ENEG20003 *Sustainability Studio*
Term 1 - 2020

Profile information current as at 13/12/2025 05:45 pm

General Information

Overview
In this unit, you will engage with a complex, real world problem that crosses disciplinary boundaries. You will use a systems engineering approach to explore stakeholder needs and to write a set of requirements. In approaching the design task, you will need to balance technical, economic, social and environmental issues and constraints. At the heart of such problem solving is teamwork, communication, knowledge management and evaluation using sustainability principles.

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
At least 24 cp of the Master of Engineering.
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 - 2020

- Melbourne
- 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: 20%
2. **Written Assessment**
Weighting: 20%
3. **Written Assessment**
Weighting: 20%
4. **Project (applied)**
Weighting: 30%
5. **Presentation**
Weighting: 10%

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 Unit Coordinator reflection

Feedback

A lecture from the Melbourne campus should be held.

Recommendation

It is recommended that one lecture should be delivered from CQU Melbourne campus in every offering.

Feedback from Unit Coordinator reflection and student interactions

Feedback

There was a guest lecturer for two hours from the industry.

Recommendation

There should be two guest lectures in this unit. This will be helpful for the student to know the real-world sustainability issues and their solutions, as well as, earning 4 hours for their CPD unit.

Unit Learning Outcomes

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

1. Show evidence of grappling with complex issues through stakeholder engagement
2. Develop a set of stakeholder requirements
3. Apply a systematic design process (systems engineering) to develop solutions to an issue
4. Demonstrate self-awareness of thinking processes and values, including socio-ecological thinking and uncertainty
5. Develop and pitch a change proposal
6. Reflect on the contribution of this project to professional development.

N/A

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 - Written Assessment - 20%			•	•		
3 - Written Assessment - 20%					•	•
4 - Project (applied) - 30%		•	•			
5 - Presentation - 10%					•	•

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 - 20%	○	○				○		
2 - Written Assessment - 20%			○	○	○	○		
3 - Written Assessment - 20%		○			○		○	
4 - Project (applied) - 30%	○		○	○				
5 - Presentation - 10%		○				○	○	

Textbooks and Resources

Textbooks

ENEG20003

Prescribed

Sustainability Principles and Practice
Edition: 2nd (2017)
Authors: Margaret Robertson
Routledge Taylor & Francis Group
New York , NY , USA
Binding: Hardcover
ENEG20003

Prescribed

Sustainability Principles and Practice
Edition: 2nd (2017)
Authors: Margaret Robertson
Routledge Taylor & Francis Group
2 Park Square, Milton Park, Abingdon, Oxon; and 711 Third Avenue New York , England and USA
ISBN: 978-1-315-62547-8
Binding: eBook
ENEG20003

Supplementary

An Introduction to Sustainability:Environmental, Social and Personal Perspectives
Edition: 2nd (2018)
Authors: Martin Mulligan
Routledge Taylor & Francis Group
2 Park Square, Milton Park, Abingdon, Oxon; and 711 Third Avenue New York , England and USA
Binding: Hardcover
ENEG20003

Supplementary

An Introduction to Sustainability:Environmental, Social and Personal Perspectives
Edition: 2nd (2018)
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Routledge Taylor & Francis Group
2 Park Square, Milton Park, Abingdon, Oxon; and 711 Third Avenue New York , England and USA
ISBN: 978-1-315-51945-6
Binding: eBook

Additional Textbook Information
Paper copies can be purchased from the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code)

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

Md Nurun Nabi Unit Coordinator
m.nabi@cqu.edu.au

Schedule

Week 1 - 09 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. A general overview of the unit 2. What is sustainability? 3. Challenges and responses 4. Sustainability as a discipline 5. Is Earth warming? 6. How temperature records are compiled 7. Modern climate change and greenhouse gases	1 and 6 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	Students will need to identify different sustainability projects. To work with a project, they require to form different teams. Each team will generally contain 5/6 students depending on the number of students enrolled. The team should understand the project problems, research question/s, project background, aims and objectives, the methodology, results, discussions and conclusions. The detailed criteria of project report are available in the Moodle.

Week 2 - 16 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Sustainability at work 2. Sustainability initiatives 3. Air pollution 4. Soil and land pollution 5. Water pollution 6. Pollution remediation and prevention	5 and 9 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	Students are required to write a written assessment. The assessment task will be on the topic of a sustainability issue you are familiar with. Please note that this is an individual assessment item, which is mandatory to submit. The criteria of the assessment (Written Assessment 1) are available in the Moodle.

Week 3 - 23 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Uneven distribution of water 2. Depletion of nonrenewable aquifers 3. Threats to human and ecosystem health 4. Consumption 5. Effects of climate change 6. Water conservation 7. Wastewater treatment 8. Storm water	7 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	Each team must finalise its team members. They should select and work on their project topic.

Week 4 - 30 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Introduction to ecosystems and habitat 2. Populations and extinction 3. Drivers of ecosystem change 4. Conservation and restoration 5. Conservation 6. Restoration ecology 7. Living together-reconciliation ecology	8 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	**Written Assessment 1** Due: Week 4 Friday (3 Apr 2020) 11:00 pm AEST

Week 5 - 06 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Why study living systems? 2. Energy and matter 3. The four spheres 4. The biosphere 5. What is life? 6. Gaia: earth systems science 7. Systems	3 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	Students are required to write their second assessment item (Written Assessment 2) covering the solution of another sustainability issue by applying sustainable design criteria. Please note that this is an individual assessment item, which is mandatory to submit. Please refer to the Unit Moodle for the criteria of this assessment.

Vacation Week - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Vacation Week	Vacation Week	Vacation Week

Week 6 - 20 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Traditional fossil fuels 2. Solar 3. Solar photovoltaic panels 4. Wave and tidal 5. Hydro 6. Wind 7. Geothermal 8. Biomass 9. Biogas 10. Alternative energy for transportation	10 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	The team will continue to work on their project. **Written Assessment 2** Due: Week 6 Friday (24 Apr 2020) 11:00 pm AEST

Week 7 - 27 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. What is a green building? 2. The process of green building design 3. Building envelope 4. Lighting 5. Passive heating and cooling concepts 6. Heating 7. Cooling 8. Ventilation 9. Construction 10. Sustainable sites	11 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	The team will continue to work on their team project and try to find out a solution to the sustainability issue by designing, modelling etc. The team will work on their team project and should be aware of their team project report, which is due in three/four weeks time. Students are required to write their third assessment item (Written Assessment 3) that addresses a change proposal. Please note that this is also an individual assessment item, which is mandatory to submit. For the criteria of this assessment, please refer to the Unit Moodle.

Week 8 - 04 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Introduction to livable cities 2. Sprawl 3. Land use planning 4. Urban planning 5. Building community 6. Transportation 7. Cities and climate change	12 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	**Written Assessment 3** Due: Week 8 Friday (8 May 2020) 11:00 pm AEST

Week 9 - 11 May 2020

Module/Topic	Chapter	Events and Submissions/Topic

1. Design for the environment 2. Industrial ecology 3. Process design 4. Product alternatives 5. Product design 6. Shipping and packaging 7. ISO 14000 standards 8. Certification and labels 9. Eco-labels	14 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	The team should significantly progress with their project work.

Week 10 - 18 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
1. Waste management 2. Landfills 3. Incineration 4. Recycling 5. C & D waste 6. Industrial waste 7. Zero waste	15 Robertson Textbook Also, different articles from journals, conference and web sites relevant to the topic.	The Team should wrap up their projects. They should make rehearsal for their Team Project Presentation.

Week 11 - 25 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Guest lecture		Each presentation will be 10-12 minutes followed by 5-7 minutes for questions and changeover. The presentation schedule will be provided in the unit Moodle. Please note that all team members must present. **Team Project Presentation** Due: Week 11 Tuesday (26 May 2020) 9:00 am AEST

Week 12 - 01 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
Review class		Please note that the team project report is a team submission item, which is mandatory to submit. **Team Project Report** Due: Week 12 Friday (5 June 2020) 11:00 pm AEST

Review/Exam Week - 08 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 15 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Written Assessment 1

Assessment Type
Written Assessment

Task Description

This is an individual submission. For this assessment, students can get ideas from week 1-2 class lectures, referred textbooks, and week 1 reading materials. Students should search for the relevant topics from CQU online library, and or internet search. Students will be able to familiar with the issues facing our planet, their causes and the mitigation of those issues.

The detailed task description is available in Unit Moodle.

Assessment Due Date
Week 4 Friday (3 Apr 2020) 11:00 pm AEST

Return Date to Students
Week 6 Friday (24 Apr 2020)

Weighting
20%

Minimum mark or grade
50%

Assessment Criteria
The criteria are available in the unit Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Show evidence of grappling with complex issues through stakeholder engagement
- Develop a set of stakeholder requirements

Graduate Attributes

- Knowledge
- Communication
- Ethical and Professional Responsibility

2 Written Assessment 2

Assessment Type
Written Assessment

Task Description

This is an individual submission. For this assessment, students can get ideas from week 3-5 class lectures, referred textbooks, and week 2-5 reading materials. Students should search for the relevant topics from CQU online library, and or internet search. Students will be able to familiar with another issue (different from 1-written assessment and team project) facing our planet, its causes with its sustainable solution. The detailed task description is available in Unit Moodle.

Assessment Due Date
Week 6 Friday (24 Apr 2020) 11:00 pm AEST

Return Date to Students
Week 8 Friday (8 May 2020)

Weighting
20%

Minimum mark or grade
50%

Assessment Criteria
The criteria are available in the unit Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Apply a systematic design process (systems engineering) to develop solutions to an issue

- Demonstrate self-awareness of thinking processes and values, including socio-ecological thinking and uncertainty

Graduate Attributes

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

3 Written Assessment 3

Assessment Type
Written Assessment

Task Description

This is an individual submission. For this assessment, students can get ideas from week 6-8 class lectures, referred textbooks, and week 6-8 reading materials. Students should search for the relevant topics from CQU online library, and or internet search. The writing must be different from Written assessments 1, 2 and team project.
The detailed task description is available in Unit Moodle.

Assessment Due Date
Week 8 Friday (8 May 2020) 11:00 pm AEST

Return Date to Students
Week 10 Friday (22 May 2020)

Weighting
20%

Minimum mark or grade
50%

Assessment Criteria
The criteria are available in the unit Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Develop and pitch a change proposal
- Reflect on the contribution of this project to professional development.

Graduate Attributes

- Communication
- Self-management
- Leadership

4 Team Project Report

Assessment Type
Project (applied)

Task Description

This is a team submission. For this assessment, students to brainstorm sustainable project ideas in week 1. Each project will be carried out by a team of 5-6 students. In order to the successful completion of the project, students should discuss and work effectively and sincerely with their team members from the beginning of the term. Each week in the workshop, students will have the opportunity to take advantages of their supervisors. They can discuss their issues, problems and project progress with their supervisors. All teams should submit a satisfactory project report in week 12. Each team member should reflect on his/her achievement according to Engineers Australia Stage 1 Competency.
Refer to Unit Moodle for detailed task description.

Assessment Due Date
Week 12 Friday (5 June 2020) 11:00 pm AEST

Return Date to Students
Exam Week Friday (19 June 2020)

Weighting
30%

Minimum mark or grade
50%

Assessment Criteria
This is a Team submission. The detailed criteria are available in the Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Learning Outcomes Assessed

- Develop a set of stakeholder requirements
- Apply a systematic design process (systems engineering) to develop solutions to an issue

Graduate Attributes

- Knowledge
- Cognitive, technical and creative skills
- Research

5 Team Project Presentation

Assessment Type
Presentation

Task Description

This is a Team presentation. Each Team present its project in Week 11. All team members must attend and present their project. The detailed schedule for presentation will be available in Unit Moodle in due time. According to presentation criteria, all members may not get equal marks in their team presentation. All students are advised to look at the presentation criteria available in Unit Moodle.

Assessment Due Date
Week 11 Tuesday (26 May 2020) 9:00 am AEST

Return Date to Students
Week 12 Friday (5 June 2020)

Weighting
10%

Minimum mark or grade
50%

Assessment Criteria
All team members must present in their team presentation. Absent member will be awarded zero marks.

Referencing Style

- Harvard (author-date)

Submission
No submission method provided.

Learning Outcomes Assessed

- Develop and pitch a change proposal
- Reflect on the contribution of this project to professional development.

Graduate Attributes

- Communication

- 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