



ENEG20003 Sustainability Studio

Term 2 - 2019

Profile information current as at 27/04/2024 12:47 am

All details in this unit profile for ENEG20003 have been officially approved by CQU University 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

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 48 uc of the Master of Engineering complete

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 - 2019

- 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. **Portfolio**

Weighting: 100%

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

The learning outcomes are linked to Engineers Australia Stage 1 Competencies.

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 |
| 1 - Portfolio - 100% | • | • | • | • | • | • |

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 - Portfolio - 100% | ○ | ○ | ○ | ○ | | ○ | | |

Textbooks and Resources

Textbooks

ENEG20003

Prescribed

Sustainability Principles and Practice

Edition: Second (2014)

Authors: Margaret Robertson
Routledge
New York , NY , USA
ISBN: 978-0-415-84017-0
Binding: eBook
ENEG20003

Prescribed

Sustainability Principles and Practice

Edition: Second (2014)
Authors: Margaret Robertson
Routledge
New York , NY , USA
ISBN: 978-0-415-84017-0
Binding: Hardcover
ENEG20003

Supplementary

An Introduction to Sustainability

Edition: Second (2018)
Authors: Martin Mulligan
Routledge
New York , NY , USA
ISBN: 978-1-138-69829-1
Binding: eBook
ENEG20003

Supplementary

An Introduction to Sustainability

Edition: Second (2018)
Authors: Martin Mulligan
Routledge
New York , NY , USA
ISBN: 978-1-138-69829-1
Binding: Hardcover
ENEG20003

Supplementary

Renewable Energy and Sustainable Design

Edition: First (2015)
Authors: Scott Grinnell
Cengage Learning
ISBN: 978-1111542702
Binding: Hardcover

[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 Rakibuzzaman Shah Unit Coordinator
m.shah2@cqu.edu.au

Schedule

Week 1 - 15 Jul 2019

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---------------------------------------|---|
| <ol style="list-style-type: none">1. A general overview of the unit2. What is sustainability?3. Challenges and responses4. Sustainability as a discipline5. Is Earth warming?6. How temperature records are compiled7. Modern climate change and greenhouse gases8. The human factor | <p>1 and 6 Robertson Textbook</p> | <p>Students will need to identify different sustainability projects. Team will be formed and each team will contain 2/3 students. Team will understand the project problems, identify the research question, prepare a project plan, set aims, objectives, and develop a methodology.</p> |

Week 2 - 22 Jul 2019

| Module/Topic | Chapter | Events and Submissions/Topic |
|--|---------------------------------------|---|
| <ol style="list-style-type: none">1. Sustainability at work2. Sustainability initiatives3. Air pollution4. Soil and land pollution5. Water pollution6. Pollution remediation and prevention | <p>5 and 9 Robertson Textbook</p> | <p>Students are required to write individual reflective writing task (RWT)1. Your first reflective paper (RP1) will be on a topic of a sustainability issue you are familiar. Identify the problems and suggest a probable solution.</p> <p>The RWT1 links to the Learning Outcome (LO)1 and LO2.</p> |

Week 3 - 29 Jul 2019

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---------------------------------|--|
| <ol style="list-style-type: none">1. Uneven distribution of water2. Depletion of nonrenewable aquifers3. Threats to human and ecosystem health4. Consumption5. Effects of climate change6. Water conservation7. Wastewater treatment8. Storm water | <p>7 Robertson Textbook</p> | <p>Team project presentation Team will present their project proposals with clear objectives, scopes, methodology, expected outcomes, and Gantt chart.</p> <p>Date of presentation: Tutorial/ Workshop day of Week 3. Each presentation is to be 10-12 minutes followed by 5 minutes for questions and changeover. Presentation schedule will be provided. Please follow the presentation guidelines available in the Moodle.</p> |

Week 4 - 05 Aug 2019

| Module/Topic | Chapter | Events and Submissions/Topic |
|---|---------------------------------|--|
| <ol style="list-style-type: none">1. Introduction to ecosystems and habitat2. Populations and extinction3. Drivers of ecosystem change4. Conservation and restoration5. Conservation6. Restoration ecology7. Living together-reconciliation ecology | <p>8 Robertson Textbook</p> | <p>Team will work on their project proposal based on the feedback from the presentation.</p> <p>Team Project Proposal: Due: 11 August, 2019 (11.45 pm AEST) The details of the project proposal are available in the Unit Moodle.</p> |

Week 5 - 12 Aug 2019

| 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 | Students are required to write their RWT2 that includes a solution of a sustainable issue by applying systematic design processes. RWT2 links to LO3 and LO4. |

Vacation Week - 19 Aug 2019

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

Week 6 - 26 Aug 2019

| 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 | Team will continue to work on their project. Individual RWT2: Due: 01 September, 2019 (11.45 pm AEST) |

Week 7 - 02 Sep 2019

| 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 | Team will continue to work on their project and try to find out a solution by designing, modelling etc. You can link this part to LO3. |

Week 8 - 09 Sep 2019

| 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 | Team will work on their project draft reports. |

Week 9 - 16 Sep 2019

| 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

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Robertson Textbook

Students are required to write another individual RWT3 that addresses a change proposal.
RWT3 links to LO5 and LO6.

**Team project draft report:
Due: 22 September, 2019 (11.45 pm AEST)**

Please follow the guidelines for project report available in the Moodle.

Week 10 - 23 Sep 2019

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

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Robertson Textbook

**Individual RWT3:
Due: 29 September, 2019 (11.45 pm AEST)**

Team will wrap up their projects.

Week 11 - 30 Sep 2019

Module/Topic

Chapter

Events and Submissions/Topic

In this week, a guest lecturer will deliver the lecture.

Team final project presentation. Team will finally present their projects with project topics, objectives, scopes, methodology, results, discussion and conclusion.

Each presentation will be 10-12 minutes followed by 5 minutes for questions and changeover. Presentation schedule will be provided in the unit Moodle.

Portfolio Due: Week 11 Friday (4 Oct 2019) 11:45 pm AEST

Week 12 - 07 Oct 2019

Module/Topic

Chapter

Events and Submissions/Topic

Review/Exam Week - 14 Oct 2019

Module/Topic

Chapter

Events and Submissions/Topic

Exam Week - 21 Oct 2019

Module/Topic

Chapter

Events and Submissions/Topic

Assessment Tasks

1 Portfolio

Assessment Type

Portfolio

Task Description

Assessment of this unit is based on submission of a portfolio that contains evidence of all (i.e. individual reflective writing task, team project report, team project charter, presentation, small writing task etc) works that the student has completed throughout the term. The portfolio should demonstrate how the learning outcomes have been met and to what level, and be presented in the form of a technical report that includes a table of contents section.

Compulsory items

The omission of any of the following items from the portfolio may affect the Final Grade:

1. Individual grade nomination
2. Individual reflective writing tasks
3. Self and peer assessment (SPA)
4. Workbook
5. Project charter
6. Project report
7. Presentation slides
8. Small writing tasks

Late submission of portfolio without a granted extension may affect the final grade.

Individual Viva

Following the submission of the Portfolio, each student may need to attend a viva where they will be expected to defend the claims made in their Portfolio against each learning outcome. Unsatisfactory performance in the viva may affect the Final Grade.

Individual grade nomination

The individual grade nomination is the grade the student considers should be awarded based on the Assessment Criteria. This must be clearly corroborated with supporting evidence. Students will need to demonstrate how they have met each of the learning outcomes for the unit by referring to evidence in their portfolio.

Assessment Due Date

Week 11 Friday (4 Oct 2019) 11:45 pm AEST

The portfolio should be submitted electronically via the unit Moodle as a WORD file. One submission per student.

Return Date to Students

Exam Week Friday (25 Oct 2019)

Weighting

100%

Minimum mark or grade

50%

Assessment Criteria

You must provide evidence of your achievement of each of the Learning Outcomes.

There is an Assessment Criteria sheet for this unit available on the unit website (Moodle). The Assessment Criteria sheet gives guidance regarding the type of evidence required for each level of achievement. It is important that you review the Criteria sheet at the beginning of the term so you are familiar with the evidence you need to collect throughout the term. There are minimum requirements for the Portfolio and you must provide evidence of the **minimum requirements (50% mark) in order to be eligible for a passing grade** for this unit. In addition, you have to achieve **a minimum 50% mark of each learning outcome** to pass the unit.

Referencing Style

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

Submission

Online

Submission Instructions

The portfolio should be submitted electronically via the unit Moodle Site by the due date and time. One submission per student.

Learning Outcomes Assessed

- Show evidence of grappling with complex issues through stakeholder engagement
- Develop a set of stakeholder requirements
- 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
- Develop and pitch a change proposal
- Reflect on the contribution of this project to professional development

Graduate Attributes

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

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