



ENEG11007 Engineering Industry Project Investigation

Term 2 - 2020

Profile information current as at 14/12/2025 06:18 pm

All details in this unit profile for ENEG11007 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

In this unit, you will apply, expand and reflect on your knowledge of professional engineering practice through investigating a real-world engineering project. You will work in a small team guided by a professional engineer or members from the Engineers Without Borders Challenge to develop your project outcomes. You will establish a scope for a team project that describes the requirements and potential issues involved. You will also design and conduct a technical investigation incorporating the engineering method of problem-solving to assess several viable solutions and; look to enhance project outcomes by applying concepts of sustainability and evidence-based decision making. You will also demonstrate an understanding of measurement techniques and data analysis methods in at least one technical area of engineering, and demonstrate professional communication skills by creating a team technical report and presentation. Throughout the unit, you will be compiling an Individual Portfolio to showcase your sustained contributions to the project and to demonstrate a professional attitude for working individually and in your team.

Details

Career Level: *Undergraduate*

Unit Level: *Level 1*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisite: ENEG11005 Fundamentals of Professional Engineering, ENAG11008 Professional and Sustainable Engineering Practice OR ENEG11001 Engineering Skills 1

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 2 - 2020

- Bundaberg
- Cairns
- Gladstone
- Mackay
- Online
- Rockhampton

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**

Weighting: 15%

2. **Written Assessment**

Weighting: 15%

3. **Group Work**

Weighting: 20%

4. **Portfolio**

Weighting: 50%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Staff and student evaluation survey

Feedback

A variety of projects should be offered for each cohort.

Recommendation

Projects are sourced from our industry partners but some disciplines may not be represented in some campuses. We will endeavour to locate a variety of projects for each campus and students studying by distance.

Feedback from Staff and student evaluation survey

Feedback

Students do not like the 100% portfolio assessment and this should be revised to better reflect the workload throughout the term.

Recommendation

Assessment should be revised to include summative items based on the submissions made during the team project.

Feedback from Staff and student evaluation survey

Feedback

Some additional curriculum should be taught to support all project investigations.

Recommendation

Weekly focus activities should be established to help students develop the skills required for general project work.

Feedback from Student evaluation

Feedback

Lectures were clearly delivered and presented useful information for project investigations.

Recommendation

Weekly lectures should continue to support project investigations.

Feedback from Student evaluation

Feedback

Students greatly appreciated the opportunity to work on authentic projects and receive guidance from practising engineers.

Recommendation

Offering real projects supported by interactions with our industry partners will continue.

Feedback from Staff

Feedback

Students completing projects with Engineers Without Borders were reluctant to enter the EWB Challenge and attend the National Showcase.

Recommendation

Expectations for entering the EWB Challenge and passing on project deliverables to industry partners should be made clearer to students.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Establish a scope that describes the requirements and potential issues involved in undertaking an ill-defined real-world engineering project
2. Design and conduct a technical investigation incorporating the engineering method of problem-solving to assess several viable solutions
3. Analyse and assess an engineering project using a sustainability framework
4. Describe measurement techniques and perform data analysis in at least one technical area of engineering
5. Articulate and demonstrate effective time, team and project management skills
6. Provide evidence of a professional capacity to communicate, work and learn individually and in a team

Learning Outcomes are linked to Engineers Australia Stage 1 Competencies and also discipline capabilities. You can find the mapping for this on the Engineering Undergraduate Course website.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Written Assessment - 15%	•					
2 - Written Assessment - 15%		•	•	•		
3 - Group Work - 20%			•	•		•
4 - Portfolio - 50%	•	•			•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Communication	•	•	•		•	•
2 - Problem Solving	•	•	•	•	•	•
3 - Critical Thinking	•	•	•		•	•
4 - Information Literacy	•		•	•		•
5 - Team Work	•		•		•	•
6 - Information Technology Competence	•		•	•		•
7 - Cross Cultural Competence	•					•

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
8 - Ethical practice	•	•	•		•	•
9 - Social Innovation						
10 - Aboriginal and Torres Strait Islander Cultures						

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 15%	•	•	•	•	•	•		•		
2 - Written Assessment - 15%	•	•	•	•	•	•		•		
3 - Group Work - 20%	•	•	•	•	•	•	•	•		
4 - Portfolio - 50%	•	•	•	•		•		•		

Textbooks and Resources

Textbooks

ENEG11007

Supplementary

Project Management: Achieving Competitive Advantage

5th Edition (2019)

Authors: Jeffrey K. Pinto

Pearson Education

Binding: eBook

Additional Textbook Information

If you prefer studying from a paper copy, you can purchase one at the CQUni Bookshop here:

<http://bookshop.cqu.edu.au> (search on the Unit code) eBooks are available at the publisher's website.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- AutoCad, Microsoft Project

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Ashfaque Chowdhury Unit Coordinator
a.chowdhury@cqu.edu.au

Schedule

Week 1 - 13 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Unit Introduction, and Project Overview. Team Formation, Project Selection and Management	Unit Overview and Project Topics Released	Individual: Select Project, Team and hold Initial Project Meeting

Week 2 - 20 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Project Context and Stakeholder Management Project Management - What's Important	Research the Project Topic and Client, Team Charter and Client Interaction	Team: Hold Initial Project Meeting

Week 3 - 27 Jul 2020

Module/Topic	Chapter	Events and Submissions/Topic
Project Due Diligence	Project Risks Assessment and Management	Team: Hold Project Meeting

Week 4 - 03 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Project Schedule and Scope Management	Project Scope Documentation	Team: Hold Project Meeting Project Scope Document, Schedule, and Risk Assessment Due: Week 4 Friday (7 Aug 2020) 11:45 pm AEST

Week 5 - 10 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Research Methods	In depth research on the project topic	Team: Hold Project Meeting

Vacation Week - 17 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Vacation Week		

Week 6 - 24 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Portfolio Advice and Project Progress Report	Preparing Progress Reports	Team: Hold Project Meeting Project Progress Report Due: Week 6 Friday (28 Aug 2020) 11:45 pm AEST

Week 7 - 31 Aug 2020

Module/Topic	Chapter	Events and Submissions/Topic
Problem Solving and Sustainability Due Diligence	Project and Portfolio Progress Check and Advice	Team: Hold Project Meeting

Week 8 - 07 Sep 2020

Module/Topic	Chapter	Events and Submissions/Topic
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Project Cost Estimation, Budgeting and Resource Management

Reporting Preliminary Results

Team: Hold Project Meeting

Week 9 - 14 Sep 2020

Module/Topic

Chapter

Events and Submissions/Topic

Project Evaluation and Control

Project Evaluation and Control and Project Progress

Team: Hold Project Meeting

Week 10 - 21 Sep 2020

Module/Topic

Chapter

Events and Submissions/Topic

Team: Hold Project Meeting

Project Closeout and Termination

Project Final Report

Technical Project Report Due: Week 10 Tuesday (22 Sept 2020) 11:45 pm AEST

Week 11 - 28 Sep 2020

Module/Topic

Chapter

Events and Submissions/Topic

Project Presentations and Feedback

Student Project Presentations

Team: Project Presentations

Individual: Self- & Peer-Assessment Questionnaire Due on Friday in Week 11.

Week 12 - 05 Oct 2020

Module/Topic

Chapter

Events and Submissions/Topic

Unit Reflection and Portfolio Advice

Portfolio Preparation

Review/Exam Week - 12 Oct 2020

Module/Topic

Chapter

Events and Submissions/Topic

Individual: Viva Voce (if necessary)

Portfolio of Learning

Achievements Due: Review/Exam Week Tuesday (13 Oct 2020) 11:45 pm AEST

Exam Week - 19 Oct 2020

Module/Topic

Chapter

Events and Submissions/Topic

Individual: Viva Voce (if necessary)

Assessment Tasks

1 Project Scope Document, Schedule, and Risk Assessment

Assessment Type

Written Assessment

Task Description

A Scope Document is particularly important in the engineering workplace. It clearly states what will be done by who and by when, and importantly, what will not be done. It becomes a work contract and must be followed to ensure payment of services and to uphold one's reputation and prospects for future work. Scope documents can take many forms. In this case, it also includes a project schedule and a risk Assessment. Resources for this assignment are provided on Moodle, in lectures and workshops. Students will need to seek feedback from the lecturer at the draft stage of the document. There is no strict word limit, either minimum or maximum. Students should write succinctly and avoid padding the report with discussions that are unnecessary.

Assessment Due Date

Week 4 Friday (7 Aug 2020) 11:45 pm AEST

Return Date to Students

Week 6 Friday (28 Aug 2020)

Weighting

15%

Minimum mark or grade

25%

Assessment Criteria

A marking rubric is provided on Moodle that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' levels for each element of the project scope, schedule, and risk assessment.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online Group

Submission Instructions

Only one team member submits on behalf of the team. They must upload a single PDF of the entire report.

Learning Outcomes Assessed

- Establish a scope that describes the requirements and potential issues involved in undertaking an ill-defined real-world engineering project

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

2 Project Progress Report

Assessment Type

Written Assessment

Task Description

A progress report will allow the student teams to seek clarification of the work performed and to give the stakeholders confidence in the team's capabilities to produce what was agreed in the scope. With any project, it is important to continually check that the project team has correctly interpreted all expectations and is continuing to work towards them in the most efficient way. The progress report is also an opportunity for either party to propose changes to the scope, based on progress to date, now that all parties have a greater understanding of the work involved. Early discovery of taking the wrong approach can prevent a lot of wasted time but limited progress will also limit any feedback. Progress Reports can take many forms. In this case, the requirements will be provided on Moodle.

Assessment Due Date

Week 6 Friday (28 Aug 2020) 11:45 pm AEST

Return Date to Students

Week 8 Friday (11 Sept 2020)

Weighting

15%

Minimum mark or grade

25%

Assessment Criteria

A marking rubric is provided on Moodle that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' levels for each element of the project scope, schedule, and risk assessment.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online Group

Submission Instructions

Only one team member submits on behalf of the team. They must upload a single PDF of the entire report.

Learning Outcomes Assessed

- Design and conduct a technical investigation incorporating the engineering method of problem-solving to assess several viable solutions
- Analyse and assess an engineering project using a sustainability framework
- Describe measurement techniques and perform data analysis in at least one technical area of engineering

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

3 Technical Project Report

Assessment Type

Group Work

Task Description

Students are required to prepare a technical report as a team using the report template provided on Moodle. Resources for this assignment are provided on Moodle, in lectures and workshops. Students will need to seek feedback from the lecturer at the draft stage of the report. There is no strict word limit, either minimum or maximum. Student teams should aim to prepare a report which explains the decision-making processes, designs, and results of the chosen project. Students should write succinctly and avoid padding the report with discussions that are unnecessary.

Assessment Due Date

Week 10 Tuesday (22 Sept 2020) 11:45 pm AEST

Return Date to Students

Week 12 Tuesday (6 Oct 2020)

Weighting

20%

Minimum mark or grade

25%

Assessment Criteria

A Marking Rubric is provided on Moodle that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' levels for each element of the report.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online Group

Submission Instructions

Only one team member submits on behalf of the team. They must upload a single PDF of the entire report.

Learning Outcomes Assessed

- Analyse and assess an engineering project using a sustainability framework
- Describe measurement techniques and perform data analysis in at least one technical area of engineering
- Provide evidence of a professional capacity to communicate, work and learn individually and in a team

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

- Cross Cultural Competence
- Ethical practice

4 Portfolio of Learning Achievements

Assessment Type

Portfolio

Task Description

Students are required to prepare an electronic portfolio of individual works as evidence of achieving the relevant unit learning outcomes while completing the team project. Students must use the provided template to prepare the Portfolio that shall only contain individual work. The Portfolio must include the following compulsory sections in the order listed. Additional instructions for preparing the Portfolio will be provided on Moodle.

Grade Nomination: A self-assessment of a student's individual level of learning achievement ('Sound', 'Good' or 'Excellent') against each criterion listed in the Portfolio Marking Rubric should be included. A student needs to substantiate all claims by including working electronic bookmarks (document hyperlinks) to the specific entries in the Portfolio that contains unambiguous evidence of meeting the marking rubric criteria. The proof will come from entries in the sections of the Portfolio described below (Workbook, Reflective Journal, and Self and Peer-Assessment Results). Incomplete Grade Nominations or inactive bookmarks will lead to an 'unacceptable' grade for the relevant criteria of the marking rubric. Moodle will contain an example of a suitable Grade Nomination.

Workbook: The workbook can be typed, handwritten then scanned or a combination of both but must be neat, chronological, and legible. It should contain all the individual work for the team project in separate entries with headings and the date, such as: 'July 20 – Project Scope'. These entries will show when a student worked on each element of the project and how individual ideas and capabilities have developed through the unit. A student should not go back and edit old entries as this may prohibit demonstrating skills development. The workbook cannot be completed retrospectively and should include at least two entries each week while working on the team project, however, can easily contain many more entries each week. Entries should demonstrate a variety of technical skills like researching, brainstorming, creating mind maps, flowcharts, explaining methodologies, creating schedules, obtaining and analysing data, producing and discussing results, figures, charts, conclusions, or any other work for the team project. It is a good practice to add entries to the Workbook first and then share a copy with the teammates to ensure you retain all your original work.

Reflective Journal: As with the workbook, a student may type, handwrite then scan or use a combination of both but it must be neat, chronological, and legible. The Reflective Journal contains a student's thoughts about how the student and the team are progressing with the project and what the student have learnt and experienced either directly by doing the work individually or indirectly through observing others. Again, like the Workbook, at least two entries should be made each week while working on the project, but you could prepare many more reflections each week. Entries must have headings with the date and a title, such as: 'August 20 – Why scoping is important for the successful outcome of the project'. Entries should focus on a single thought or reflective topic and conclude with a plan to apply what you have learnt. Reflective entries can demonstrate a variety of achievements like understanding how and when a student has learnt something by identifying effective ways to communicate and work with the peers, and comprehending the relevance of a student's individual learnings to his / her future engineering career. A student should not go back and edit old entries as this may prohibit demonstrating skill development. A student cannot complete the Reflective Journal retrospectively. Refer to the Reflective Writing Guide on Moodle for an example entry.

A student can expect that the lecturer will ask to see the Workbook and Reflective Journal at any time during the team project to ensure a student is progressing suitably towards achieving the associated unit learning outcomes. A student should also be aware that a student must commence the Portfolio several weeks before the due date to complete this assignment successfully, ideally, as soon as the student starts the project.

Self- and Peer-Assessment: Students are required to complete an anonymous Self- and Peer Assessment (SPA) questionnaire towards the end of the team project. SPAs provide de-identified formative feedback to individual students about aspects of teamwork that are perceived by peers to be 'working well', 'satisfactory' or 'could be improved'. If a student disagrees with SPA feedback, then the student's thoughts should be articulated through an entry in the Reflective Journal and sent to the lecturer for consideration. Guidelines for completing SPAs will be provided on Moodle. SPAs are accessible through Moodle.

Viva Voce: Students may be contacted during the exam weeks by the lecturer to answer questions that clarify unclear learning claims or evidence in the Portfolio. Notify your lecturer when submitting the Portfolio if you will be unavailable during this period.

Assessment Due Date

Review/Exam Week Tuesday (13 Oct 2020) 11:45 pm AEST

Return Date to Students

Prior to finalisation of grades

Weighting

50%

Minimum mark or grade

50%

Assessment Criteria

A Marking Rubric is provided on Moodle that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' levels for all Portfolio tasks.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Upload a single PDF which includes active bookmarks in the Grade Nomination to all pages containing evidence of meeting the marking criteria.

Learning Outcomes Assessed

- Establish a scope that describes the requirements and potential issues involved in undertaking an ill-defined real-world engineering project
- Design and conduct a technical investigation incorporating the engineering method of problem-solving to assess several viable solutions
- Articulate and demonstrate effective time, team and project management skills
- Provide evidence of a professional capacity to communicate, work and learn individually and in a team

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem