPECIFIED COURSES*
Honours Class I	80% - 100%
Honours Class IIA	70% - 79%
Honours Class IIB	60% - 69%

\*The percentage result shall be rounded up if  $\geq 0.5$  or rounded down if  $< 0.5$ .

Note: Program structures are subject to change. Not all USC courses are available on every USC campus.

**Total units: 384**

## Study sequence

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## Year 1

### Semester 2

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
ENG103 Introduction to the Internet of Things	• Semester 2	12	
ENG104 Introduction to Engineering Design	• Semester 2	12	Anti: ENG202
MTH104 Introductory Calculus	• Semester 2	12	Anti: MTH202
SCI110 Science Research Methods	• Semester 1, Semester 2	12	Anti: SCI201 or CPH261

### Semester 1

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
ENG101 Foundations of Engineering	• Semester 1	12	
MTH103 Introduction to Applied Mathematics	• Semester 1	12	Anti: MTH102
SCI107 Physics	• Semester 1	12	Anti: SCI108 or SCI507

PLUS select 1 course from your chosen minor.

## Year 2

### Semester 2

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
ENG102 Engineering Statics	• Semester 2	12	Pre: (SCI107 and (MTH103 or MTH102) and enrolled in Program SC404, SC405, SC410, SC411 SC425) or AB101, UU301, UU302 or XU301  Anti: CIV1501(USQ equivalent course)
MEC200 Thermofluids 1	• Semester 2	12	Pre: MTH102 or MTH103 and enrolled in Program SC404, SC405, SC410, SC411 or SC425  Anti: MEC2101(USQ course) or ENG204

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MEC227 Mechanical Design 1	• Semester 2	12	Pre: ENG202 or ENG104 or ENG1100 and enrolled in Program SC013, AB101, SC410, SC411, SC425, SC404, SC405  Co: ENG104 and enrolled in Program SC013 Antirequisite; ENG227 or MEC2304
MTH203 Numerical Analysis	• Semester 2	12	Pre: MTH202 or (MTH103 and MTH104)  Anti: MTH532 or MTH312

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Semester 1

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
MEC205 Dynamics 1	• Semester 1	12	Pre: (MTH104 or MTH202) and ENG102 and enrolled in SC404, SC405, SC410, SC411 or SC425  Anti: ENG205 or MEC2401
MEC221 Mechanics of Materials	• Semester 1	12	Pre: (ENG102 or CIV1501(USQ equivalent course)) and enrolled in Program SC404, SC405, SC410, SC411 or SC425  Anti: ENG221 or MEC2402(USQ course)
MEC225 Engineering Materials	• Semester 1	12	Pre: MTH102 or MTH103 and enrolled in program SC367, SC404, SC405, SC410, SC411, SC425, AB101, UU301, UU302 or XU301.  Anti: ENG225 or MEC1201
MTH201 Calculus II and Linear Algebra	• Semester 1	12	Pre: MTH104 or MTH202

## Year 3

### Semester 2

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
ENG304 Engineering Research Methodology	• Semester 2	12	Pre: 192 units and enrolled in Program SC410, SC411, SC425
MEC303 Computational Mechanics	• Semester 2	12	Pre: ENG227 or MEC227 or MCH200 and (ENG205 or MEC205 or MEC2401) and (ENG221 or MEC221) and enrolled in Program SC405 or SC411  Anti: MEC3302 or ENG303
MEC226 Manufacturing Technology	• Semester 2	12	Pre: ENG225 or MEC225 or MEC1201 and enrolled in Program SC410, SC411, SC425, SC404, SC405, AB101, UU301 or XU301  Anti: ENG226 or MEC2202

PLUS select 1 course from your chosen minor.

### Semester 1

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
ENG302 Engineering Project Management	• Semester 1	12	
MEC300 Mechanical Design 2	• Semester 1	12	Pre: (ENG221 or MEC221) and (ENG227 or MEC227)  Anti: ENG228
MEC302 Thermofluids 2	• Semester 1	12	Pre: MEC200 and MTH203 and enrolled in Program SC404, SC405, SC410, SC411 or SC425  Anti: ENG300
ENG401 Engineering Project 1	• Semester 1, Semester 2	12	Pre: MEC221 or ELC200, and 228 units completed and enrolled in Program SC404, SC405, SC410, SC411 or SC425

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Co:  
ENG302 and (ENG403 or  
ENG304)

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## Year 4

### Semester 2

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
ENG402 Engineering Project 2	• Semester 1, Semester 2	12	Pre: ENG401
MEC336 Engineering System Design	• Semester 2	12	Pre: ENG228 or MEC300 or MEC301 or MEC2301  Anti: ENG336 or MEC3303
MEC405 Advanced Dynamics and Control	• Semester 2	12	Pre: (MTH202 or MTH104) and (ENG205 or MEC205 or MEC2401) and enrolled in Program SC410, SC411, SC425, SC404 or SC405  Anti: ENG405 or MEC3403

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PLUS select 1 course from your chosen minor.

### Semester 1

COURSE	SEMESTER OF OFFER (SUNSHINE COAST)	UNITS	REQUISITES
MEC301 Materials Technology	• Semester 1	12	Pre: (MTH102 or MTH103) and (ENG225 or MEC225) and enrolled in Program SC411  Anti: ENG301 or MEC3203
MEC335 Production Engineering	• Semester 1	12	Pre: ENG226 or MEC226 or MEC2202 and enrolled in Program SC410, SC411, AB101, UU301 or XU301  Anti: ENG335 or MEC3204
MEC400 Thermofluids 3	• Semester 1	12	Pre: MEC302 or ENG300  Anti: ENG400

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PLUS select 1 course from your chosen minor.

## Program requirements and notes

### Program requirements

In order to graduate you must:

- Successfully complete 384 units as outlined in the Program Structure
- Complete a minimum of 60 days of suitable work experience. Students must meet all costs associated with the acquisition of practical experience to satisfy this requirement
- The acceptability or otherwise of employment experience, and the period of that type of experience that may be credited towards the 60 days, will be determined by the Program Coordinator.
- In nearly all cases students find and obtain the required experience as part of paid vacation employment during the summer break.
- Students complete their work experience programs in an area of their choice, and in the majority of cases they do so within commuting distance of their residential addresses.

### Program notes

- Completing this program within the specified (full-time) duration is based on studying 48 unit points per semester (normally 4 courses) and following the recommended study sequence
- The unit value of all courses is 12 units unless otherwise specified
- It is each student's responsibility to enrol correctly according to your course requisites, program rules and requirements and be aware of the academic calendar dates
- Courses within this program are assessed using a variety of assessment methods including essays, seminar presentations, reports, in-class tests and examinations. Not all courses will necessarily include all methods
- As part of your USC program, you may apply to Study Overseas to undertake courses with an overseas higher education provider
- Not available to international students on a Student Visa
- Refer to the Managing your progression page for help in understanding your program structure, reviewing your progress and planning remaining courses.