



# ENEC13014 *Water Supply and Wastewater* **Technology** Term 1 - 2017

Profile information current as at 03/05/2024 09:45 pm

All details in this unit profile for ENEC13014 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 be introduced to water and wastewater treatment, including water distribution systems and wastewater collection systems. The unit will cover characteristics of water and wastewater, different types of treatment processes and the design of different components of water and wastewater treatment plants.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Prerequisites: ENEC12010 Hydraulics and Hydrology

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

### Offerings For Term 1 - 2017

- Bundaberg
- Distance
- Gladstone
- Mackay
- Rockhampton

### Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

### 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 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 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: 50%

#### 3. **Online Test**

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](#).

## Unit Learning Outcomes

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

1. Characterise the quality parameters of potable water and wastewater
2. Formulate a preliminary design of water and wastewater treatment plants
3. Design water distribution and wastewater collection networks
4. Demonstrate a level of communication expected of professional engineers

The learning outcomes are linked to Engineers Australia Stage 1 Competencies and also discipline capabilities. You can find the mapping for this on the [Engineering Undergraduate Course website](#).

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Written Assessment - 20%			•	•
2 - Written Assessment - 50%	•	•		•
3 - Online Test - 30%	•	•	•	

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - Written Assessment - 50%	•	•	•	•		•	•	•		
3 - Online Test - 30%		•	•	•		•	•	•		

## Textbooks and Resources

### Textbooks

ENEC13014

#### Prescribed

#### Water and Wastewater Technology

International Edition / Seventh Edition (2014)

Authors: Mark J Hammer Sr. Mark J Hammer Jr.

Pearson

Essex , England

Binding: Hardcover

#### Additional Textbook Information

Relevant Australian Standards and Guidelines will also be used as the resources for the unit.

[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

**Raj Sharma** Unit Coordinator

[r.sharma@cqu.edu.au](mailto:r.sharma@cqu.edu.au)

## Schedule

### Week 1 - 06 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Chemistry and Biology	1,2 and 3	

### Week 2 - 13 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic

Water Quality 5

### Week 3 - 20 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Water Distribution System: I	4 & 6	

### Week 4 - 27 Mar 2017

Module/Topic	Chapter	Events and Submissions/Topic
Water Distribution System: II	4 & 6	

### Week 5 - 03 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Water Processing: I	7	Online Test 1: Contents from Week 1 to Week 4 Test opens: 9:00 am Monday Test closes: 5:00 pm Friday

### Vacation Week - 10 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
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### Week 6 - 17 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Water Processing: II	7	<b>Assignment 1</b> Due: Week 6 Monday (17 Apr 2017) 5:00 pm AEST

### Week 7 - 24 Apr 2017

Module/Topic	Chapter	Events and Submissions/Topic
Wastewater Flows and Characteristics	9	

### Week 8 - 01 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Wastewater Collection System: I	10	

### Week 9 - 08 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Wastewater Collection System: II	10	

### Week 10 - 15 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Wastewater Processing: I	11	Online Test 2: Contents from Week 5 to Week 9 Test opens: 9:00 am Monday Test closes: 5:00 pm Friday

### Week 11 - 22 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Wastewater Processing: II	11	

### Week 12 - 29 May 2017

Module/Topic	Chapter	Events and Submissions/Topic
Revision		<b>Assignment 2</b> Due: Week 12 Wednesday (31 May 2017) 5:00 pm AEST

### Review/Exam Week - 05 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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### Exam Week - 12 Jun 2017

Module/Topic	Chapter	Events and Submissions/Topic
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## Assessment Tasks

### 1 Assignment 1

**Assessment Type**

Written Assessment

**Task Description**

You are required to design a water supply pipe network. Information related to project area such as topography and population is provided. You will be designing the network after collecting relevant information from suppliers, councils and market survey as appropriate. Additional information on the assignment can be found on the course website.

**Assessment Due Date**

Week 6 Monday (17 Apr 2017) 5:00 pm AEST

**Return Date to Students**

Within Two weeks

**Weighting**

20%

**Minimum mark or grade**

50%

**Assessment Criteria**

Assessment of the design report will be done based on

1. Reliability of the information
2. Referencing
3. Verified assumptions
4. Accuracy in calculations
5. Appropriate Communication

**Referencing Style**

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

**Submission**

Online

**Learning Outcomes Assessed**

- Design water distribution and wastewater collection networks
- Demonstrate a level of communication expected of professional engineers

**Graduate Attributes**

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

### 2 Assignment 2

**Assessment Type**

Written Assessment

**Task Description**

This assignment provides an opportunity to students to design different components of water infrastructure. This includes components of water treatment plants, wastewater treatment plants and wastewater collection system.

**Assessment Due Date**

Week 12 Wednesday (31 May 2017) 5:00 pm AEST

## Return Date to Students

Within Two weeks

### Weighting

50%

### Minimum mark or grade

50%

### Assessment Criteria

Assessment of the design report will be done based on

1. Reliability of the information
2. Referencing
3. Verified assumptions
4. Accuracy in calculations
5. Appropriate Communication

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

- Characterise the quality parameters of potable water and wastewater
- Formulate a preliminary design of water and wastewater treatment plants
- Demonstrate a level of communication expected of professional engineers

### Graduate Attributes

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

## 3 Online Test

### Assessment Type

Online Test

### Task Description

#### Task Description

This assessment task consists of two Tests, each weighing 15% of the Total mark. The tests consists different types of questions such as numerical, short answer, multiple choice etc. There are 10-20 questions in each test.

#### Important Notes:

Each Test is set for 60 minutes. You have 60 minutes from when you start your attempt to submit your answers.

- If you start but leave a test and come back to it later, your 60 min time may have lapsed and you will be scored zero for that attempt.
- You can attempt the Test only once within the given time frame as specified in the Schedule. The test will be automatically closed after the end of the given time frame.
- The Tests cannot generally be deferred. However, under exceptional circumstances if you have valid reasons to defer the test(s), please contact the Unit Coordinator with documents of proof before the due date.

### Assessment Due Date

Tests opening and closing details are given on the schedule section.

### Return Date to Students

After the end of the Test.

**Weighting**

30%

**Assessment Criteria**

Full marks allocated to a question will be awarded for each correct answer. No partial marks will be allocated.

**Referencing Style**

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

**Submission**

Online

**Learning Outcomes Assessed**

- Characterise the quality parameters of potable water and wastewater
- Formulate a preliminary design of water and wastewater treatment plants
- Design water distribution and wastewater collection networks

**Graduate Attributes**

- Problem Solving
- Critical Thinking
- Information Literacy
- 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