



ENEG11005 *Fundamentals of Professional Engineering*

Term 1 - 2017

Profile information current as at 13/05/2024 09:50 am

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 prepares you to transition effectively into higher education by investigating study support services and developing good study practices. You will then be introduced to the fundamental skills and knowledge that characterise contemporary engineering practice: stakeholder engagement, problem solving, sustainable development, systems engineering, ethical conduct, risk assessment, information literacy, Australian Standards and technical communication. Your capacity to work productively in a small team and apply these fundamental aspects will be developed and tested through undertaking a complex real-world engineering project. You will also learn how to showcase your scholarly achievements by creating a student Portfolio. Successful completion of this unit will equip you with productive study habits; enlighten you with engineering practice insights; award you with effective communication skills in technical reporting, presentations and drawings; and prepare you for the following series of Project-Based Learning units and associated opportunities to interact with the engineering profession. Students enrolled in distance mode must attend a compulsory residential school to facilitate peer collaboration and attainment of the course learning outcomes.

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 1 - 2017

- Bundaberg
- Cairns
- Distance
- Gladstone
- Mackay
- 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).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

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. **Written Assessment**

Weighting: 10%

2. **Practical and Written Assessment**

Weighting: 30%

3. **Written Assessment**

Weighting: 30%

4. **Portfolio**

Weighting: 30%

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

Introduce the Portfolio assignment and team project earlier in the term

Recommendation

The team project and Portfolio should be introduced earlier to provide greater emphasis to these aspects of the course

Action

Team project and Portfolio was introduced earlier through revisions to assignments.

Feedback from Staff and student satisfaction survey

Feedback

Increase the use of worksheets and work examples to make assignment expectations clearer

Recommendation

Create a portfolio template and workshop worksheets to make assessment tasks clearer

Action

Portfolio template created as well as other worksheets (Risk Assessment) to help scaffold student learning.

Feedback from Student satisfaction survey

Feedback

Reduce the number of reflective writing assessment tasks

Recommendation

Reduce the number of reflective writing assessment topics to reduced the course workload

Action

The second and final Reflective Paper assignment was replaced by a Technical Report which allowed the team project and Portfolio to be introduced earlier.

Unit Learning Outcomes

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

1. Reflect on the skills, knowledge and support services that promote effective study at university
2. Produce freehand sketches and 2D engineering drawings with AutoCAD that follow Australian technical drawing standards
3. Develop and apply your understanding of the skills, knowledge, values and interactions that characterise contemporary engineering practice thorough undertaking a complex real-world engineering team project
4. Demonstrate professional communication skills in oral and written domains.
5. Generate evidence-based opinions through locating, comprehending and synthesising information from reputable sources
6. Work and learn individually and in small teams
7. Apply Harvard style references to written tasks

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	7
1 - Written Assessment - 10%	●			●		●	●
2 - Practical and Written Assessment - 30%		●		●		●	
3 - Written Assessment - 30%			●	●	●	●	●
4 - Portfolio - 30%				●	●	●	●

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
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							

Alignment of Assessment Tasks to Graduate Attributes

[illegible]

Textbooks and Resources

Textbooks

ENEG11005

Prescribed

Engineering Your Future - An Australasian Guide

Edition: 3rd (2016)

Authors: Dowling D, Hadgraft R, Carew A, McCarthy T, Hargreaves D & Baillie C

Wiley

Milton, Qld, Australia

ISBN: 978-0-7303-1472-1

Binding: Hardcover

Additional Textbook Information

This textbook is available in e-print form and is also prescribed for ENEG11007

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- AutoCAD (free student download available from Autodesk
<http://www.autodesk.com/education/free-software/autocad>)

Referencing Style

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

For further information, see the Assessment Tasks.

Teaching Contacts

Benjamin Taylor Unit Coordinator

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Schedule

Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Welcome to engineering Lecture: Your journey to Stage 1 Competencies and Discipline Capabilities Workshops: Model Skyscraper Challenge Design, Prototype, Build and Test	Video: Unit introduction and assessment overview Textbook: Chapter 1 – What is engineering (The Engineers Australia Competency framework pp. 25-27)	Commence working on Reflective Paper - Studying at University Complete the Skyscraper Challenge

Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Creating your study environment

Lecture: Management of learning, time and teams

Workshops: Academic Learning Centre + Tools for effective writing + Learning styles

Video: Reflective writing genre

Textbook: Chapter 5 – Self Management (Time-management strategies pp.249-250 & Managing your learning pp.260-266)

Week 3 - 20 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Developing good study habits Lecture: Unpacking unit learning outcomes Workshops: Study timetable + learning in teams + Finalising Assignment 1	Video: MindTools resources Textbook: Chapter 6 – Collaborating With Others (The fundamentals of an effective group pp.289-294)	Commence working on Sketching and Drawing Activities Reflective Paper: Studying at University Due: Week 3 Friday (24 Mar 2017) 10:00 pm AEST

Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
RESIDENTIAL SCHOOL FOR DISTANCE STUDENTS Working to a standard Lecture: Australian Standards Workshops: Sketching + AutoCAD	RESIDENTIAL SCHOOL FOR DISTANCE STUDENTS Video: Civil drawing step-by-step guide Textbook: Chapter 4 – Professional responsibilities and ethics (Professional responsibility: standards and professional liability pp.174-176)	RESIDENTIAL SCHOOL FOR DISTANCE STUDENTS Commence working on Sketching and Drawing Activities

Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Working with risk Lecture: Risk assessment Workshops: AutoCAD + Risk assessment + Introducing the team project	Video: Civil drawing step-by-step guide continues Textbook: Chapter 2 – The Engineering Method (Risk Management pp.83-86)	

Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
BREAK WEEK Use this time to plan your team project and Portfolio	BREAK WEEK Video: Literature search and data sources for project	BREAK WEEK Commence working on Team Project and Portfolio Sketching and Drawing Activities Due: Vacation Week Friday (14 Apr 2017) 10:00 pm AEST

Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Forming your team and framing your project Lecture: Portfolio and project nexus Workshops: Team formation + Project schedule + Concrete casting laboratory	Video: Taking measurement with Google Earth Textbook: Chapter 2 – The Engineering Method (Project Management pp.78-80)	

Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Building team skills, knowledge and resources Lecture: Problem solving and stakeholders Workshops: Excel water balance + Google Earth measurements + Concrete testing laboratory	Video: Excel modelling 1 - systems engineering and water balance Textbook: Chapter 2 – The Engineering Method (The engineering method pp.56-72)	

Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Quality in engineering practice Lecture: Information literacy Workshops: Processing laboratory data + investigating project options and stakeholders + reviewing information sources	Video: Excel modelling 2 - concrete strength and density Textbook: Chapter 9 - Understanding the Problem (Evaluating Information pp.464-468)	

Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Sustainability and ethics in engineering Lecture: Course Reflection and Review + Sustainability and ethics Workshops: Portfolio progress review + project conceptual design + Sustainability and ethics in your project	Video: Excel modelling 3 - reservoir volume Textbook: Chapter 3 - Sustainable Engineering (What is Sustainable Engineering pp.125-132) & Chapter 4 - Professional Responsibility and Ethics (Engineering Ethics pp.183-186 & Interpreting and Applying Code of Ethics pp.190-198)	Self and Peer-Assessment (SPA) 1 Due Friday (12 May 17) 10:00 PM AEST

Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Communicating with technical reports Lecture: Effective communication - reports and presentations Workshops: Report draft 1 + Report draft 2 + Finalising report	Video: Walkthrough technical report exemplar Textbook: Chapter 7 - Understanding Communication (Introduction pp.328-332)	Team Project Report Due: Week 10 Friday (19 May 2017) 10:00 pm AEST

Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Communicating with technical presentations Lecture: Portfolio walkthrough Workshops: Team presentations + Portfolio progress review	Video: Walkthrough portfolio exemplar	Self and Peer-Assessment (SPA) 2 Due Friday (26 May 17) 10:00 PM AEST

Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Showcasing your learning achievements Lecture: Beyond this unit Workshops: Portfolio Compilation		

Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
		Portfolio of Learning Achievements Due: Review/Exam Week Monday (5 June 2017) 10:00 pm AEST

Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Assessment Tasks**1 Reflective Paper: Studying at University**

Assessment Type
Written Assessment

Task Description

Prepare a typed 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 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.

Assessment Due Date

Week 3 Friday (24 Mar 2017) 10:00 pm AEST

Return Date to Students

Week 5 Friday (7 Apr 2017)

Weighting

10%

Minimum mark or grade

0%

Assessment Criteria

A Marking Rubric is provided on Moodle that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' level for each assignment topic.

Referencing Style

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

Submission

Online

Submission Instructions

Upload a single PDF document.

Learning Outcomes Assessed

- Reflect on the skills, knowledge and support services that promote effective study at university
- Demonstrate professional communication skills in oral and written domains.
- Work and learn individually and in small teams
- Apply Harvard style references to written tasks

Graduate Attributes

- Communication
- Information Literacy

2 Sketching and Drawing Activities

Assessment Type

Practical and Written Assessment

Task Description

Sketching and drawing exercises are set on Moodle. Sketches can be completed in the provided worksheets and drawings must be completed in AutoCAD. A free student version of AutoCAD is available on the Autodesk website. You will also need to become familiar with sections of AS1100 – Australian Standards for Technical Drawing – which can be accessed through the CQU library website.

Assessment Due Date

Vacation Week Friday (14 Apr 2017) 10:00 pm AEST

Return Date to Students

Week 7 Friday (28 Apr 2017)

Weighting

30%

Minimum mark or grade

0%

Assessment Criteria

Sketches and drawings should be neat, of the correct scale, with correctly line types and correct size of annotations and dimensions where necessary. Marks will be deducted if sketches and drawings do not meet this criteria.

Referencing Style

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

Submission

Online

Submission Instructions

Upload one single PDF document plus one single DWG (AutoCAD drawing file)

Learning Outcomes Assessed

- Produce freehand sketches and 2D engineering drawings with AutoCAD that follow Australian technical drawing standards
- Demonstrate professional communication skills in oral and written domains.
- Work and learn individually and in small teams

Graduate Attributes

- Communication
- Information Technology Competence

3 Team Project Report

Assessment Type

Written Assessment

Task Description

In your project team, prepare a typed Technical Report using the template provided. Resources for this assignment are provided on Moodle, in lectures and in 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.

Assessment Due Date

Week 10 Friday (19 May 2017) 10:00 pm AEST

Return Date to Students

Week 12 Friday (2 June 2017)

Weighting

30%

Minimum mark or grade

0%

Assessment Criteria

A Marking Rubric is provided on Moodle that includes indicators of attainment at the 'Sound', 'Good' and 'Excellent' level for each assignment topic.

Referencing Style

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

Submission

Online

Submission Instructions

Upload a single PDF document.

Learning Outcomes Assessed

- Develop and apply your understanding of the skills, knowledge, values and interactions that characterise contemporary engineering practice thorough undertaking a complex real-world engineering team project
- Demonstrate professional communication skills in oral and written domains.
- Generate evidence-based opinions through locating, comprehending and synthesising information from reputable sources
- Work and learn individually and in small teams
- Apply Harvard style references to written tasks

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

- Ethical practice

4 Portfolio of Learning Achievements

Assessment Type

Portfolio

Task Description

Prepare an electronic Portfolio of individual work as evidence of your achievements towards the relevant course learning outcomes while working on your team project. The Portfolio must be prepared using the template provided and it shall only contain your work. The Portfolio must contain the following compulsory sections.

Grade Nomination: A self-assessment of your level of achievement ('Sound', 'Good' or 'Excellent') that you believe should be awarded for each task listed in the Portfolio marking rubric on Moodle. For each task, you will need to substantiate your claim by including the page numbers in your portfolio that contain evidence of meeting the associated indicators of attainment from the marking rubric. Evidence of your learning achievements will come from subsequent sections of your Portfolio including entries in your Workbook, Reflective Journal, and Self and Peer-Assessment Results. An example of a Grade Nomination is provided on Moodle.

Workbook: Can be typed, handwritten (then scanned) or a combination of both but must be neat, chronological and legible. The workbook contains all your work for the team project. It should contain separate entries with headings and the date, such as: 'April 20 – Project Risk Assessment'. These entries will show when you worked on each element of the project and how your ideas and capabilities have developed through the course. You should not go back and edit old entries as this may prohibit demonstrating skills development. The workbook cannot be completed retrospectively and must include **at least two entries each week** while working on the team project. Entries should demonstrate a variety of technical skills like researching, brainstorming, creating mind maps, flowcharts, methodologies, schedules, obtaining experimental data, undertaking data analysis, producing results, figures, charts, conclusions, or any other work done for your team project. It is good practice to add entries to your Workbook first and then send a copy to your teammates to ensure you retain the original work.

Reflective Journal: As with your workbook, it can be typed, handwritten (then scanned) or a combination of both but must be neat, chronological and legible. The Reflective Journal contains your thoughts about how you and your team are progressing with the project and what you have learnt and experienced either directly by doing the work or indirectly through observing others. Again, like the Workbook, It should contain **at least two entries each week** while working on the project. Entries must have headings with the date and a title, such as: 'April 20 – Why I think Risk Assessment is important for engineers'. Reflective entries can demonstrate a variety of achievements like understanding how and when you learnt something, identifying effective ways to communicate and work with your peers, and comprehending the relevance of what you have learnt and experienced in your future engineering career. You should not go back and edit old entries as this may prohibit demonstrating your development. Thus, the Reflective Journal cannot be completed retrospectively. Refer to the Reflective Writing Guide on Moodle.

You should expect that your lecturer will ask to see your Workbook and Reflective Journal at any time during the team project to ensure that you are progressing suitably towards achieving the associated course learning outcomes.

Self- and Peer-Assessment: At milestones during the progression of your team project you will be required to complete anonymous Self- and Peer Assessment (SPA) surveys. SPAs provide de-identified formative feedback to you and your teammates about aspects of teamwork that are perceived by peers to be working well or could be improved. If you disagree with feedback from your teammates then your thoughts should be articulated through an entry in your Reflective Journal and sent to your lecturer for consideration. Guidelines for completing the SPAs are provided on Moodle.

Assessment Due Date

Review/Exam Week Monday (5 June 2017) 10:00 pm AEST

Return Date to Students

Feedback will be provided before finalisation of grades.

Weighting

30%

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' level for all Portfolio tasks.

Referencing Style

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

Submission

Online

Submission Instructions

Upload a single PDF document.

Learning Outcomes Assessed

- Demonstrate professional communication skills in oral and written domains.
- Generate evidence-based opinions through locating, comprehending and synthesising information from reputable sources
- Work and learn individually and in small teams
- Apply Harvard style references to written tasks

Graduate Attributes

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