

# Diploma of Engineering

## Course Outline (T3, 2024)

<b>Campuses</b>	WP - Geelong Waurn Ponds Campus B - Burwood campus
<b>Intake</b>	March, June, October
<b>CRICOS</b>	063385A
<b>Pre-requisite</b>	<p>Mathematics Year 12 (At least one of VCE Specialist Maths, Maths Methods, General Mathematics or equivalent).</p> <p>Deakin College offers Foundation Program Mathematics units concurrent with the Diploma of Engineering for students who do not meet the mathematics pre-requisite. Conditions apply. Contact Deakin College admissions for more information (<a href="mailto:dcoll-admissions@deakin.edu.au">dcoll-admissions@deakin.edu.au</a>)</p> <p><b>Note: Australian students are not eligible for FEE-HELP for Foundation Program units.</b></p>
<b>Course Duration</b>	The duration of the Diploma course is three trimesters (12 months). There is an option, however, to fast track the course and complete it in two trimesters (8 months).
<b>Modes of Delivery</b>	<p><b>On campus</b> (International and Domestic Students): Instruction for all units is classroom based. Generally, four hours of class contact per week for 1 credit point units and eight hours of class contact per week for 2 credit point units. Some units have additional laboratory hours/practical classes</p> <p><b>Online</b> (Domestic Students only): Weekly self-directed study, plus one to two hours of scheduled contact per week administered online (via Zoom/Microsoft Teams)</p>
<b>Assessment</b>	<p>Assessment for all units is ongoing and continuous consisting of tests, assignments and case study analysis. Some units have a final examination.</p> <p>Both on campus and online students are expected to complete assessments and exams as per the scheduled dates provided in each unit outline and/or the exam timetable</p>
<b>Course Structure</b>	Units worth 8 credit points must be completed and passed to be awarded the Diploma (Some units are worth 2 credit points).
<b>Units (Modules)</b>	<p><b>Core units:</b></p> <p>All students in the Diploma of Engineering must complete the below 8 units worth 6 credit points</p> <p>SEB101      Engineering Physics (1 credit point)</p> <p>SEJ104      Engineering in Society (1 credit point)</p>

SEP105	Introduction to Programming for Engineers (1 credit point)
SET111	Sustainable Design (1 credit point)
SIT190	Introduction to Functions, Relations and Graphs (1 credit point)
SIT194	Introduction to Mathematical Modelling (1 credit point)
DAI001	Academic Integrity (0 credit point)
SEJ010	Introduction to Safety and Project Oriented Learning (0 credit point)

#### Required Elective units:

Students must complete 2 credit points of required elective unit/s. Please see the course plan for your chosen major sequences for which of these units you must undertake in your studies:

SEJ102	Electrical Systems Engineering Project (2 credit points)
SEJ103	Materials Engineering Project (2 credit points)
SLE133	Chemistry in our World (1 credit point)
SLE155	Chemistry for the Professional Sciences (1 credit point)
SLE010	Laboratory and Fieldwork Safety Induction Program (0 credit points)

#### Support units:

Where applicable, students may be required to study additional support unit/s alongside their other diploma unit/s. The support units available to students are:

FNDE021	Mathematics I (1 credit point) where applicable for Domestic students ONLY
FNDE023	Mathematics II (1 credit point) where applicable for Domestic students ONLY
FNDE022	Physics (1 credit point) where applicable for Domestic students ONLY
LDM100	Language Development Module (0 credit point) where applicable for International students ONLY

DAI001, SEJ010 and SLE010 are 50-minute online safety training and induction programs. They are 0 credit point compulsory units and do not count toward your total units.

- All Diploma of Engineering students must complete DAI001 as part of the Diploma of Engineering.

	<ul style="list-style-type: none"> <li>All Diploma of Engineering students enrolled in SEB101, SEJ102 or SEJ103 must complete SEJ010 as a co-requisite unit.</li> <li>All Diploma of Engineering students enrolled in SLE133 or SLE155 must complete SLE010 as co-requisite unit.</li> </ul> <p>FNDE021 and FNDE023 are compulsory for domestic students in the Support Study Program only and consist of weekly classes for the duration of the trimester. FNDE022 is an optional support unit available for students in the Support Study Program only.</p> <p>LDM100 is compulsory for international students only (where applicable) and consists of a mandatory 2 hour on campus class per week for the duration of the trimester</p>
<b>Units with on campus requirements</b>	Some units will have mandatory on campus activities. Refer to the “On Campus Requirements” section of the course plan for more information.
<b>Transfer to Deakin University</b>	<p>The following transfer criteria apply:</p> <ul style="list-style-type: none"> <li>You must complete and pass the required Deakin College Diploma of Engineering units worth 8 credit points.</li> <li>You must achieve the required Weighted Average Mark (WAM) for your Deakin College diploma taking into account all units attempted at Deakin College (required WAM’s are included under each Deakin University degree on the following page).</li> <li>For Domestic students in the Support Study Program, you must complete and pass the Maths Support modules FNDE021 and FNDE023</li> <li>For International students (where applicable) you must complete and pass the Language Development module LDM100</li> </ul>
<b>Study Mode</b>	<p><b>Domestic Students:</b> Domestic students can enrol into units worth 1 to 4 credit points, also known as modules (25%-100% study load) each trimester. Domestic students seeking Centrelink assistance must enrol in 3 or 4 credit points.</p> <p><b>International Students:</b> International Students must enroll into units worth 3 to 4 credit points, also known as modules (75%-100% study load) each trimester.</p>

## Diploma of Engineering

### Example Course Plans for Students

The following are a series of example course plans for students studying in the Diploma of Engineering at Deakin College.

The following course plans should be used as a guide only. In some cases, the order of units may be varied. However, choosing course plans that are the same or similar to the suggested plans below should, in most cases, minimise clashes and the time taken to complete your diploma.

### How to use the Plans

Students need to select or choose which Deakin Course they wish to transfer into once they have completed their studies at Deakin College. Deakin offers direct transfer into the following course:

- Bachelor of Engineering (Honours)

Major sequences

- Civil Engineering
- Electrical and Renewable Energy Engineering
- Environmental and Sustainability Engineering
- Mechanical Engineering
- Mechatronics Engineering

Domestic students should check their letter of offer to see if they are required to complete the mathematics support units as part of the Support Study Program. International students will see any required support units when they enrol. Please refer to the course plans for the recommended study plans to incorporate these support units into your diploma.

For students beginning their diploma in 2024 and transferring to Deakin University in 2025, some major sequences at Deakin University are exclusively available at the Geelong Waurm Ponds campus. Please see the below table to see which campus has each major sequence:

Major sequences	Geelong Waurm Ponds Campus	Burwood Campus
Civil Engineering	✓	X
Electrical and Renewable Energy Engineering	✓	X
Environmental and Sustainability Engineering	✓	✓
Mechanical Engineering	✓	✓
Mechatronics Engineering	✓	✓

Students wishing to complete the Civil Engineering and Electrical and Renewable Energy Engineering Major sequences on campus are required to study at the Geelong Waurm Ponds Campus after completing the Diploma of Engineering.



Students beginning their diploma in Trimester 1 2025 will be able to complete all major sequences at the Burwood campus.

## Unit Availability – Diploma of Engineering Waurn Ponds Campus

Core Units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
SEB101 Engineering Physics	✓	✓	✓
SEJ104 Engineering in Society	✓	✓	✓
SET111 Sustainable Design	✓	✓	✓
SIT190 Introduction to Functions, Relations and Graphs	✓	✓	✓
SIT194 Introduction to Mathematical Modelling	✓	✓	✓
SEP105 Introduction to Programming for Engineers	✓	✓	✓

Elective Units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
SEJ102 Electrical System Engineering Project	✓	✓	✓
SEJ103 Materials Engineering Project	✓	✓	✓
SLE133 Chemistry in our World	✓	✓	✓
SLE155 Chemistry for the Professional Sciences	✓	✓	✓
SLE010 Laboratory and Fieldwork Safety Induction Program	✓	✓	✓

Support Units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
FNDE021 Mathematics I	✓	✓	✓
FNDE022 Physics	✓	✓	✓
FNDE023 Mathematics II	✓	✓	✓
LDM100 Language Development Module (0 credit point)	✓	✓	✓

0 credit point units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
DAI001 Academic Integrity	✓	✓	✓
SEJ010 Introduction to Project Oriented Design Based Learning	✓	✓	✓

## Unit Availability – Diploma of Engineering Burwood Campus

Core Units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
SEB101 Engineering Physics	✓	✓	✓
SEJ104 Engineering in Society	✓	✓	✓
SET111 Sustainable Design	✓	✓	✓
SIT190 Introduction to Functions, Relations and Graphs	✓	✓	✓
SIT194 Introduction to Mathematical Modelling	✓	✓	✓
SEP105 Introduction to Programming for Engineers	✓	✓	✓

Elective Units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
SEJ102 Electrical System Engineering Project	✓	✓	✓
SEJ103 Materials Engineering Project	✓	✓	✓
SLE133 Chemistry in our World	✓	✓	✓
SLE155 Chemistry for the Professional Sciences	✓	✓	✓
SLE010 Laboratory and Fieldwork Safety Induction Program (0 credit point)	✓	✓	✓

Support Units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
FNDE021 Mathematics I	✓	✓	✓
FNDE022 Physics	✓	✓	✓
FNDE023 Mathematics II	✓	✓	✓
LDM100 Language Development Module (0 credit point)	✓	✓	✓

Mandatory 0 credit point units	Trimester 3 2024	Trimester 1 2025	Trimester 2 2025
DAI001 Academic Integrity	✓	✓	✓
SEJ010 Introduction to Project Oriented Design Based Learning	✓	✓	✓

When I transfer to Deakin I want to study (Please choose one of the following):

### Bachelor of Engineering (Honours) - Civil Engineering major sequence

International Students WAM: **WP 50**

Australian Students WAM: **WP 50, C 50**

Credits for Transfer: 8

### Bachelor of Engineering (Honours) - Mechanical Engineering major sequence

International Students WAM: **B 50, WP 50**

Australian Students WAM: **B 50, WP 50, C 50**

Credits for Transfer: 8

### Entry to Deakin T1 T2

Normal Track (Completing course in 12 months/ 3 Trimesters)						
1 <sup>st</sup> Trimester	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Safety Unit (required)</b> SEJ010	<b>Academic Integrity Unit (required)</b> DAI001	<b>Language Development Module</b> (where applicable for international students only) LDM100
2 <sup>nd</sup> Trimester	<b>CORE</b> SEB101 Engineering Physics	<b>Required Elective</b> SEJ103 Materials Engineering Project				
3 <sup>rd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>CORE</b> SEP105 Introduction to Programming for Engineers				

Fast Track (Completing In 8 months/2 trimesters)							
1 <sup>st</sup> Trimester	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Safety Unit (required)</b> SEJ010	<b>Academic Integrity Unit (required)</b> DAI001	<b>Language Development Module</b> (where applicable for international students only) LDM100
2 <sup>nd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>Required Elective</b> SEJ103 Materials Engineering Project				

Support Study Program (Completing course in 12 months/ 3 Trimesters)					
1 <sup>st</sup> Trimester	<b>SUPPORT</b> FNDE021 Maths I	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>Safety Unit (required)</b> SEJ010	<b>Academic Integrity Unit (required)</b> DAI001
2 <sup>nd</sup> Trimester	<b>SUPPORT</b> FNDE023 Maths II	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	
3 <sup>rd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>Required Elective</b> SEJ103 Materials Engineering Project			



\* Students intending to articulate into the Bachelor of Engineering (Honours) - Civil Engineering major sequence or Mechanical Engineering major sequence must enrol in SEJ103 Materials Engineering Project unit. You are transferring to a course structure based on project-oriented design-based learning (PODBL) from 2nd year onwards at Deakin University.

### Important notes:

1. Students will have trimesters where they will be unable to study a 25% study load
2. For SEB101 and SEJ103, you must complete SEJ010 Introduction to Safety and Project Oriented Learning as a co-requisite unit

### Language Development Module LDM100 notes:

1. The English language support unit is compulsory for international students (where applicable) studying the Diploma of Engineering.
2. It is a 0 credit point unit that must be studied as part of the diploma and undertaken in student's first trimester of study.
3. The unit is offered on campus and students must attend a mandatory 2 hour on campus class per week for the duration of the trimester. Attendance will be taken for this class.
4. This unit is offered at no cost for new Diploma students commencing in T3 2024. Should a student fail this unit on the first attempt, the second attempt will also not incur any cost (subject to review).
5. Students are required to pass this unit before transferring to Deakin University.

### Support Study Program notes:

1. The Support Study Program is for local Australian students who are required to establish a stronger basis in mathematics and physics. The Support Study Program involves the addition of a compulsory foundation level mathematic units (FNDE021 Maths 1 and FNDE023 Maths 2).
  - o FNDE021 must be completed before FNDE023, SEB101 and SIT190.
  - o FNDE023 must be completed before SIT194.
2. FNDE022 Physics is an optional support unit available for students with no previous physics study in the Support Study Program. It is not a required unit to complete the Diploma of Engineering. Contact your Academic Coordinator for more information if you wish to complete this unit.
3. Students in the Support Study Program cannot be enrolled into FNDE021, FNDE022 or FNDE023 as their only units, meaning that they will have multiple trimesters where the minimum study load is greater than 25%. Students must be enrolled into a minimum of one diploma level unit each trimester.
4. For local Australian students in the Support Study Program, FNDE021 & FNDE023 are fee-exempt for the first attempt only. Full fees apply on a repeat attempt/s and must be paid prior to enrolment. This fee will not be covered by FEE-HELP.
5. For local Australian students in the Support Study Program, FNDE022 is offered at 50% of the unit cost for the first attempt only and must be paid prior to enrolment. Full fees apply on a repeat attempt/s and must be paid prior to enrolment. This fee will not be covered by FEE-HELP.

### On Campus Requirements:

The following units have mandatory on campus requirements:

1. SEB101 – All students regardless of study mode will be required to attend 2 full days of on campus practical activities. The exact date will be communicated to students at the start of the trimester. \*
2. SEJ103 – All students regardless of study mode will be required to attend 1 full day of on campus practical activities. The exact date will be communicated to students at the start of the trimester. \*

If you have any questions regarding these units, please reach out to your Academic Coordinator

\*Requirements are subject to change

### Deakin University Campus and Trimester codes

**WP** - Geelong Waurin Ponds Campus

**B** - Burwood Campus

**C** - Cloud Campus

**T1** Trimester 1 entry **T2** Trimester 2 entry

NOTE: for Australian students entry is for T1 only. T2 entry is subject to availability of places.

CRICOS Course Code: Bachelor of Engineering (Honours) 113508K

When I transfer to Deakin I want to study (Please choose one of the following):

### Bachelor of Engineering (Honours) - Electrical and Renewable Energy Engineering major sequence

International Students WAM: **WP 50**

Australian Students WAM: **WP 50, C 50**

Credits for Transfer: 8

### Bachelor of Engineering (Honours) - Mechatronics Engineering major sequence

International Students WAM: **B 50, WP 50**

Australian Students WAM: **B 50, WP 50, C 50**

Credits for Transfer: 8

### Entry to Deakin T1 T2

Normal Track (Completing course in 12 months/ 3 Trimesters)						
1 <sup>st</sup> Trimester	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Safety Unit (required)</b> SEJ010	<b>Academic Integrity Unit (required)</b> DAI001	<b>Language Development Module</b> (where applicable for international students only) LDM100
2 <sup>nd</sup> Trimester	<b>CORE</b> SEB101 Engineering Physics	<b>Required Elective</b> SEJ102 Electrical Systems Engineering Project				
3 <sup>rd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>CORE</b> SEP105 Introduction to Programming for Engineers				

Fast Track (Completing In 8 months/2 trimesters)							
1 <sup>st</sup> Trimester	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Safety Unit (required)</b> SEJ010	<b>Academic Integrity Unit (required)</b> DAI001	<b>Language Development Module</b> (where applicable for international students only) LDM100
2 <sup>nd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>Required Elective</b> SEJ102 Electrical Systems Engineering Project				

Support Study Program (Completing course in 12 months/ 3 Trimesters)					
1 <sup>st</sup> Trimester	<b>SUPPORT</b> FNDE021 Maths I	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>Safety Unit (required)</b> SEJ010	<b>Academic Integrity Unit (required)</b> DAI001
2 <sup>nd</sup> Trimester	<b>SUPPORT</b> FNDE023 Maths II	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	
3 <sup>rd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>Required Elective</b> SEJ102 Electrical Systems Engineering Project			

\* Students intending to articulate into the Bachelor of Engineering (Honours) - Electrical and Renewable Energy Engineering major sequence or Mechatronics Engineering major sequence must enrol in SEJ102 Electrical System Engineering Project. You are transferring to a course structure based on project-oriented design-based learning (PODBL) from 2nd year onwards at Deakin University.

### Important notes:

1. Students will have trimesters where they will be unable to study a 25% study load
2. For SEB101 and SEJ102, you must complete SEJ010 Introduction to Safety and Project Oriented Learning as a co-requisite unit

### Language Development Module LDM100 notes:

1. The English language support unit is compulsory for international students (where applicable) studying the Diploma of Engineering.
2. It is a 0 credit point unit that must be studied as part of the diploma and undertaken in student's first trimester of study.
3. The unit is offered on campus and students must attend a mandatory 2 hour on campus class per week for the duration of the trimester. Attendance will be taken for this class.
4. This unit is offered at no cost for new Diploma students commencing in T3 2024. Should a student fail this unit on the first attempt, the second attempt will also not incur any cost (subject to review).
5. Students are required to pass this unit before transferring to Deakin University.

### Support Study Program notes:

1. The Support Study Program is for local Australian students who are required to establish a stronger basis in mathematics and physics. The Support Study Program involves the addition of a compulsory foundation level mathematic units (FNDE021 Maths 1 and FNDE023 Maths 2).
  - FNDE021 must be completed before FNDE023, SEB101 and SIT190.
  - FNDE023 must be completed before SIT194.
2. FNDE022 Physics is an optional support unit available for students with no previous physics study in the Support Study Program. It is not a required unit to complete the Diploma of Engineering. Contact your Academic Coordinator for more information if you wish to complete this unit.
3. Students in the Support Study Program cannot be enrolled into FNDE021, FNDE022 or FNDE023 as their only units, meaning that they will have multiple trimesters where the minimum study load is greater than 25%. Students must be enrolled into a minimum of one diploma level unit each trimester.
4. For local Australian students in the Support Study Program, FNDE021 & FNDE023 are fee-exempt for the first attempt only. Full fees apply on a repeat attempt/s and must be paid prior to enrolment. This fee will not be covered by FEE-HELP.
5. For local Australian students in the Support Study Program, FNDE022 is offered at 50% of the unit cost for the first attempt only and must be paid prior to enrolment. Full fees apply on a repeat attempt/s and must be paid prior to enrolment. This fee will not be covered by FEE-HELP.

### On Campus Requirements:

The following units have mandatory on campus requirements:

1. SEB101 – All students regardless of study mode will be required to attend 2 full days of on campus practical activities. The exact date will be communicated to students at the start of the trimester. \*
2. SEJ102 – All students regardless of study mode will be required to attend 2 full days of on campus practical activities. The exact date will be communicated to students at the start of the trimester. \*

If you have any questions regarding these units, please reach out to your Academic Coordinator

\*Requirements are subject to change

### Deakin University Campus and Trimester codes

**WP** - Geelong Waurin Ponds Campus

**B** - Burwood Campus

**C** - Cloud Campus

**T1** Trimester 1 entry **T2** Trimester 2 entry

NOTE: for Australian students entry is for T1 only. T2 entry is subject to availability of places.

CRICOS Course Code: Bachelor of Engineering (Honours) 113508K

When I transfer to Deakin I want to study (Please choose one of the following):

### Bachelor of Engineering (Honours) - Environmental and Sustainability Engineering major sequence

International Students WAM: **B 50, WP 50**

Australian Students WAM: **B 50, WP 50, C 50**

Credits for Transfer: 8

### Entry to Deakin T1 T2

Normal Track (Completing course in 12 months/ 3 Trimesters)							
1 <sup>st</sup> Trimester	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Safety Unit (required)</b> SEJ010 and SLE010	<b>Academic Integrity Unit (required)</b> DAI001	<b>Language Development Module</b> (where applicable for international students only) LDM100	
2 <sup>nd</sup> Trimester	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>Required Elective</b> SLE33 Chemistry in our world				
3 <sup>rd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>Required Elective</b> SLE155 Chemistry for the Professional Sciences					
Fast Track (Completing In 8 months/2 trimesters)							
1 <sup>st</sup> Trimester	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Required Elective</b> SLE33 Chemistry in our world	<b>Safety Unit (required)</b> SEJ010 and SLE010	<b>Academic Integrity Unit (required)</b> DAI001	<b>Language Development Module</b> (where applicable for international students only) LDM100
2 <sup>nd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>CORE</b> SEJ104 Engineering in Society	<b>Required Elective</b> SLE155 Chemistry for the Professional Sciences			
Support Study Program (Completing course in 12 months/ 3 Trimesters)							
1 <sup>st</sup> Trimester	<b>SUPPORT</b> FNDE021 Maths I	<b>CORE</b> SET111 Sustainable Design	<b>CORE</b> SEJ104 Engineering in Society	<b>Safety Unit (required)</b> SEJ010 and SLE010	<b>Academic Integrity Unit (required)</b> DAI001		
2 <sup>nd</sup> Trimester	<b>SUPPORT</b> FNDE023 Maths II	<b>CORE</b> SEB101 Engineering Physics	<b>CORE</b> SIT190 Introduction to Functions, Relations and Graphs	<b>Required Elective</b> SLE33 Chemistry in our world			
3 <sup>rd</sup> Trimester	<b>CORE</b> SIT194 Introduction to Mathematical Modelling	<b>CORE</b> SEP105 Introduction to Programming for Engineers	<b>Required Elective</b> SLE155 Chemistry for the Professional Sciences				

\* For students intending to articulate into the Bachelor of Engineering (Honours) - Environmental and Sustainability Engineering major sequence. You are transferring to a course structure based on project-oriented design-based learning (PODBL) from 2nd year onwards at Deakin University.

### Important notes:

1. Students aiming to progress into the Bachelor of Engineering (Honours) – Environmental and Sustainability Engineering major sequence in the Support Study Program will have trimesters where they will be unable to study a 25% study load. Refer to the Support Study Program notes
2. For SEB101, you must complete SEJ010 Introduction to Safety and Project Oriented Learning as a co-requisite unit.
3. For SLE133 and SLE155 you must complete SLE010 Laboratory and Fieldwork Safety Induction Program as a co-requisite unit

### Language Development Module LDM100 notes:

1. The English language support unit is compulsory for international students (where applicable) studying the Diploma of Engineering.
2. It is a 0 credit point unit that must be studied as part of the diploma and undertaken in student's first trimester of study.
3. The unit is offered on campus and students must attend a mandatory 2 hour on campus class per week for the duration of the trimester. Attendance will be taken for this class.
4. This unit is offered at no cost for new Diploma students commencing in T3 2024. Should a student fail this unit on the first attempt, the second attempt will also not incur any cost (subject to review).
5. Students are required to pass this unit before transferring to Deakin University.

### Support Study Program notes:

1. The Support Study Program is for local Australian students who are required to establish a stronger basis in mathematics and physics. The Support Study Program involves the addition of a compulsory foundation level mathematic units (FNDE021 Maths 1 and FNDE023 Maths 2).
  - FNDE021 must be completed before FNDE023, SEB101 and SIT190.
  - FNDE023 must be completed before SIT194.
2. FNDE022 Physics is an optional support unit available for students with no previous physics study in the Support Study Program. It is not a required unit to complete the Diploma of Engineering. Contact your Academic Coordinator for more information if you wish to complete this unit.
3. Students in the Support Study Program cannot be enrolled into FNDE021, FNDE022 or FNDE023 as their only units, meaning that they will have multiple trimesters where the minimum study load is greater than 25%. Students must be enrolled into a minimum of one diploma level unit each trimester.
4. For local Australian students in the Support Study Program, FNDE021 & FNDE023 are fee-exempt for the first attempt only. Full fees apply on a repeat attempt/s and must be paid prior to enrolment. This fee will not be covered by FEE-HELP.
5. For local Australian students in the Support Study Program, FNDE022 is offered at 50% of the unit cost for the first attempt only and must be paid prior to enrolment. Full fees apply on a repeat attempt/s and must be paid prior to enrolment. This fee will not be covered by FEE-HELP.

### On Campus Requirements:

The following units have mandatory on campus requirements:

1. SEB101 – All students regardless of study mode will be required to attend 2 full days of on campus practical activities. The exact date will be communicated to students at the start of the trimester. \*
2. SLE133 – All students regardless of study mode will be required to attend 5 on campus practical sessions per trimester. The exact dates will be communicated to students at the start of the trimester. \*
3. SLE155 – All students regardless of study mode will be required to attend 5 on campus practical sessions per trimester. The exact dates will be communicated to students at the start of the trimester. \*

If you have any questions regarding these units, please reach out to your Academic Coordinator

\*Requirements are subject to change

### Deakin University Campus and Trimester codes

**WP** - Geelong Waurn Ponds Campus

**B** - Burwood Campus

**C** - Cloud Campus

**T1** Trimester 1 entry **T2** Trimester 2 entry

NOTE: for Australian students entry is for T1 only. T2 entry is subject to availability of places.

**DEAKIN  
COLLEGE**  
in association with



CRICOS Course Code: Bachelor of Engineering (Honours) 113508K

## Unit Outlines:

**PLEASE ENSURE YOU CHECK THE UNIT OUTLINE FOR ANY CONTENT AND ASSESSMENT UPDATES.**

### SEJ104 | Engineering in Society

This unit focuses on the principles and practices of human centred design as well as whole system design, within the context of sustainable systems. Design is an essential part of engineering professional practice, and students will explore the process of design ideation, definition and problem solving, by working on an authentic, real-world problem. The unit allows the students to explore human and natural factors that influence design projects, while also considering the values and needs of clients and end users.

**Assessment: Case Study Review (Individual) 25%, Sustainable Design Project (Group) 50%, Visual Poster Presentation 25%**

### SET111 | Sustainable Design

This unit focuses on the principles and practices of computer aided design. Design is an essential element of professional practice and requires unique knowledge, skills and attitudes common to a number of engineering disciplines. The unit allows students to develop their technical and professional practice skills for a career in engineering. Students will learn how to design an artefact using sustainable design principles and lay the foundations for 3D modelling and engineering drawings.

**Assessment: Design Portfolio (Individual) Part 1 and Part 2 70%, CAD Skills Test (Individual) 30%**

**To be eligible to obtain a pass in this unit, students must achieve an overall mark of at least 50% in CAD skills test**

### SIT194 | Introduction to Mathematical Modelling

SIT194 aims to develop the theory of calculus and analytic geometry and to apply it to formulating and solving problems in engineering and the physical sciences. This unit introduces students to the topics of functions and limits, derivatives and integrals of combinations of polynomials, exponential, logarithmic and trigonometric functions; sequences, series tests and power series and first order differential equations. Applications studied include graph sketching; approximations to solutions of equations and integrals; formulation of models to solve science and engineering problems.

**Assessment: Individual Tasks 50%, Examination 50%**

### SEP105 | Introduction to Programming for Engineers

In this unit the fundamental concepts and skills of programming are introduced. Students will use the C++ programming language to learn and build a foundation in programming skills and knowledge. Students will apply programming techniques and concepts to solve virtual problems which will increase in difficulty through the trimester. By the end of this unit, students will have a general understanding about the layers which exist in programs, have access to different programming skills and methods used to write a program and be able to write and debug simple C++ programs.

**Assessment: Weekly Tests 30%, Programming Project 1 15%, Programming Project 2 15%, Programming Project 3 and Presentation 40%**

**To be eligible for a pass in this unit, students must achieve a minimum of 50% in the presentation element of Project 3.**

### **SEB101 | Engineering Physics**

The unit will commence with a calculus treatment of kinematics of motion in one, two and three dimensions, including parabolic motion. The application of Newtons laws to a wide variety of phenomena will be investigated and the concepts of work, energy and the conservation laws discussed. Rotational kinematics and dynamics will be introduced, including the concepts of moment of inertia, torque, moment of a force, angular momentum. Also introduced are electrical concepts of charge, field, and voltage. Other topics to be covered are vectors, statics, centre of mass and centroids.

**Assessment: Laboratory reports 50%, Class tests 20%, Examination 30%**

**To be eligible to obtain a pass in this unit, students must achieve an overall mark of at least 40% in the laboratory reports.**

### **SIT190 | Introduction to Functions, Relations and Graphs**

This unit aims to develop the fundamental functions of applied mathematics, and to introduce calculus to students who have not previously studied it in secondary school. It is designed to prepare students from a number of different disciplines for learning tertiary level mathematics. Students will explore the algebra of polynomials, exponentials, logarithms and trigonometric functions and learn rules for differentiating and integrating these functions. Applications studied include graph sketching, maximisation and minimisation problems, areas and kinematics.

**Assessment: 40% three assignments (10% + 15% + 15%), 60% final examination.**

### **SEJ102 | Electrical Systems Engineering Project**

This is a project and design-based unit which introduces students to the fundamentals of electrical systems, covering three main topics; electricity basics including capacitance, resistance, inductance and EMF; electric circuits; and semi-conductor devices. The unit will also introduce students to elements of professional practice including OHS, professional ethics and sustainability in the context of engineering projects.

Students will work in groups, using their knowledge gained through classes, studios and practical experiences, the concepts covered in the seminar sessions, as well as knowledge gained from self-directed learning to complete their design of an electrical systems project meeting specified requirements. Students will communicate the considerations taken in their design in a variety of forms including written assessments tasks and a group presentation.

**Assessment: Online Tests 20%, Group Research and Design Proposal 10%, Group Presentation 10%, Individual Portfolio 60%.**

**To be eligible to obtain a pass in this unit, students must receive at least 40% in the Portfolio, and a minimum of 40% on the Group Presentation**



## SEJ103 | Materials Engineering Project

This unit introduces students to various types of materials that are typically used in wide ranging engineering applications. Initially, emphasis will be given on gaining appropriate knowledge of mechanical properties of various material types through combinations of theoretical, practical and case study analysis. Students will learn the significance of mechanical properties that are important in engineering design. Students will also gain knowledge on loading, stress calculation techniques and relevant engineering design principles to tackle those stresses by combining available material and typical structural shapes. Students shall be individually assessed on their performance through quiz, reports and oral presentations, and their team participation performance shall be assessed through group submission. Students are highly encouraged to participate in team discussions for project design throughout the trimester.

**Assessment: Group Design Report 20%, Online Quizzes 20%, Individual Report 25%, Final Design Report and Presentation 35%.**

**To be eligible to obtain a pass in this unit, students must achieve an overall mark of at least 50% in the combined quizzes and a mark of at least 40% in the final assessment task: Final Design Report and Presentation**

## SLE133 | Chemistry in Our World

SLE133 is a foundation unit designed to develop and consolidate student understandings and skills in basic chemistry. The learning and assessment activities provide students with the opportunity to study atoms, molecules, and ions, how they change during a chemical reaction and how bonding affects properties such as intermolecular interactions, boiling points, ease of evaporation and the ability of substances to dissolve in water. Students will engage in laboratory work in order to develop their hands on skills in chemical safety and measurement and their ability to perform calculations related to substance measurement. Students will then apply these concepts of bonding, chemical change and measurement to determine the acidity and basicity of substances and the formation of buffers.

This unit can be taken as a stand-alone unit for students who need some awareness of chemistry to broaden their degree, or can be taken as a foundation for further studies in biochemistry, chemistry, and related areas like food and nutrition, molecular biology and science education.

You must have completed SLE010 in the current or a previous trimester, before you can attend any laboratory sessions.

**Assessment: Assessment task 1 – Online quizzes 20%, Assessment task 2 - Laboratory exercises and reports 30%, Assessment task 3 – tutorial goal setting and reflection activities 10%, Final examination 40%.**

**To be eligible to obtain a pass in the this unit, students must achieve at least 50% in the practical component.**

## SLE155 | Chemistry for the Professional Sciences

SLE155 builds on the student's previous chemistry knowledge about atoms, molecules, properties, reactions, measurement and acidity. Students will extend their knowledge to more advanced chemical naming, structures, and hypervalent bonding. They will be introduced to additional topics such as, chemical equilibria, solution chemistry, simple organic compounds, chirality and functional groups.

Students must successfully complete SLE133 before enrolling in SLE155.

**Assessment: Online Quizzes 20%, Laboratory exercises and reports 40%, Examination 40%.**

**To be eligible to obtain a pass this unit, students must achieve at least 50% in the laboratory exercises and reports.**

## SEJ010 | Introduction to Safety and Project Oriented Learning

This zero-credit point unit will provide students with an introduction to the premise of the project-oriented design-based learning (PODBL) pedagogy. It will introduce students to the 7-step design process. It will also introduce information literacy as used in PODB. This unit also includes safety information for students involved in mechanical and electronics laboratory work. The program encompasses mechanical and electronic hazards, building evacuation procedures, laboratory accident management and first aid procedures and safety work procedures particular to laboratory and fieldwork.

**Assessment: Multiple-choice test 100%**

**To be eligible to obtain a pass in this unit, students must achieve a minimum mark of 70%.**

## DAI001 | Academic Integrity

DAI001 is a compulsory zero credit point unit in all courses in the Faculty of Science, Engineering and Built Environment. The unit learning and assessment activities provides students with guidance on what constitutes academic integrity. It will allow students to develop knowledge, skills and good practice principles to avoid plagiarism and collusion and thereby maintain academic integrity.

**Assessment: Multiple-choice test 100%. To be eligible to obtain a pass in this unit, students must achieve a minimum mark of 85%. Unlimited attempts of the online assessment are permitted.**

## SLE010 | Laboratory and Fieldwork Safety Induction Program

In SLE010, students will develop an awareness of safety measures and protocols to be followed in scientific laboratory work and fieldwork. The unit encompasses information about biological and chemical hazards, building evacuation procedures, laboratory accident management, first aid procedures and safety work procedures. Attendance in all practical classes and/or field trips may be restricted unless you have passed the online quiz with a mark of 70% or greater. Results for all units requiring the completion of SLE010 as a co-requisite may not be released until the quiz is passed.

**Assessment: 100% multiple-choice examination (60 minutes) to be completed by the end of week 2. To be eligible to obtain a pass in this unit students must achieve a minimum mark of 70%. Multiple attempts at the quiz are permitted.**

## FNDE021 | Mathematics I

This module introduces students to Calculus and prepares students for more advanced studies, for both academic and professional purposes. Students will use critical thinking and cognitive skills to identify, analyse, compare, and assess mathematical concepts in order to apply them to technical and engineering problems.

**Assessment: Multiple Choice Quiz 10%, Test 1 35%, Challenge Task 20%, Test 2 35%**

## FNDE022 | Physics

This unit provides students with the knowledge of a broad range of physics concepts, and to help them appreciate the impact of physics on technology and our society. The practical investigations in this unit require logical and analytical thinking, as well as the communication of scientific information and ideas. The basic principles of physics acquired enable students to explain many natural phenomena. They will also learn to apply these phenomena in technologies, which are important to modern-day society.

**Assessment: Multiple Choice Quiz 10%, Mid trimester Quiz 25%, Practical 15%, Homework Tasks 10%, Final Exam 40%**

## FNDE023 | Mathematics II

This module provides a background in Calculus and prepares students for further studies academically and professionally. Students will develop and apply critical thinking and cognitive skills to identify, analyse, compare, and assess mathematical concepts for solving technical and engineering problems.

**Assessment: Multiple Choice Quiz 10%, Test 1 35%, Challenge Task 20%, Test 2 35%**

## LDM100 | Language Development Module

This module is designed to provide students with opportunities to review, develop and practice the English language systems and skills required to successfully participate in an undergraduate degree program.

**Assessment: There are multiple forms of assessment throughout the trimester to assess your English language skills.**