ENEG11005 *Fundamentals of Professional Engineering*

Term 1 - 2018

Profile information current as at 30/04/2024 05:59 pm

General Information

Overview

This unit prepares you to effectively transition into higher education by investigating study support services and developing good study practices. You will explore 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 is developed and tested through undertaking a complex authentic engineering project. You will also learn 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 practical 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 online mode must attend a compulsory residential school to facilitate peer collaboration and attainment of the unit 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 - 2018

- Bundaberg
- Cairns
- Gladstone
- Mackay
- Mixed Mode
- 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: 20%
2. **Practical Assessment**
Weighting: 25%
3. **Written Assessment**
Weighting: 25%
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
Staff were very accommodating and approachable.

Recommendation
Continue to provide weekly Zoom virtual tutorials for distance students and several weekly workshop session for on-campus students.

Feedback from Student satisfaction survey and staff reflections.

Feedback
Show examples of a Portfolio and Team Report earlier in the term.

Recommendation
Provide examples of the Portfolio and Team Report with the assignment instructions.

Feedback from Student satisfaction survey and staff reflections.

Feedback
Keep adding to the library of instructional videos as they are an excellent learning resource.

Recommendation
Continue creating instructional videos to scaffold difficult tasks relating to assignments.

Feedback from Student satisfaction survey and staff reflections.

Feedback
Create more worksheets to facilitate completing phases of projects and other activities.

Recommendation
Create more worksheets to assist with completing the complex phases of projects.

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 in AutoCAD that follow Australian Standards
3. Develop and apply your skills, knowledge, values, and interactions that characterise contemporary engineering practice
4. Demonstrate professional communication skills in oral and written domains
5. Formulate evidence-based opinions by locating, evaluating, and synthesising information from reputable sources
6. Work and learn individually and in small teams.

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

— 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 - 20%	•					
2 - Practical Assessment - 25%		•				
3 - Written Assessment - 25%			•	•	•	•
4 - Portfolio - 30%				•	•	•

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						

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 20%	•			•						
2 - Practical Assessment - 25%	•					•				
3 - Written Assessment - 25%	•	•	•	•		•	•	•		
4 - Portfolio - 30%	•	•	•	•	•	•	•	•		

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: Paperback

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

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)
- Computer with Microsoft Office and EndNote installed

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
ben.taylor@cqu.edu.au

Schedule

Week 1 - 05 Mar 2018

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 - 12 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic

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 - 19 Mar 2018

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 (23 Mar 2018) 10:00 pm AEST

Week 4 - 26 Mar 2018

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 - 02 Apr 2018

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)	**Sketching and Drawing Activities** Due: Week 5 Friday (6 Apr 2018) 10:00 pm AEST

Vacation Week - 09 Apr 2018

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

Week 6 - 16 Apr 2018

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 - 23 Apr 2018

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 - 30 Apr 2018

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 - 07 May 2018

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: Week 9 Friday (11 May 2018) 10:00 PM AEST

Week 10 - 14 May 2018

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 Monday (14 May 2018) 10:00 pm AEST

Week 11 - 21 May 2018

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: Week 11 Friday (25 May 2018) 10:00 PM AEST

Week 12 - 28 May 2018

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

Review/Exam Week - 04 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic
		Portfolio of Learning Achievements Due: Review/Exam Week Monday (4 June 2018) 10:00 pm AEST

Exam Week - 11 Jun 2018

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Reflective Paper: Studying at University

Assessment Type
Written Assessment

Task Description
Prepare a Reflective Paper in Microsoft Word 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 (23 Mar 2018) 10:00 pm AEST

Return Date to Students
Week 5 Friday (6 Apr 2018)

Weighting
20%

Minimum mark or grade
25%

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

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Upload a single PDF.

Learning Outcomes Assessed

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

Graduate Attributes

- Communication
- Information Literacy

2 Sketching and Drawing Activities

Assessment Type
Practical 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
Week 5 Friday (6 Apr 2018) 10:00 pm AEST

Return Date to Students
Week 7 Friday (27 Apr 2018)

Weighting
25%

Minimum mark or grade
25%

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 these criteria.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Upload two (2) files: one PDF; and one DWG (AutoCAD drawing file). All AutoCAD activities should be completed in the one DWG file

Learning Outcomes Assessed

- Produce freehand sketches and 2D engineering drawings in AutoCAD that follow Australian Standards

Graduate Attributes

- Communication
- Information Technology Competence

3 Team Project Report

Assessment Type
Written Assessment

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 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. Write succinctly and avoid padding your report with discussions that are unnecessary.

Assessment Due Date
Week 10 Monday (14 May 2018) 10:00 pm AEST

Return Date to Students
Week 12 Friday (1 June 2018)

Weighting
25%

Minimum mark or grade
25%

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

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
One member of your team only must upload a single PDF.

Learning Outcomes Assessed

- Develop and apply your skills, knowledge, values, and interactions that characterise contemporary engineering practice
- Demonstrate professional communication skills in oral and written domains
- Formulate evidence-based opinions by locating, evaluating, and synthesising information from reputable sources
- Work and learn individually and in small teams.

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 unit learning outcomes while working on your team project. The Portfolio must be prepared using the Microsoft Word template provided on Moodle, and it shall contain only 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, 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 (4 June 2018) 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’ levels for all Portfolio tasks.

Referencing Style

- Harvard (author-date)

Submission
Online

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

Learning Outcomes Assessed

- Demonstrate professional communication skills in oral and written domains
- Formulate evidence-based opinions by locating, evaluating, and synthesising information from reputable sources
- Work and learn individually and in small teams.

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