ENEG20001 *Australian Engineering Practice*
Term 3 - 2021

Profile information current as at 29/04/2024 09:42 pm

General Information

Overview
This unit introduces the context of Australian engineering practice, including the competency standards and codes of practice. You will study Australian engineering projects by summarising and reviewing the literature with emphasis on the technical methods and standards adopted, ethical practice, and professional responsibility. This unit 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 also prepare a scope for an investigation to demonstrate an understanding of the tasks involved in an Australian engineering feasibility investigation.

Details
Career Level: *Postgraduate*
Unit Level: *Level 8*
Credit Points: *12*
Student Contribution Band: *2*
Fraction of Full-Time Student Load: *0.25*

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 - 2021

- Melbourne
- Online
- Perth
- 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 12-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 25 hours of study per week, making a total of 300 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: 30%
2. **Written Assessment**
Weighting: 30%
3. **Written Assessment**
Weighting: 40%

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 "Have your say" in Moodle

Feedback

The unit coordinator did his best for the unit. However, because of COVID-19, there are challenging times for all of the students to receive the best education online.

Recommendation

Hopefully, everything, including all classes and tutorials/workshops will be face-to-face from the next offering.

Feedback from "Have your say" in Moodle

Feedback

The unit covers the real aspects of Australian Industry which is so helpful for international students.

Recommendation

The same practice with many updated resources will be continued in the next offering.

Unit Learning Outcomes

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

1. Summarise technical publications using paraphrasing and references
2. Deconstruct a project into Engineers Australia's graduate competencies
3. Review Australian practice in a specialised field of engineering
4. Generate a scope for a feasibility study of an engineering project
5. Work collaboratively based on critical self-review of graduate competencies
6. Communicate effectively through technical writing and presentations.

The 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 Skill Base, 2. Engineering Application Ability and 3. Professional and Personal Attributes at the following levels:

Introductory

1.1 Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline. (LO: 2N 3N)
1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline. (LO: 2N 3N)
1.4 Discernment of knowledge development and research directions within the engineering discipline. (LO: 2N 3N 4N 5N 6N)
1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 1N 2N 3N 4N 5N 6N)
3.3 Creative, innovative and pro-active demeanour. (LO: 3N 4N)

Intermediate

1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 6I)
1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline. (LO: 1N 2I 3I 4I 5N 6N)
2.2 Fluent application of engineering techniques, tools and resources. (LO: 1N 2N 3I 4I 5I 6I)
2.3 Application of systematic engineering synthesis and design processes. (LO: 1N 2N 3I 4I 5I 6I)
2.4 Application of systematic approaches to the conduct and management of engineering projects. (LO: 1N 2N 3I 4I 5N 6N)
3.1 Ethical conduct and professional accountability. (LO: 1N 2I 3N 4I 5I 6N)
3.2 Effective oral and written communication in professional and lay domains. (LO: 1I 2I 4I 5N 6I)
3.4 Professional use and management of information. (LO: 1I 3I 4I 5I 6I)
3.5 Orderly management of self, and professional conduct. (LO: 3N 5I)
3.6 Effective team membership and team leadership. (LO: 2N 4N 5I 6I)

Advanced

2.1 Application of established engineering methods to complex engineering problem solving. (LO: 1N 2A 3I 4I 5I 6I)

Note: LO refers to the Learning Outcome number(s) which 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 the 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

— N/A Level • Introductory Level • Intermediate Level • Graduate Level ◦ Professional Level ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Written Assessment - 30%	•	•				

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
2 - Written Assessment - 30%	•		•			•
3 - Written Assessment - 40%		•		•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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						

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes							
	1	2	3	4	5	6	7	8
1 - Written Assessment - 30%	○	○	○			○		
2 - Written Assessment - 30%	○	○	○	○		○	○	
3 - Written Assessment - 40%	○	○	○	○	○	○	○	

Textbooks and Resources

Textbooks

ENEG20001

Prescribed

The Making of an Expert Engineer by James Trevelyan (CRC Press 2014).
(2014)
Binding: Hardcover

Additional Textbook Information
The textbook for this unit is:
The Making of an Expert Engineer by James Trevelyan (CRC Press 2014).
Link to the textbook: https://cqu-primo.hosted.exlibrisgroup.com/permalink/f/1rb43gr/TN_crc_bk9781315742281
There is a Kindle edition of this book available on Amazon and this version is completely acceptable for this unit. If you already have a suitable device to read it on, it is slightly more affordable and saves some trees!!

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

Mehdi Mirzababaei Unit Coordinator
m.mirzababaei@cqu.edu.au

Schedule

Week 1 - 08 Nov 2021

Module/Topic	Chapter	Events and Submissions/Topic
What is engineering and what does an engineer do? Discussing engineering case studies.		View videos or texts related to famous engineering projects and discuss.

Week 2 - 15 Nov 2021

Module/Topic	Chapter	Events and Submissions/Topic
Academic dishonesty. An academic from the Academic Learning Centre (ALC) will discuss on academic dishonesty, avoiding plagiarism and referencing style.		Referencing exercises.

Week 3 - 22 Nov 2021

Module/Topic	Chapter	Events and Submissions/Topic
Engineers Australia. Case studies - Australian engineering projects, work performed by various engineering disciplines.		Writing exercises based on selected discipline-based case studies in the Australian context.

Week 4 - 29 Nov 2021

Module/Topic	Chapter	Events and Submissions/Topic
Risk assessment and Health and Safety Legislation.		Exercises on risk assessment, and the responsibilities of an engineer, review of code of ethics.

Vacation Week - 06 Dec 2021

Module/Topic	Chapter	Events and Submissions/Topic
No classes and workshop scheduled during vacation week.		

Week 5 - 13 Dec 2021

Module/Topic	Chapter	Events and Submissions/Topic
Australian engineering technical societies		**Individual annotative bibliography and competency deconstruction** Due: Week 5 Friday (17 Dec 2021) 5:00 pm AEST

Week 6 - 20 Dec 2021

Module/Topic	Chapter	Events and Submissions/Topic
Commonly used software and researching online. An academic from the ALC will discuss researching online		A written report on the software used in discipline with the presentation to the class.

Week 7 - 03 Jan 2022

Module/Topic	Chapter	Events and Submissions/Topic
Engineering teams and team project formation		Exercises in team formation, team charter, keeping minutes of meetings. **Individual literature review and discipline summary** Due: Week 7 Friday (7 Jan 2022) 11:59 pm AEST

Week 8 - 10 Jan 2022

Module/Topic	Chapter	Events and Submissions/Topic
Scoping out feasibility investigations		Exercises in team formation, team charter, keeping minutes of meetings

Week 9 - 17 Jan 2022

Module/Topic	Chapter	Events and Submissions/Topic
An academic from the ALC will discuss on how to write a technical report.		Exercises in team formation, team charter, keeping minutes of meetings

Week 10 - 24 Jan 2022

Module/Topic	Chapter	Events and Submissions/Topic
Reflective practice		How to reflect on job/project performance

Week 11 - 31 Jan 2022

Module/Topic	Chapter	Events and Submissions/Topic
Project management		Exercises on planning and executing a project

Week 12 - 07 Feb 2022

Module/Topic	Chapter	Events and Submissions/Topic
Review of the term		**Team feasibility study and competency evaluation** Due: Week 12 Friday (11 Feb 2022) 11:59 pm AEST

Exam Week - 14 Feb 2022

Module/Topic	Chapter	Events and Submissions/Topic
Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Please refer to the unit website of ENEG20001 for further information.

Assessment Tasks

1 Individual annotative bibliography and competency deconstruction

Assessment Type
Written Assessment

Task Description
This task consists of two parts. In Part A, you will choose one technical paper from a list of resources provided and summarise that paper by creating an annotated bibliography. To achieve this, you will need demonstrated skills in reading, understanding and explaining the details of a technical paper; paraphrasing information to avoid plagiarism; and referencing to correctly acknowledge your sources of information.
In Part B, you will complete a table based on the 16 elements of the Engineers Australia's Stage 1 Competencies. For each element, you will describe how this competency is demonstrated specifically through the engineering practice described in the technical paper you have chosen. If any elements are not directly addressed, you will articulate assumptions for how they could or should be demonstrated.

Assessment Due Date
Week 5 Friday (17 Dec 2021) 5:00 pm AEST
Individual mandatory submission item

Return Date to Students
Week 7 Friday (7 Jan 2022)
It is expected that the assessment item will be returned in 2 weeks after the due date.

Weighting
30%

Minimum mark or grade
50%

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

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Summarise technical publications using paraphrasing and references
- Deconstruct a project into Engineers Australia's graduate competencies

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Ethical and Professional Responsibility

2 Individual literature review and discipline summary

Assessment Type
Written Assessment

Task Description
This task also consists of two parts. In Part A, you will expand your annotated bibliography produced in Assignment 1 by completing a small literature review which incorporates published results from at least three other technical papers based on Australian projects in this area of practice. To achieve this, you will need to demonstrate referencing skills and the ability to synthesise information into a convincing and factual review. Your review should articulate points of agreement and disagreement and any gaps in the knowledge which have potential for future projects.
In Part B, you will prepare a description of Australian engineering practice after watching lectures that introduce various disciplines of engineering. You will need to understand the main organisations and technical societies operating in this discipline, what software is frequently used and what are some of the major projects being undertaken.

Assessment Due Date
Week 7 Friday (7 Jan 2022) 11:59 pm AEST
Individual mandatory submission item

Return Date to Students
Week 9 Friday (21 Jan 2022)
It is expected that the assessment item will be returned in 2 weeks after the due date.

Weighting
30%

Minimum mark or grade
50%

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

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Summarise technical publications using paraphrasing and references
- Review Australian practice in a specialised field of engineering
- Communicate effectively through technical writing and presentations.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Ethical and Professional Responsibility
- Leadership

3 Team feasibility study and competency evaluation

Assessment Type
Written Assessment

Task Description
Assessment 3 has two parts. In Part A, you will form a team with other students who completed A1 & A2 on similar topics. Your team will then combine your individual reviews to generate a comprehensive list of potential future projects. Your team will then choose one of these projects and develop a scope of investigation for a hypothetical feasibility study. To achieve this, your team will need to create a persuasive narrative based on background research that justifies why the project should proceed. You will also need to create a single aim statement which is dissolved into a series of objectives that describe the main aspects of the study and how they might be undertaken. Also, your team will need to list inclusions, exclusions, assumptions and limitations to further define the scope of the hypothetical investigation.
In Part B, your team will return to the stage 1 competencies and create a table that describes how each of the 16 elements are demonstrated through completing the feasibility study. Additionally, you will complete a self-review and allocate components of the study to team members based on their competencies.

Assessment Due Date
Week 12 Friday (11 Feb 2022) 11:59 pm AEST
Team mandatory submission item

Return Date to Students
Exam Week Friday (18 Feb 2022)

Weighting
40%

Minimum mark or grade
50%

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

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Deconstruct a project into Engineers Australia’s graduate competencies
- Generate a scope for a feasibility study of an engineering project
- Work collaboratively based on critical self-review of graduate competencies
- Communicate effectively through technical writing and presentations.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility
- Leadership

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