



# AINV11002 *Socio-technical Systems*

## Term 2 - 2019

Profile information current as at 24/04/2024 12:44 am

All details in this unit profile for AINV11002 have been officially approved by CQUniversity 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

This unit will assist you to recognise and optimise the elements that influence the interaction of humans with other elements of a socio-technical system. You will be presented with learning opportunities to understand how systems, work and people interact successfully and in failure mode. You will be introduced to the notion of systems failure and its prevention, for example, design redundancy and resilience, and the concept of the system life cycle.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 1*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Pre-requisite: AINV11001 Real World Investigation

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

- Adelaide
- Brisbane
- Bundaberg
- Gladstone
- Mackay
- Melbourne
- Online
- Perth
- Rockhampton
- Sydney

### 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. **Group Discussion**

Weighting: 20%

#### 2. **Written Assessment**

Weighting: 20%

#### 3. **Written Assessment**

Weighting: 30%

#### 4. **Written Assessment**

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 Have Your Say

##### Feedback

Weekly assessment items are appreciated to allow knowledge to build and understanding to develop

##### Recommendation

Continue with weekly assessment regime.

#### Feedback from Have your say and informal feedback

##### Feedback

Timing of teamwork and team creation could be improved to help team assessment outcomes

##### Recommendation

Teams for team assignments could be created earlier in the term to encourage the team members to discuss the teamwork requirements earlier in the term.

#### Feedback from Have your say

##### Feedback

Students appreciated the case studies and the way the content was supported through the case studies

##### Recommendation

Continue with case study-based learning resources.

## Unit Learning Outcomes

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

1. Identify the relationships between people, machines and systems in society.
2. Define the nature of organisations and work.
3. Recognise systems failure, and failure prevention measures.
4. Examine the nature of systems failure and prevention.
5. Illustrate the system life cycle and explain its effect on failure.
6. Employ effective communication strategies appropriate to sociotechnical systems.
7. Demonstrate reflective skills appropriate to the development of the beginning practitioner.

## 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	7
<b>1 - Group Discussion - 20%</b>			•	•		•	•
<b>2 - Written Assessment - 20%</b>			•	•		•	•
<b>3 - Written Assessment - 30%</b>	•	•			•	•	•

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
4 - Written Assessment - 30%	•		•	•	•	•	

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
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 - Group Discussion - 20%	•	•	•	•		•	•	•		
2 - Written Assessment - 20%	•		•	•		•	•	•		
3 - Written Assessment - 30%	•	•		•		•	•			
4 - Written Assessment - 30%	•	•	•	•		•	•	•		

## Textbooks and Resources

### Textbooks

**There are no required textbooks.**

### 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

**Prue Howard** Unit Coordinator  
[p.howard@cqu.edu.au](mailto:p.howard@cqu.edu.au)

## Schedule

### Week 1 - 15 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Introduction: Getting to know you, Moodle and this unit		Introduce yourself to your classmates on Moodle

### Week 2 - 22 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Module 1: People, machines and systems		Begin forming your team

### Week 3 - 29 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
Module 1: People, machines and systems		<b>Due Friday 5pm</b> Task 1: 'Define Human-Machine Relationships' (AB1)

### Week 4 - 05 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
Module 1: People, machines and systems		<b>Due Friday 5pm</b> Task 2: System Map (TA1-A)

### Week 5 - 12 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
Module 2: System life-cycle and failure		<b>Due Friday 5pm</b> Task 3: Tripod analysis (TA1-B) Friday - Finalise team or unit coordinator will allocate members to a team.

### Vacation Week - 19 Aug 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 26 Aug 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 3: System failure and prevention		<b>Due Friday 5pm</b> Task 4: System life cycle (TA2) Develop team contract and select system failure that team will analyse.
Week 7 - 02 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 3: System failure and prevention		<b>Due Friday 5pm</b> Task 5: Failures related to the design process (AB2)
Week 8 - 09 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 3: System failure and prevention		<b>Due Friday 5pm</b> Task 6: WorkSafeBC Model (TA3)
Week 9 - 16 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 3: System failure and prevention		<b>Due Friday 5pm</b> Task 7: Investigating System Failure (AB3)
Week 10 - 23 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 3: System failure and prevention		<b>Annotated mindmap</b> Due: Week 10 Friday (27 Sept 2019) 5:00 pm AEST
Week 11 - 30 Sep 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 4: Complexity and systems thinking		<b>Due Friday 5pm</b> Task 8: Prevention of system failure (AB4)
Week 12 - 07 Oct 2019		
Module/Topic	Chapter	Events and Submissions/Topic
Module 4: Complexity and systems thinking		
Review/Exam Week - 14 Oct 2019		
Module/Topic	Chapter	Events and Submissions/Topic
		<b>Team report</b> Due: Review/Exam Week Friday (18 Oct 2019) 5:00 pm AEST
Exam Week - 21 Oct 2019		
Module/Topic	Chapter	Events and Submissions/Topic
		<b>Due Friday 5pm</b> Task 9: Systems thinking reflection (TA4)

## Assessment Tasks

### 1 Tutorial activities

#### Assessment Type

Group Discussion

#### Task Description

These assessment items have been designed to stretch thinking about the unit work or apply new process skills from each module.

The activities may be responded to as a word document / ppt / jpg / pdf or as a blog entry.

The activities for this term include:

1. System map (TA1-A)
2. Tripod analysis (TA1-B)
3. System life cycle (TA2)
4. WorksafeBC model (TA3)
5. 'Systems thinking' reflection (TA4)

You will find detailed instructions for each activity in the assessment submission area on Moodle. For each item you **must submit** your response in the "assessment submission" area (see 'Assessment' block in top left side of moodle). The submissions should be clearly named with your surname and activity number. Each of the assessment submission areas have been set up to receive multiple files.

### **Assessment Due Date**

As per study schedule

### **Return Date to Students**

Three weeks maximum post submission date

### **Weighting**

20%

### **Assessment Criteria**

As each Tutorial Activity has its own question, the specific marking criteria for each activity will be provided provided through moodle. Each question will be worth 4 marks.

The marking criteria will include the quality of your response to the activity, as well as organisation of your submission, and accuracy of grammar and spelling.

### **Referencing Style**

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

### **Submission**

Online

### **Learning Outcomes Assessed**

- Recognise systems failure, and failure prevention measures.
- Examine the nature of systems failure and prevention.
- Employ effective communication strategies appropriate to sociotechnical systems.
- Demonstrate reflective skills appropriate to the development of the beginning practitioner.

### **Graduate Attributes**

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

## **2 Annotated bibliographies**

### **Assessment Type**

Written Assessment

### **Task Description**

This assessment item has been designed to stretch thinking about the unit work and help you (and your colleagues) prepare for your annotated mind map.

The submission will be via a Q & A type discussion forum. I will start the particular topic then you are required to respond with your annotated bibliography entry before you will be able to see the entries submitted by other students. An annotated bibliography is an organized list of sources, each of which is followed by a brief note or "annotation."

### **There will be four topics:**

1. Define Human-Machine Relationships (AB1)
2. Failures related to the design process (AB2)
3. Investigating System Failure (AB3)
4. Prevention of system failure (AB4)

**For each topic**, you are required to complete:

1. A review of a useful website that furthers understanding the topic (not Wikipedia!); AND
2. A review of a journal article, book or conference paper that furthers understanding the topic; AND
3. A reference list for the articles cited.

**Each of the two annotations for each topic** must include:

- a description of the content and focus of the book, article or website
- suggestions regarding the source's usefulness to your research
- an evaluation of its method, conclusions, or reliability
- a record of your reactions to the source

Your initial posting is the one that will be graded so please make sure that you include both bibliographies in your first post.

You may use the collective annotated bibliographies when creating your annotated mind map.

**We will be discussing these assessment items during the term but if you have any doubt as to what is required, please don't hesitate seek clarification in moodle or in class.**

### **Assessment Due Date**

As per study schedule

### **Return Date to Students**

Three weeks maximum post submission date

### **Weighting**

20%

### **Assessment Criteria**

As each Annotated Bibliography has a different focus, the criteria for each will be given specifically in Moodle. Each response will be worth 5 marks.

As a general guide, the annotated bibliographies will be assessed as shown below:

- Quality of the response to the exercise
- Includes a description of the content and focus of the book, article or website
- Suggestions regarding the source's usefulness to your research
- An evaluation of its method, conclusions, or reliability
- A record of reaction to the article (connections made etc.)
- Organisation
- Consistently accurate grammar & spelling
- Referencing
- Overall points for organisation, grammar & spelling and referencing

### **Referencing Style**

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

### **Submission**

Online

### **Submission Instructions**

In dedicated Q & A forum on Moodle

### **Learning Outcomes Assessed**

- Recognise systems failure, and failure prevention measures.
- Examine the nature of systems failure and prevention.
- Employ effective communication strategies appropriate to sociotechnical systems.
- Demonstrate reflective skills appropriate to the development of the beginning practitioner.

### **Graduate Attributes**

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



## 3 Annotated mindmap

### Assessment Type

Written Assessment

### Task Description

This assessment item is a complex output that will draw from all of your learning in the term and put you in the front seat as a beginning practitioner.

This is an INDIVIDUAL assignment but you may use the collective annotated bibliographies.

You will prepare an annotated mind map of an accident case study. One of the purposes of this mind map is to assist your team in the team assignment, but the mind map must be done individually and must be done before the team assignment!

You should work with your team to select an agreed case study in Week 6.

You should prepare and submit your individual mind map by the end of Week 10.

It is worth 30% so don't underestimate this one!!!

Your annotated mind map should evidence:

- What happened (describe circumstances)
- Why it happened (discuss findings)
- Nature of system and system parts
- Design failures and system life cycle
- Issues and findings related to people, workplaces & management

The 'whys' above should draw on evidence in the report AND in the literature (i.e. bibliographies). It should include formal 'in text' referencing in the mind map and include a separate reference list.

You are encouraged to use mind mapping software e.g. 'Coggle.it', <https://coggle.it/> but you should upload your submission as a pdf.

### Assessment Due Date

Week 10 Friday (27 Sept 2019) 5:00 pm AEST

### Return Date to Students

Three weeks maximum post submission date

### Weighting

30%

### Assessment Criteria

The Annotated Mindmap will be assessed based on the quality and depth of the following points:

- Communicates all salient issues related to 'what happened'
- Identifies the relationships between people other system parts.
- Applies knowledge of system life cycle and explains its effect on failure.
- Recognises systems failure, and investigates the reported failures.
- Examines the nature of systems failure and demonstrates ability to appropriately categorise to people, workplaces and management issues.
- Selects and applies appropriate evidence sources to support analysis
- Organisation
- Written expression
- Selects appropriate bibliographic entries and references them correctly

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

- Identify the relationships between people, machines and systems in society.
- Define the nature of organisations and work.
- Illustrate the system life cycle and explain its effect on failure.
- Employ effective communication strategies appropriate to sociotechnical systems.
- Demonstrate reflective skills appropriate to the development of the beginning practitioner.

## Graduate Attributes

- Communication
- Problem Solving
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

## 4 Team report

### Assessment Type

Written Assessment

### Task Description

This assessment item provides your team with an opportunity to analyse a complex socio-technical systems failure. This team work builds on the individual work carried out by you and your team members in Assessment 1, 2 & 3. In your team you will have already chosen a complex socio-technical systems failure. The members of your team will have already individually analysed this failure as a mind map in Assessment item 3. You will now as a team prepare and write a report on that failure based on the collective mind maps of the team members.

This report will include:

- Title page - team name and members
- Contents page
- What happened - description of circumstances
- Why it happened - discussion of findings
- Conclusions re major learnings from the accident
- Consideration of prevention strategies
- Formal referencing and reference list
- Appendix (as required and including team contract)

Further detail will be provided in moodle during the term.

### Assessment Due Date

Review/Exam Week Friday (18 Oct 2019) 5:00 pm AEST

### Return Date to Students

Three weeks maximum post submission date

### Weighting

30%

### Assessment Criteria

The report will be assessed as shown below.

- Communicates all salient issues related to 'what happened'
- Identifies the relationships between people and other system parts.
- Applies knowledge of system life cycle and explains its effect on failure.
- Recognises systems failure, and investigates the reported failures.
- Examines the nature of systems failure and demonstrates ability to appropriately categorise to people, workplaces and management issues.
- Proposes appropriate prevention strategies based on taught principles e.g. safe design, resilience engineering & redundancy
- Demonstrates understanding of complexity and systems thinking
- Selects and applies appropriate evidence sources to support analysis
- Organisation
- Written expression
- Selects appropriate bibliographic entries and references them correctly

### Referencing Style

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

### Submission

Online Group

### Submission Instructions

One report only to be submitted per team.

## Learning Outcomes Assessed

- Identify the relationships between people, machines and systems in society.
- Recognise systems failure, and failure prevention measures.
- Examine the nature of systems failure and prevention.
- Illustrate the system life cycle and explain its effect on failure.
- Employ effective communication strategies appropriate to sociotechnical systems.

## Graduate Attributes

- Communication
- 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