ENEG11005 *Introduction to Contemporary Engineering*

Term 2 - 2023

Profile information current as at 11/05/2024 04:57 pm

All details in this unit profile for ENEG11005 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

This unit introduces contemporary engineering to all undergraduates. First, you will learn about the levels of practice within the engineering profession and the corresponding graduate capabilities developed by our courses. Then you learn about study support services and effective study methods to facilitate a smooth transition to higher education. For most of the term, in this double-weighted unit, you will simultaneously develop technical and professional skills to establish a strong foundation for engineering problem-solving. The technical stream introduces coding, sketching, visualisation, and computer-aided drafting. At the same time, the professional stream teaches engineering values, including sustainable and ethical development, effective communication, time management, independent learning, and working with innovation, risks, people, and complex projects. Ultimately, this unit will test your ability to apply knowledge and skills to complete an authentic team project that incorporates the breadth of contemporary engineering. Successful completion of this unit will prepare you for the following project-based learning units.

Details

Career Level: *Undergraduate*
Unit Level: *Level 1*
Credit Points: *12*
Student Contribution Band: *8*
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 2 - 2023

- Mixed Mode

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 Undergraduate 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. **Reflective Practice Assignment**
Weighting: 10%
2. **Written Assessment**
Weighting: 15%
3. **Group Work**
Weighting: 35%
4. **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 Student Satisfaction Survey

Feedback
Students appreciated the opportunity to participate in the learning sessions and helpful feedback received.

Recommendation
Students should continue to receive the same high-level support to foster a positive learning environment that facilitates the acquisition of engineering skills and concepts.

Feedback from Student Satisfaction Survey

Feedback
Students reported satisfaction with the high-quality resources

Recommendation
Students should continue to have access to a wide range of learning materials to succeed and gain a deep understanding of the unit content.

Feedback from Student Satisfaction Survey

Feedback
The unit helped students to develop the engineering mindset and skills

Recommendation
Students should receive the same level of support so that to understand the essential engineering practices to help them think more holistically.

Feedback from Student Satisfaction Survey

Feedback
Moodle platform was user-friendly and facilitated straightforward communication with lecturers, ensuring a seamless learning experience for students.

Recommendation
The same Moodle layout should be continued to ensure the same seamless learning experience for students.

Feedback from Student Satisfaction Survey

Feedback
Students benefited from the efficient feedback and communication from the teaching team

Recommendation
Students should continue to receive timely responses to questions and concerns, as well as prompt assessment feedback.

Unit Learning Outcomes

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

1. Reflect on the individual skills, knowledge, and support services that promote effective study at the university
2. Apply coding skills to investigate alternate solutions for an engineering project
3. Produce freehand sketches and computer-aided drawings that follow Australian Standards
4. Develop and apply skills, knowledge, and values aligned with contemporary engineering, including ethical and sustainable practice
5. Formulate evidence-based opinions by locating, evaluating, and synthesising information from reputable sources
6. Provide evidence in individual and team-based scenarios of a professional capacity to work, learn, and communicate effectively in oral and written domains.

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: 4N 5N)

1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline. (LO: 4N 5N)

1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. (LO: 2N 3N 4N 5N)

1.4 Discernment of knowledge development and research directions within the engineering discipline. (LO: 4N 5N)

1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline. (LO: 2N 4N 5N)

1.6 Understanding of the scope, principles, norms, accountabilities, and bounds of sustainable engineering practice in the specific discipline. (LO: 4N 5N)

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

2.2 Fluent application of engineering techniques, tools, and resources. (LO: 2N 3N 4N 5N)

2.3 Application of systematic engineering synthesis and design processes. (LO: 3N 4N 5N)

2.4 Application of systematic approaches to the conduct and management of engineering projects. (LO: 4N 5N)

3.1 Ethical conduct and professional accountability. (LO: 2N 3N 4N 5N 6N)

3.2 Effective oral and written communication in professional and lay domains. (LO: 1N 2N 3N 4N 5N 6N)

3.4 Professional use and management of information. (LO: 1N 2N 3N 4N 5N)

3.5 Orderly management of self, and professional conduct. (LO: 1N 4N 6N)

3.6 Effective team membership and team leadership. (LO: 4N 6N)

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 Undergraduate Course 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=1511

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 - Reflective Practice Assignment - 10%	•					
2 - Written Assessment - 15%		•				
3 - Group Work - 35%			•	•	•	•
4 - Written Assessment - 40%			•	•	•	•

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			•			
8 - Ethical practice			•			
9 - Social Innovation						
10 - Aboriginal and Torres Strait Islander Cultures						

Textbooks and Resources

Textbooks

ENEG11005

Prescribed

Engineering Your Future - An Australasian Guide
Edition: 4th (2019)
Authors: David Dowling, Roger Hadgraft, Anna Carew, Tim McCarthy, Doug Hargreaves, Caroline Baillie, Sally Male
Wiley
Milton , Qld , Australia
ISBN: 978-0-730-36919-6
Binding: eBook

View textbooks at the CQUniversity Bookshop

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

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Schedule

Week 1 - 10 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Introduction to Contemporary Engineering	Chapter 1 – What is engineering (All Sections)	Commence Assessment 1 (Reflective Paper)

Week 2 - 17 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Management of learning, time, task and team	Chapter 5 – Self-management (Sections 5.1, 5.2, & 5.4) & Chapter 6 – Working with people (Sections 6.1, 6.2, 6.4 & 6.5)	Commence Assessment 4 (Workbook 2: Evidence of Individual Learning)

Week 3 - 24 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic

Lecture: Information literacy and Australian Standards	Chapter 9 - Understanding the problem (All Sections)	**Reflective Paper: Developing skills to become a reflective practitioner** Due: Week 3 Friday (28 July 2023) 11:45 pm AEST

Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Coding essentials and use cases	Resources listed on Moodle	Commence Assessment 2 (Workbook 1: Coding application)

Week 5 - 07 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Team project introduction and workbook advice	Chapter 5 – Self-management (5.5)	Commence Assessment 3 (Team Project Report and Presentation)

Vacation Week - 14 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
No lectures this week. take this time to catch up or look ahead on your studies.		

Week 6 - 21 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Sustainability, ethics and social innovation	Chapter 3 - Sustainable engineering (All sections) & Chapter 4 - Professional responsibility and ethics (All sections)	**Workbook 1: Coding Application** Due: Week 6 Tuesday (22 Aug 2023) 11:45 pm AEST

Week 7 - 28 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Problem-solving and engineering stakeholders	Chapter 2 - The engineering method (Sections 2.1 & 2.2) & Chapter 12 - Engineering decision making (Sections 12.3 & 12.4)	

Week 8 - 04 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Risk assessment and management	Chapter 13 - Managing engineering projects (Section 13.3)	

Week 9 - 11 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Communicating effectively with reports and presentations	Chapter 7 - Understanding communication (All sections), Chapter 8 - Communication skills (All sections) and Chapter 14 Communicating information (Sections 14.1, 14.2 & 14.3)	

Week 10 - 18 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Engineering drawing and visualisation for engineers	Resources listed on Moodle	

Week 11 - 25 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Indigenous engagement in Engineering Context	Resources listed on Moodle	**Team Technical Project Report** Due: Week 11 Tuesday (26 Sept 2023) 11:45 pm AEST

Week 12 - 02 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic

Lecture: Workbook walkthrough and Continued Professional Development	Chapter 5 - Self-management (Section 5.6) & Chapter 15 - Your engineering career (All sections)	

Review/Exam Week - 09 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
		Workbook 2: Evidence of Individual Learning Due: Review/Exam Week Tuesday (10 Oct 2023) 11:45 pm AEST

Exam Week - 16 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Students will have full online access to the textbook via the CQUni library.

Assessment Tasks

1 Reflective Paper: Developing skills to become a reflective practitioner

Assessment Type
Reflective Practice Assignment

Task Description
Individually prepare a Reflective Paper by studying the topics and resources provided for this assignment on Moodle. You will need to become familiar with the Reflective Writing Guide to ensure your paper articulates reflective thoughts rather than just restating information from the resources provided. There is no strict word limit, either minimum or maximum, but you should be able to prepare approximately one page for each topic. Prepare your paper by writing succinctly.

Assessment Due Date
Week 3 Friday (28 July 2023) 11:45 pm AEST

Return Date to Students
Week 5 Friday (11 Aug 2023)
It is expected that the assessment item will be returned in 2 weeks after the due date.

Weighting
10%

Minimum mark or grade
25%

Assessment Criteria
Moodle contains a marking rubric that includes indicators of attainment at the ‘Sound’, ‘Good’ and ‘Excellent’ levels for each element of the assessment.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Submit as a single pdf to Moodle

Learning Outcomes Assessed

- Reflect on the individual skills, knowledge, and support services that promote effective study at the university

2 Workbook 1: Coding Application

Assessment Type
Written Assessment

Task Description
Students will attempt individual coding activities based on the given scenario. This will allow students to demonstrate the generic coding techniques, as well as gain experience in creating solutions to problems. Students are required to apply critical thinking skills, as they must consider how to approach the problem.

Assessment Due Date
Week 6 Tuesday (22 Aug 2023) 11:45 pm AEST

Return Date to Students
Week 8 Tuesday (5 Sept 2023)

Weighting
15%

Minimum mark or grade
25%

Assessment Criteria
Moodle contains a marking rubric that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' levels for each element of the assessment.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Submit as a single excel workbook to Moodle

Learning Outcomes Assessed

- Apply coding skills to investigate alternate solutions for an engineering project

3 Team Technical Project Report

Assessment Type
Group Work

Task Description
In your project team, prepare a Technical Report using the Microsoft Word Report Template provided on Moodle. Resources for this assignment are provided on Moodle, in lectures and workshops. You will need to seek feedback from your lecturer at the draft stage of your report. There is no strict word limit, either minimum or maximum. Your team should aim to prepare a report which adequately explains the decision-making processes, designs and results of your project. Write succinctly and avoid padding your report with discussions that are unnecessary.

Assessment Due Date
Week 11 Tuesday (26 Sept 2023) 11:45 pm AEST

Return Date to Students
Review/Exam Week Tuesday (10 Oct 2023)

Weighting
35%

Minimum mark or grade
25%

Assessment Criteria
Moodle contains a marking rubric that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' levels for each element of the assessment.

Referencing Style

- Harvard (author-date)

Submission
Online Group

Submission Instructions
One team member to submit as a single pdf to Moodle.

Learning Outcomes Assessed

- Produce freehand sketches and computer-aided drawings that follow Australian Standards

- Develop and apply skills, knowledge, and values aligned with contemporary engineering, including ethical and sustainable practice
- Formulate evidence-based opinions by locating, evaluating, and synthesising information from reputable sources
- Provide evidence in individual and team-based scenarios of a professional capacity to work, learn, and communicate effectively in oral and written domains.

4 Workbook 2: Evidence of Individual Learning

Assessment Type
Written Assessment

Task Description
Prepare this workbook individually as evidence of your achievements while simultaneously working on your team's project. You should include activities related to visualisation, engineering drawings, and CAD. This will give you a chance to showcase your specific skills.

Assessment Due Date
Review/Exam Week Tuesday (10 Oct 2023) 11:45 pm AEST

Return Date to Students
Exam Week Tuesday (17 Oct 2023)

Weighting
40%

Minimum mark or grade
25%

Assessment Criteria
Moodle contains a marking rubric that includes indicators of attainment at the ‘Sound’, ‘Good’ and ‘Excellent’ levels for each element of the assessment.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Submit as a single pdf to Moodle

Learning Outcomes Assessed

- Produce freehand sketches and computer-aided drawings that follow Australian Standards
- Develop and apply skills, knowledge, and values aligned with contemporary engineering, including ethical and sustainable practice
- Formulate evidence-based opinions by locating, evaluating, and synthesising information from reputable sources
- Provide evidence in individual and team-based scenarios of a professional capacity to work, learn, and communicate effectively in oral and written domains.

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