



## COURSE OUTLINE

# ENG402 Engineering Project 2

**Course Coordinator:** Christophe Gerber (cgerber@usc.edu.au) **School:** School of Science, Technology and Engineering

2021 | Semester 2

USC Sunshine Coast

ON CAMPUS

Most of your course is on campus but you may be able to do some components of this course online.

*Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.*

## 1. What is this course about?

### 1.1. Description

The final year project (ENG401 and ENG402) represents the capstone and culmination of your four-year engineering degree. It allows you to demonstrate that you can put engineering theory into practice and operate at a professional level. The overall aim of this course is to provide you with the opportunity to demonstrate proficiency in engineering research and design. This will be done through an approved research or design project and the production of a report and oral defence that clearly present your 'results' and evidence the application of engineering technical skills and knowledge.

### 1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS			
Lecture	2hrs	Week 1	Once Only

### 1.3. Course Topics

- Planning and execution of final year engineering project
- Conducting of research relevant to the engineering discipline
- Roles and responsibilities in an engineering project
- Meeting of project and reporting milestones
- Collaborative work with an Advisor and project team
- Communication of project information in written, visual and oral formats

## 2. What level is this course?

400 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

## 3. What is the unit value of this course?

12 units

## 4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Engineers Australia
1 Apply the Engineering Process to conduct an engineering project.	Empowered	1 - KNOWLEDGE AND SKILL BASE (SELECT FROM SUB-CATEGORIES BELOW) 2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW)
2 Challenge engineering practice and contribute to new developments in your engineering discipline.	Empowered Engaged	1 - KNOWLEDGE AND SKILL BASE (SELECT FROM SUB-CATEGORIES BELOW) 2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW)
3 Define a problem and formulate a problem statement.	Empowered	1 - KNOWLEDGE AND SKILL BASE (SELECT FROM SUB-CATEGORIES BELOW) 2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW) 3 - PROFESSIONAL AND PERSONAL ATTRIBUTES (SELECT FROM SUB-CATEGORIES BELOW)
4 Review, engage and challenge the (research) literature in a specialist domain / an engineering discipline.	Ethical Engaged	1 - KNOWLEDGE AND SKILL BASE (SELECT FROM SUB-CATEGORIES BELOW) 2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW) 3 - PROFESSIONAL AND PERSONAL ATTRIBUTES (SELECT FROM SUB-CATEGORIES BELOW)
5 Develop and design concepts, solutions and procedures in your engineering discipline.	Creative and critical thinker Engaged	1 - KNOWLEDGE AND SKILL BASE (SELECT FROM SUB-CATEGORIES BELOW) 2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW)
6 Test and evaluate your concepts, solutions and procedures to reach informed decisions.	Empowered Sustainability-focussed	1 - KNOWLEDGE AND SKILL BASE (SELECT FROM SUB-CATEGORIES BELOW) 2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW)
7 Reflect on and evaluate the project impacts for the community (e.g. engineering discipline) and environment.	Ethical Sustainability-focussed	2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW) 3 - PROFESSIONAL AND PERSONAL ATTRIBUTES (SELECT FROM SUB-CATEGORIES BELOW)
8 Manage your project incl. planning, organising and managing resources and prioritising competing demands.	Empowered Engaged	2 - ENGINEERING APPLICATION ABILITY (SELECT FROM SUB-CATEGORIES BELOW) 3 - PROFESSIONAL AND PERSONAL ATTRIBUTES (SELECT FROM SUB-CATEGORIES BELOW)

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Engineers Australia
9 Communicate about your project, its development and outcomes to a professional audience in several media.	Engaged	3 - PROFESSIONAL AND PERSONAL ATTRIBUTES (SELECT FROM SUB-CATEGORIES BELOW)
10 Work collaboratively in a project team.	Engaged	3 - PROFESSIONAL AND PERSONAL ATTRIBUTES (SELECT FROM SUB-CATEGORIES BELOW)

## 5. Am I eligible to enrol in this course?

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

### 5.1. Pre-requisites

ENG401

### 5.2. Co-requisites

Not applicable

### 5.3. Anti-requisites

Not applicable

### 5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

## 6. How am I going to be assessed?

### 6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

### 6.2. Details of early feedback on progress

Your will receive feedback from your Academic Advisor(s) by the end of Week 2

### 6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Written Piece	Individual or Group	0%	0.5-1.0 hour.	Week 1	To Supervisor
All	2	Artefact - Creative	Individual or Group	5%	Up to 300 words.	Week 5	To Supervisor
All	3	Report	Individual or Group	5%	10,000-17,500 words (Refer to Format).	Week 11	Online Assignment Submission with plagiarism check
All	4	Report	Individual or Group	80%	10,000-17,500 words (Refer to Format).	Week 13	Online Assignment Submission with plagiarism check
All	5	Oral	Individual or Group	10%	Individual: up to 30 minutes, Group: up to 45 minutes.	Exam Period	Online Assignment Submission

### All - Assessment Task 1: Project Preview

<b>GOAL:</b>	The purpose of this task is to re-confirm the goals, timelines and project activities in preparation for the delivery of the final report and oral defence. The discussions and feedback from ENG401 Tasks 4 & 5 shall be considered.	
<b>PRODUCT:</b>	Written Piece	
<b>FORMAT:</b>	This project preview will take the form of either an individual or project team discussion with your project Advisor(s). You will outline the progress to date and re-establish the goals, timelines, and project activities. This will include the roles and responsibilities of all team members towards completion of the project. For Groups, an evaluation of their Statement of collaboration shall also be conducted as part of the preview.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	Communication of the progress to date <b>9</b>
	2	Consistent progress towards project aims <b>8</b>
	3	Ethical conduct and professional accountability <b>8</b>
	4	Effective oral and written communication in professional and lay domains. <b>9</b>
	5	Orderly management of self, and professional conduct. <b>8</b>
	6	Effective team membership and team leadership. (Group only) <b>10</b>

### All - Assessment Task 2: Poster Presentation

<b>GOAL:</b>	The purpose of this task is to present a brief synopsis of your project, giving you an opportunity to communicate and share information about your project with an audience of professional engineers.	
<b>PRODUCT:</b>	Artefact - Creative	
<b>FORMAT:</b>	The poster presentation is a brief synopsis covering the progress and/or key findings of your project to date. On an A1-size poster you present core information of your project concisely and precisely. You also make effective use of Figures. Instructions for submission are provided on Blackboard, incl. mandatory content.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	Communication of the progress and/or findings of the project to date <b>9</b>
	2	Presentation and communication of the project in written and visual formats using appropriate terminology and visual aids to a professional audience <b>9</b>
	3	Appropriate format and use of poster structure/graphics, grammar, syntax, referencing, etc. <b>9</b>
	4	Effective oral and written communication in professional and lay domains. <b>9</b>
	5	Effective team membership and team leadership. (Group only) <b>10</b>

**All - Assessment Task 3:** Final project report (draft)

<b>GOAL:</b>	The purpose of this task is for either individuals or teams to receive feedback on a draft version of your Final project report. In your Final project report (draft), you provide a written account of your final year project, presenting your solution(s) and outcomes of your investigation, e.g. design solution(s), recommendations, etc., supported by evidences.																						
<b>PRODUCT:</b>	Report																						
<b>FORMAT:</b>	<p>The Final project report (draft) corresponds to a review-ready version of your Final project report. It presents and details your solutions, incl. the steps towards the solutions to the project problem. It provides and clarifies the background of the project. It communicates ideas and methods used to obtain your answer.</p> <p>The Final project report (draft) is a professional engineering report that shall be concisely worded, well-organised, and understandable to any engineers in the relevant field or discipline.</p> <p>The Final project report (draft) is an opportunity to receive feedback on your report in preparation for the submission of your Final project report in Week 13.</p> <p>Structure and format: Your report adheres to the conventions of engineering reports.</p> <p>Length: Word count includes Sections of previous Task(s) eg. ENG401 reports. For groups, larger word limits can be negotiated with your principal Academic Advisor and the Course Coordinator.</p> <p>Further instructions for submission are provided on Blackboard, incl. mandatory content.</p>																						
<b>CRITERIA:</b>	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Application of advanced knowledge and skills</td> <td>1</td> </tr> <tr> <td>2</td> <td>Evaluation and consolidation of knowledge to provide a solution to a complex engineering problem with intellectual independence.</td> <td>2 4</td> </tr> <tr> <td>3</td> <td>Identification of factors likely to influence engineering project outcomes</td> <td>7</td> </tr> <tr> <td>4</td> <td>Discernment of knowledge development and research directions within the engineering discipline.</td> <td>2 3</td> </tr> <tr> <td>5</td> <td>Application of established engineering methods to complex engineering problem solving.</td> <td>5 6</td> </tr> <tr> <td>6</td> <td>Effective team membership and team leadership (Group only).</td> <td>10</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	Application of advanced knowledge and skills	1	2	Evaluation and consolidation of knowledge to provide a solution to a complex engineering problem with intellectual independence.	2 4	3	Identification of factors likely to influence engineering project outcomes	7	4	Discernment of knowledge development and research directions within the engineering discipline.	2 3	5	Application of established engineering methods to complex engineering problem solving.	5 6	6	Effective team membership and team leadership (Group only).	10	
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**All - Assessment Task 4:** Final project report

<b>GOAL:</b>	You provide a written account of your final year project, presenting your solution(s) and outcomes of your investigation, e.g. design solution(s), recommendations, etc., supported by evidences.	
<b>PRODUCT:</b>	Report	
<b>FORMAT:</b>	<p>The Final project report presents and details your solutions, incl. the steps towards the solutions to the project problem. It provides and clarifies the background of the project. It communicates ideas and methods used to obtain your answer.</p> <p>The Final project report is a professional engineering report that shall be concisely worded, well-organised, and understandable to any engineers in the relevant field or discipline.</p> <p>Structure and format: Your report adheres to the conventions of engineering reports.</p> <p>Length: Word count includes Sections of previous Task(s) eg. ENG401 and ENG402 reports. For groups, larger word limits can be negotiated with your principal Academic Advisor and the Course Coordinator.</p> <p>Further instructions for submission are provided on Blackboard, incl. mandatory content.</p>	

CRITERIA:	No.	Learning Outcome assessed
	1	Application of advanced knowledge and skills <span style="float: right;">1</span>
	2	Evaluation and consolidation of knowledge to provide a solution to a complex engineering problem with intellectual independence. <span style="float: right;">2 4</span>
	3	Identification of factors likely to influence engineering project outcomes <span style="float: right;">7</span>
	4	Application of fundamental principles of project management <span style="float: right;">8</span>
	5	Organisation, presentation, and communication of project <span style="float: right;">9</span>
	6	Appropriate format and use of report structure, grammar and syntax, referencing <span style="float: right;">9</span>

#### All - Assessment Task 5: Oral defence

<b>GOAL:</b>	The purpose of this task is to present your project to your Peers and to give you an opportunity to provide informed responses to your Peers and the Examiners.	
<b>PRODUCT:</b>	Oral	
<b>FORMAT:</b>	<p>Your oral defence will be:</p> <p>Individual: up to 30 minutes, includes presentation and question time, or</p> <p>Group: up to 45 minutes, includes presentation and question time.</p> <p>Group only: You will need to be prepared to present and respond to a randomly assigned component of your project. This is an open book assessment:</p> <p>you will have a copy of your final report available and refer to it if required, and you will utilise visual aids (e.g. Powerpoint slides) to support your presentation,</p> <p>Group only: You will need to manage the presentation so that each member of the team:</p> <p>has adequate speaking time,</p> <p>demonstrates comprehensive knowledge of the engineering principles, results and analysis, and outcomes of the project, and</p> <p>demonstrates confidence in replying to enquiries about the project.</p> <p>Note: You are encouraged to negotiate a time with your project Advisor(s) to meet, discuss and receive formative feedback about your Oral defence before its delivery in Week 16.</p>	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	Communicate project findings in an oral format using appropriate terminology and visual aids to a professional audience <span style="float: right;">9</span>
	2	Evaluation of project and discussion including responding to comments and questions <span style="float: right;">9</span>
	3	Identification of factors likely to influence engineering project outcomes <span style="float: right;">7</span>
	4	Application of fundamental principles of project management <span style="float: right;">8</span>
	5	If you are in a group, you are awarded an individual grade for this task. Your mark may be determined by an algorithm that uses the Examiners' assessment and marks. A benchmarking approach may also be used. <span style="float: right;">10</span>
	6	Effective team membership and team leadership. (Group only) <span style="float: right;">10</span>

## 7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

## 8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site– Please log in as soon as possible.

### 8.1. Prescribed text(s) or course reader

There are no required/recommended resources for this course.

### 8.2. Specific requirements

You will be required to discuss with your Advisor(s) any specific requirements and needs, e.g. laboratory equipment, software, that you believe your project may have.

## 9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a low level of health and safety risk exists. Some risk concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

## 10. What administrative information is relevant to this course?

### 10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

### 10.2. Assessment: Additional Requirements

No eligibility for Supplementary Assessment.

### 10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

### 10.4. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au).

### 10.5. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au) or call 07 5430 1226.

## 10.6. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, , injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email [AccessAbility@usc.edu.au](mailto:AccessAbility@usc.edu.au) or call 07 5430 2890.

## 10.7. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

## 10.8. General Enquiries

### In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **USC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

**Tel:** +61 7 5430 2890

**Email:** [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au)