



# ENEG20003 Sustainability Studio

## Term 2 - 2018

Profile information current as at 05/07/2022 04:01 pm

All details in this unit profile for ENEG20003 have been officially approved by CQUUniversity 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 - 2018

- Distance
- 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 student evaluation

##### **Feedback**

Additional resources other than the prescribed textbook would be helpful.

##### **Recommendation**

Relevant technical papers and websites for each weeks class and workshops will be made available in the next offering.

## 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: First (2014)

Authors: Margaret Robertson

Routledge (Taylor and Francis Group)

Abingdon , Oxon , UK

ISBN: 978-0-415-84018-7

Binding: Paperback

ENEG20003

#### Supplementary

##### **Sustainability Principles and Practice**

Edition: First (2014)

Authors: Margaret Robertson

Routledge

Abingdon , Oxon , UK

ISBN: 978-0-203-76874-7

Binding: eBook

#### Additional Textbook Information

Choose from either the paperback or ebook versions above.

[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](mailto:m.nabi@cqu.edu.au)

## Schedule

### Week 1 - 09 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
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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
8. The human factor

1 and 6  
Robertson Textbook

Students will need to identify different sustainability projects. Team will be formed and each team will contain 4/5 students. Team will understand the project problems, identify the research question, prepare project plan, set aims, objectives and develop a methodology.

## Week 2 - 16 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
<ol style="list-style-type: none"> <li>1. Sustainability at work</li> <li>2. Sustainability initiatives</li> <li>3. Air pollution</li> <li>4. Soil and land pollution</li> <li>5. Water pollution</li> <li>6. Pollution remediation and prevention</li> </ol> <p><b>Short writing task 1</b> Define the term stakeholder. Give examples. Suppose you are working on a project in an industry/organisation/institution. List out the stakeholders with their requirements and engagement.</p>	<p>5 and 9 Robertson Textbook</p>	<p>Students are required to write individual reflective papers (RP). 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. In the RP1, provide a list of the stakeholders, their requirements and roles.</p> <p>RP1 links to learning outcomes (LO)1 and LO2.</p>

## Week 3 - 23 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
<ol style="list-style-type: none"> <li>1. Uneven distribution of water</li> <li>2. Depletion of nonrenewable aquifers</li> <li>3. Threats to human and ecosystem health</li> <li>4. Consumption</li> <li>5. Effects of climate change</li> <li>6. Water conservation</li> <li>7. Wastewater treatment</li> <li>8. Storm water</li> </ol> <p><b>Short writing task 2</b> What do you know about systematic design? Briefly discuss the different elements of systematic design.</p>	<p>7 Robertson Textbook</p>	<p><b>Team project presentation</b> Team will present their project proposals with clear objectives, scopes, methodology, expected outcomes and Gantt chart.</p> <p><b>Date of presentation: First Workshop day of Week 3.</b> Each presentation is to be 15 minutes followed by 5 minutes for questions and changeover. Presentation schedule will be provided.</p> <p><b>Individual RP1:</b> <b>Due: Friday (Week 3, 27 July 2018) by 11.45 PM (AEST).</b></p>

## Week 4 - 30 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
<ol style="list-style-type: none"> <li>1. Introduction to ecosystems and habitat</li> <li>2. Populations and extinction</li> <li>3. Drivers of ecosystem change</li> <li>4. Conservation and restoration</li> <li>5. Conservation</li> <li>6. Restoration ecology</li> <li>7. Living together-reconciliation ecology</li> </ol> <p><b>Short writing task 3</b> Write a brief note on a sustainable solution in regards to your project work.</p>	<p>8 Robertson Textbook</p>	<p>Team will work on their project proposal based on the feedback from the presentation.</p> <p><b>Each Team will submit a project proposal</b> <b>Due: Friday (Week 4, 3 Aug 2018) by 11.45 PM (AEST).</b></p>

## Week 5 - 06 Aug 2018

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 second individual reflective paper (RP2) that includes a solution of a sustainable issue by applying systematic design processes. In RP2, include self-awareness of thinking processes and values about the socio-ecological thinking and uncertainty.  RP2 links to LO3 and LO4.
<b>Short writing task 4</b> How you will demonstrate your awareness of socio-ecological thinking and uncertainty? Explain with an example.		

### Vacation Week - 13 Aug 2018

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

### Week 6 - 20 Aug 2018

Module/Topic	Chapter	Events and Submissions/Topic
<b>Traditional and sustainable energy</b> 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.  <b>Individual RP2:            Due: Friday (Week 6, 24 Aug 2018) by 11.45 PM (AEST).</b>
<b>Short writing task 5</b> As a member of your project team, how effectively you manage your time.		

### Week 7 - 27 Aug 2018

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.
<b>Short writing task 6</b> What do you mean by the term engineering ethics? To comply with engineering ethics, what should be your role in an engineering organisation?		

### Week 8 - 03 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
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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.

### Short writing task 7

How will you demonstrate your written communication skills? Give example.

## Week 9 - 10 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
<ol style="list-style-type: none"> <li>1. Design for the environment</li> <li>2. Industrial ecology</li> <li>3. Process design</li> <li>4. Product alternatives</li> <li>5. Product design</li> <li>6. Shipping and packaging</li> <li>7. ISO 14000 standards</li> <li>8. Certification and labels</li> <li>9. Eco-labels</li> </ol>	<p>14 Robertson Textbook</p>	<p>Students are required to write another individual reflective paper (RP3) that addresses a change proposal. In the RP3, you also need to mention how your project contributes to self and professional development.</p> <p>RP3 links to LO5 and LO6.</p> <p><b>Team project draft report submission.</b> <b>Due: Friday (Week 9, 14 Sep 2018) by 11.45 PM (AEST).</b></p>
<h3>Short writing task 8</h3> <p>Write a short note on change proposal including the necessity of the change.</p>		

## Week 10 - 17 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
<ol style="list-style-type: none"> <li>1. Farming methods</li> <li>2. Human health issues</li> <li>3. Planetary health issues</li> <li>4. Feeding ourselves</li> <li>5. Finding space for food in the city</li> <li>6. Food on public land</li> <li>7. Healthy soil</li> </ol>	<p>13 Robertson Textbook</p>	<p><b>Individual RP3:</b> <b>Due: Friday (Week 10, 21 Sep 2018) by 11.45 PM (AEST).</b></p> <p>Team will wrap up their projects.</p>

## Week 11 - 24 Sep 2018

Module/Topic	Chapter	Events and Submissions/Topic
<ol style="list-style-type: none"> <li>1. Waste management</li> <li>2. Landfills</li> <li>3. Incineration</li> <li>4. Recycling</li> <li>5. C &amp; D waste</li> <li>6. Industrial waste</li> <li>7. Zero waste</li> </ol>	<p>15 Robertson Textbook</p>	<p><b>Team final project report submission.</b> <b>Due: Friday (Week 11, 28 Sep 2018) by 11.45 PM (AEST).</b></p>

## Week 12 - 01 Oct 2018

Module/Topic	Chapter	Events and Submissions/Topic
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Review class

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

**Final presentation Due: First Workshop day of Week 12.**

Each presentation is to be 15 minutes followed by 5 minutes for questions and changeover. Presentation schedule will be provided.

**Portfolio Due:** Week 12 Friday (5 Oct 2018) 11:45 pm AEST

**Review/Exam Week - 08 Oct 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Viva Voce: The date and time will be announced later.		

**Exam Week - 15 Oct 2018**

Module/Topic	Chapter	Events and Submissions/Topic
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## 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 paper, team project report, team project charter, presentation 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 team project must be handed in and considered acceptable by the unit coordinator for the team members to be eligible to be graded at the end of the term. Project requirements completed satisfactorily and submitted after the due date may be accepted but the final grade may be affected. In addition to the project report, each team must do a presentation and each member must be present to answer the questions following the presentation. Omission of any of the following items from the portfolio may affect the Final Grade:

1. Individual grade nomination
2. Individual reflective papers
3. Self and peer assessment (SPA)
4. Work book
5. Project charter
6. Project report
7. Presentation slides

**Individual Viva Voce**

Following the submission of the Portfolio, each student may need to attend a viva voce where they will be expected to defend the claims made in their Portfolio against each learning outcome. An unsatisfactory performance in the viva voce 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 12 Friday (5 Oct 2018) 11:45 pm AEST

**Return Date to Students**

Exam Week Friday (19 Oct 2018)

**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

**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