



ENEG28001 Australian Engineering Practice

Term 3 - 2024

Profile information current as at 06/12/2024 05:39 pm

All details in this unit profile for ENEG28001 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 further develop your professional engineering skills necessary to practice as a graduate engineer in Australia. You will learn Engineers Australia's prescribed competency standards, codes of practice and ethics, and the roles and responsibilities of a professional engineer. You will apply your knowledge to conceive, develop and deliver sustainable solutions to complex engineering problems, autonomously and as part of a team. You will use advanced search methods to retrieve and critically assess scientific and technical information and apply it to synthesise the conduct and management of engineering projects. You will develop your communication skills, including technical writing and presentations based on effective research, paraphrasing, referencing, and reviewing published information. As a small team, you will prepare a scope for an investigation to demonstrate an understanding of the tasks involved in an Australian engineering feasibility investigation. You will enhance your awareness of ways to contribute to the United Nations Sustainable Development Goals and First Nation perspective in engineering practice. You will apply your engineering knowledge and skills to enhance welfare, health, and safety, with the minimal use of natural resources and paying attention to the environment and the sustainability of the resources.

Details

Career Level: *Postgraduate*

Unit Level: *Level 8*

Credit Points: 6

Student Contribution Band: 2

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

There are no requisites for this unit.

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 3 - 2024

- Melbourne
- 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 Postgraduate 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: 20%

2. **Written Assessment**

Weighting: 60%

3. **Presentation**

Weighting: 20%

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](#).

Unit Learning Outcomes

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

1. Reflect on the roles, responsibilities and attributes of a professional engineer
2. Develop sustainable solutions to complex engineering problems from socio-technical and environmental perspectives
3. Retrieve and manage technical information and critically assess its accuracy, reliability and authenticity
4. Apply systematic approaches to the conduct and management of engineering projects autonomously and as part of multidisciplinary and multicultural teams
5. Develop high quality engineering reports using different communication media and share them verbally and in written form
6. Demonstrate ethical practice, accountability, and a commitment to lifelong learning, with specific reference to the Engineers Australia Code of Ethics
7. Integrate First Nation knowledge, culture, and the United Nations Sustainable Development Goals into engineering practice.

Learning Outcomes for this unit are linked with the Engineers Australia Stage 1 Competency Standards for Professional Engineers in the areas of 1. Knowledge and Skills Base, 2. Engineering Application Ability and 3. Professional and Personal Attributes at the following levels:

Intermediate

- 1.4 Discernment of knowledge development and research directions within the engineering discipline. (LO: 2I)
- 1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 2I)
- 1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline. (LO: 1I 6I)
- 2.1 Application of established engineering methods to complex engineering problem solving. (LO: 2I 3I)
- 2.2 Fluent application of engineering techniques, tools and resources. (LO: 3I 4I)
- 2.4 Application of systematic approaches to the conduct and management of engineering projects. (LO: 2I 4I)
- 3.1 Ethical conduct and professional accountability. (LO: 1I 6I)
- 3.2 Effective oral and written communication in professional and lay domains. (LO: 5I)
- 3.3 Creative, innovative and proactive demeanour. (LO: 2I)
- 3.4 Professional use and management of information. (LO: 3I 5I)
- 3.5 Orderly management of self and professional conduct. (LO: 6I)
- 3.6 Effective team membership and team leadership. (LO: 4I)

Advanced

- 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 2A 4I)

Note: LO refers to the Learning Outcome number(s) that link to the competency and the levels: N - Introductory, I - Intermediate and A - Advanced.

Refer to the Engineering Postgraduate Units Moodle site for further information on Engineers Australia's Stage 1 Competency Standard for Professional Engineers and course-level mapping information

<https://moodle.cqu.edu.au/course/view.php?id=11382>

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	7
1 - Written Assessment - 20%	•					•	
2 - Written Assessment - 60%		•	•	•	•	•	•
3 - Presentation - 20%				•	•		•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Knowledge		◦	◦				
2 - Communication			◦		◦		
3 - Cognitive, technical and creative skills		◦		◦			
4 - Research			◦				
5 - Self-management		◦					
6 - Ethical and Professional Responsibility						◦	
7 - Leadership				◦			
8 - Aboriginal and Torres Strait Islander Cultures							◦

Textbooks and Resources

Textbooks

There are no required textbooks.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)
For further information, see the Assessment Tasks.

Teaching Contacts

Kalam Azad Unit Coordinator
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Schedule

Week 1 - 04 Nov 2024

Module/Topic	Chapter	Events and Submissions/Topic
Fundamentals of Engineering Practice. Competencies, Skills & attributes.	Lecture notes.	Workshop - <ul style="list-style-type: none">• Unit structure and assessment details.• Skills and SWOT Audit.• Introduction to Engineers Australia Stage 1 Competencies.• Introduction to Assessment 1.

Week 2 - 11 Nov 2024

Module/Topic	Chapter	Events and Submissions/Topic
Engineer's Code of Ethics.	Lecture notes.	Workshop - Guest speaker on academic integrity. <ul style="list-style-type: none">• Understanding Academic Integrity.• Case studies on academic integrity.• Engineers Australia Code of Ethics.• Introduction to Assessment 1.

Week 3 - 18 Nov 2024

Module/Topic	Chapter	Events and Submissions/Topic
Information literacy - retrieval, analysis, storage, and sharing. <ul style="list-style-type: none">• Australian standard.• Literature surveys.• Databases.• Academic search engines.	<ul style="list-style-type: none">• Lecture notes.• CQU library resource.• Additional resources will be available in MOODLE.	Workshop - <ul style="list-style-type: none">• Introduction to reference management software (EndNote).• Harvard referencing.• Understanding Turnitin and how to avoid academic integrity issues (i.e., plagiarism or using Chat GPT responsibly).• Note-taking, paraphrasing, and understanding academic journal articles.

Week 4 - 25 Nov 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Introduction to Team Project-Project Scope Development.

• Lecture notes.

Workshop –
Exercises in project scope development

- Aims and objectives.
- Introduction, including the problem statement, significance of the project, a brief literature review, and research questions.
- Inclusions and exclusions.
- Assumptions.
- Expected outcomes.
- Project deliverables.
- Introduction to Assessment 2

Self-assessment Due: Week 4 Friday (29 Nov 2024) 11:59 pm AEST

Week 5 - 02 Dec 2024

Module/Topic	Chapter	Events and Submissions/Topic
Engineering communication, teams, and collaboration.	Lecture notes.	Workshop – Introduction to HOMER PRO software. Team formation. Team charter development.

Week 6 - 09 Dec 2024

Module/Topic	Chapter	Events and Submissions/Topic
Engineering project management.	Lecture notes.	Workshop – Time management. Project scheduling (Gantt chart). Use of MS Project software. Introduction to Assessment 2.

Week 7 - 16 Dec 2024

Module/Topic	Chapter	Events and Submissions/Topic
Engineering problem-solving and stakeholder engagement.	Lecture notes.	Workshop – Exercise engineering problem-solving. How to develop a project methodology. Stakeholder identification and management in an engineering project context. Progress on Assessment 2.

Team presentation Due: Week 7 Wednesday (18 Dec 2024) 5:00 pm AEST

Vacation Week - 23 Dec 2024

Module/Topic	Chapter	Events and Submissions/Topic
No classes or workshops are scheduled during vacation week.	NA	Vacation Week

Vacation Week - 30 Dec 2024

Module/Topic	Chapter	Events and Submissions/Topic
No classes or workshops are scheduled during vacation week.		Vacation week

Week 8 - 06 Jan 2025

Module/Topic	Chapter	Events and Submissions/Topic
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Technical skills.	Lecture notes.	Workshop – • Use of MS Excel in engineering. • Use of different Excel commands. • Different forms of graphs using Excel. • Progress on Assessment 2.
Week 9 - 13 Jan 2025		
Module/Topic	Chapter	Events and Submissions/Topic
Workplace health and safety, risk analysis, and risk management.	Lecture notes.	Workshop – Exercises on • List out team project risks and risk management. • How to present professionally. • Progress on Assessment 2. • Introduction to Assessment 3.
Week 10 - 20 Jan 2025		
Module/Topic	Chapter	Events and Submissions/Topic
Sustainability & community engagement.	Lecture notes.	Workshop – Practice on • Sustainability in team projects. • Alignment of UNSDGs in team projects. • How to engage with the community. • Progress on Assessment 2 and Assessment 3.
Week 11 - 27 Jan 2025		
Module/Topic	Chapter	Events and Submissions/Topic
Work-Integrated Learning (WIL) and Continuing Professional Development (CPD).	Lecture notes.	Workshops – • Exercises on WIL and CPD. • Progress on Assessment 3. Team project report Due: Week 11 Friday (31 Jan 2025) 11:59 pm AEST
Week 12 - 03 Feb 2025		
Module/Topic	Chapter	Events and Submissions/Topic
Review of the term.	Lecture notes.	Workshop – • Review contents
Exam Week - 10 Feb 2025		
Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Self-assessment

Assessment Type

Written Assessment

Task Description

This is an individual submission item. This task consists of two parts. In Part A, you will carry out a strengths, weaknesses, opportunities, and threats (SWOT) analysis of yourself and discuss your journey as an engineering graduate. You will list your career goals, the reason you have joined this course, and what discipline you wish to specialise in and why.

In Part B, summarise the Code of Ethics and state how you think they are important to the practice of engineering not just in Australia but across the globe.

Below are the details of the tasks.

For part A

1. Visit the Engineers Australia website and download the Stage 1 Competency Standard for Professional Engineers document. Read this document thoroughly.
2. Conduct a SWOT analysis of yourself.
3. Map your skills and competencies with Engineers Australia's descriptors.
4. Discuss your journey as an engineering graduate and list your career goals, the reason you have joined this course, and what subdiscipline you wish to specialise in and why.
5. Reflect on your current standing as an engineering graduate and what areas you have to improve to achieve your professional targets.
6. Limit your writing to 1600 words maximum.
7. Accurately reference the work of third parties, words, figures, tables, etc., in accordance with CQU's Harvard referencing guide.

For part B

1. Download the Engineers Australia Code of Ethics document and read it thoroughly.
2. Based on the Engineers Australia Code of Ethics indicated above, state how you think they are important to the practice of engineering, not just in Australia but across the globe (200 words, +/-10%).
3. Choose any one of the four codes of ethics and write an essay (1000 words, +/-10%) on your opinion of the code you have selected by citing a personal example in your career of how you have upheld that code of ethics.
4. Accurately reference the work of third parties, words, figures, tables, etc., in accordance with CQU's Harvard referencing guide.

The assignment must be submitted using the Moodle submission link in MS Word format. The file name should be in the format "Your first name_unit code_assessment number.docx.". An example of a file format is "Name_ENEG28001_A1.docx."

Details are illustrated in the marking rubrics and criteria available in MOODLE. **PLEASE NOTE THAT THERE IS NO OPPORTUNITY TO RESUBMIT OR REDO THIS ASSESSMENT.**

Assessment Due Date

Week 4 Friday (29 Nov 2024) 11:59 pm AEST

As per the CQU policy, 5% marks will be deducted for each day of delayed submission without prior approval.

Return Date to Students

Week 6 Friday (13 Dec 2024)

It is expected that the assessment item will be returned in 2 weeks after the due date (Excl. vacation week).

Weighting

20%

Minimum mark or grade

50%

Assessment Criteria

Moodle contains a marking rubric/criteria that includes indicators of attainment at "Sound", "Good", and "Excellent" levels for each element of the assessment.

Referencing Style

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

Submission

Online

Submission Instructions

This is an individual mandatory submission. All students must submit individually via a link available in MOODLE. Email submission is unacceptable.

Learning Outcomes Assessed

- Reflect on the roles, responsibilities and attributes of a professional engineer
- Demonstrate ethical practice, accountability, and a commitment to lifelong learning, with specific reference to the Engineers Australia Code of Ethics

Graduate Attributes

2 Team project report

Assessment Type

Written Assessment

Task Description

This assessment two is a mandatory team submission. Only one report submission from each team is required. You are required to form a TEAM with 4-5 students (this number may vary depending on the number of enrolments). For this professional project task, you have to choose a team, and each team will use Hybrid Optimisation of Multiple Energy Resources (HOMER) software to carry out your team project work. You are required to develop a project scope and project report. Make sure the entire project tasks are distributed equally or agreed % of contribution among your team members so that all team members work equally at an equal pace.

For this assessment:

1. You are required to form a TEAM with 4-5 students (this number may vary depending on the number of enrolments).
2. Select one topic from the list provided in Moodle.
3. With the help of your team members, develop a project scope, find the required solution to the problem, and prepare a team project report.
4. Accurately reference the work of third parties, words, figures, tables, etc., in accordance with CQU's Harvard referencing guide.
5. Since this is a collaborative project, each team's submission will be evaluated, and a grade will be assigned based on the criteria of this assessment. After that, individual grades will be calculated using the formula below, considering each member's contribution. An individual's mark may be higher than the team's mark but will be capped at the maximum mark of the assessment.
6. You must submit a team contribution table in the Project Scope and Project Report (details are available in Moodle). Without this table, your submission will not be evaluated.
7. Unlike Assessment 1, this assessment is based on teamwork, and only one submission from each team is required.

In Assessment 2, teams will develop a project scope to demonstrate the project progress, which should include but not be limited to

- Introduction, including the problem statement, significance of the project, a brief literature review, and research questions.
- Aims and objectives.
- Inclusions and exclusions.
- Assumptions.
- Expected outcomes.
- Project deliverables.
- Team charter.
- Team contribution table.
- Gantt Chart.

Assessment 2: teams will work on a team project report, which should include but not be limited to

- Updated introduction, including the problem statement, significance of the project, a brief literature review, and research questions.
- Updated aims and objectives.
- Materials and methods.
- Results and discussion.
- Conclusions and recommendations.
- Risk assessment.
- Self and peer review.
- Team contribution table.
- Stakeholder identification and management.
- Community engagement plan.
- Updated Gantt Chart.

Assessment 2 carries a 60% mark; the minimum mark to pass is 40%.

Assessment Due Date

Week 11 Friday (31 Jan 2025) 11:59 pm AEST

Return Date to Students

The marks will be disclosed on the day of Certification of Grades

Weighting

60%

Minimum mark or grade

40%

Assessment Criteria

Moodle contains a marking rubric/criteria that includes indicators of attainment at "Sound", "Good", and "Excellent" levels for each element of the assessment.

Assessment 2 the calculation of an individual team member's mark is as follows:

Team A received 25 marks (out of 40) for their team project work (Part 2). The individual contributions of 3 students in Team A are: Student 1 = 33%, Student 2 = 35%, and Student 3 = 32% (total = 33 + 35 + 32 = 100%). Average team contribution = $100/3 = 33.33\%$.

Thus, the individual marks will be calculated as follows:

Student 1 = $25 \times (33/33.33) = 24.75$ (out of 40)

Student 2 = $25 \times (35/33.33) = 26.25$ (out of 40)

Student 3 = $25 \times (32/33.33) = 24.00$ (out of 40)

The assignments must be submitted using the Moodle submission link in **MS Word format**. The file name should be in the format "Your team name_unit code_assessment number.docx.". An example of a file format is "Team A_ENEG28001_Project Report.docx."

Details are illustrated in the marking rubrics and criteria available in MOODLE. **PLEASE NOTE THAT THERE IS NO OPPORTUNITY TO RESUBMIT OR REDO THIS ASSESSMENT.**

Referencing Style

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

Submission

Online Group

Submission Instructions

This is a team mandatory submission. One file from each Team should be submitted via a link available in MOODLE.

Learning Outcomes Assessed

- Develop sustainable solutions to complex engineering problems from socio-technical and environmental perspectives
- Retrieve and manage technical information and critically assess its accuracy, reliability and authenticity
- Apply systematic approaches to the conduct and management of engineering projects autonomously and as part of multidisciplinary and multicultural teams
- Develop high quality engineering reports using different communication media and share them verbally and in written form
- Demonstrate ethical practice, accountability, and a commitment to lifelong learning, with specific reference to the Engineers Australia Code of Ethics
- Integrate First Nation knowledge, culture, and the United Nations Sustainable Development Goals into engineering practice.

Graduate Attributes

3 Team presentation

Assessment Type

Presentation

Task Description

This is a team presentation. Each team will present its team project outcome. All team members must attend and present their projects. The detailed schedule for the presentation will be available in Unit Moodle in due time. Students are required to give an 8-10-minute oral presentation on their team project with PowerPoint (PPT) slides. Each team

should upload PPT slides to the Moodle submission link at least 24 hours before the presentation. During the presentation, each team or group will present 8–10 minutes, followed by 5–6 minutes for questions and answers.

Below are snapshots of your team presentation.

1. This is also a mandatory assessment item. All team members must present their team project.
2. Accurately reference the work of third parties, words, figures, tables, etc., in accordance with CQU's Harvard referencing guide in your slides.
3. All team members should follow the dress code.
4. Before your presentation, do some mock presentations with your peers and supervisors.
5. Each team will present for eight to ten minutes, followed by five to six minutes of questions and answers.
6. You will be given a warning one minute before the finishing time and a final warning at the finishing time.

Any team member's failure to attend and present will result in a "fail mark" in this assessment.

Assignments must be submitted via Moodle submission link in "PowerPoint" format. The file name should be in the format "Your Team name_unit code_assessment number.pptx". An example of a file format is "Team A_ENEG28001_A3.pptx".

Details are illustrated in the marking rubrics/criteria available in MOODLE.

PLEASE NOTE THAT IT IS NOT POSSIBLE TO APPLY FOR A POSTPONEMENT OR EXTENSION FOR THIS ASSESSMENT. ALSO, PLEASE NOTE THAT THERE IS NO OPPORTUNITY TO RESUBMIT OR REDO THIS ASSESSMENT.

Assessment Due Date

Week 7 Wednesday (18 Dec 2024) 5:00 pm AEST

Must be submitted by or before the deadline via Moodle Link.

Return Date to Students

Week 9 Friday (17 Jan 2025)

The marks will be disclosed within two weeks after due date

Weighting

20%

Minimum mark or grade

50%

Assessment Criteria

Refer to the Moodle that contains marking rubrics/criteria.

Referencing Style

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

Submission

Online Group

Submission Instructions

This is an team mandatory submission. One file from each Team should be submitted via a link available in MOODLE.

Learning Outcomes Assessed

- Apply systematic approaches to the conduct and management of engineering projects autonomously and as part of multidisciplinary and multicultural teams
- Develop high quality engineering reports using different communication media and share them verbally and in written form
- Integrate First Nation knowledge, culture, and the United Nations Sustainable Development Goals into engineering practice.

Graduate Attributes

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