AINV11002 *Socio-technical Systems*
Term 2 - 2023

Profile information current as at 05/10/2023 05:17 am

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 - 2023

- Online

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 SUTE

Feedback
Students were frustrated with the links in Moodle not working

Recommendation
It is recommended that the unit coordinator ensure that all the links are operating before confirming the Moodle site is ready.

Feedback from SUTE

Feedback
Lack of clarification about assessments when questions were fielded.

Recommendation
It is recommended that clear concise instructions for assessment requirements are provided and ensure that any questions asked regarding assessments are answered promptly.

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

— 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	7
1 - Group Discussion - 20%			•	•		•	•
2 - Written Assessment - 20%			•	•		•	•
3 - Written Assessment - 30%	•	•			•	•	•
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

Kevin Perry Unit Coordinator
k.perry@cqu.edu.au

Schedule

Week 1 - 10 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Introduction to the unit	Relevant readings and material will be available on the Moodle site	

Week 2 - 17 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Origins of Socio-technical systems and its meaning	Relevant readings and material will be available on the Moodle site	

Week 3 - 24 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Socio-technical systems models – linear models and their limitations	Relevant readings and material will be available on the Moodle site	

Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Socio-technical systems – evolution of divergent models	Relevant readings and material will be available on the Moodle site	**System Analysis** Due: Week 4 Friday (4 Aug 2023) 11:55 pm AEST

Week 5 - 07 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: The system life cycle	Relevant readings and material will be available on the Moodle site	

Vacation Week - 14 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 21 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: The system lifecycle and principles of good design	Relevant readings and material will be available on the Moodle site	**Annotated Bibliography** Due: Week 6 Friday (25 Aug 2023) 11:55 pm AEST

Week 7 - 28 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Examining system interruption	Relevant readings and material will be available on the Moodle site	

Week 8 - 04 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Developing a sociotechnical model to address system interruption	Relevant readings and material will be available on the Moodle site	

Week 9 - 11 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Case studies – applying sociotechnical design to an incident	Relevant readings and material will be available on the Moodle site	**Annotated mind map and PreMiSTS analysis** Due: Week 9 Friday (15 Sept 2023) 11:55 pm AEST

Week 10 - 18 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Case studies – applying sociotechnical design to an incident	Relevant readings and material will be available on the Moodle site	

Week 11 - 25 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Lecture: Review	Relevant readings and material will be available on the Moodle site	

Week 12 - 02 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
Independent study		

Review/Exam Week - 09 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
		Formal Report Due: Review/Exam Week Monday (9 Oct 2023) 9:00 am AEST

Exam Week - 16 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 System Analysis

Assessment Type
Group Discussion

Task Description
This assessment item has been designed to start your thinking about what systems are, and in particular the system life cycle.
You will prepare two mind maps from the topics below:

1. System map
2. System life cycle

Part A - System map (10%)
You are required to create a mind map that addresses the following:

- add a picture (or description) of your system in the middle of the map
- identify somewhere on the page the type of system
- identify (break down) the system parts
- for each system part identify the potential human factor issues
- for each human factor issue identify the potential relationship requirements

Part B - System life cycle (10%)
You are required to create a mind map that addresses the following:

- describes a system
- illustrates the system life cycle
- explains where elements to maintain continuity of the system are provided

Assessment Due Date
Week 4 Friday (4 Aug 2023) 11:55 pm AEST

Return Date to Students

Within two weeks of submission

Weighting
20%

Assessment Criteria
You will be assessed against:

1. Quality of the response
2. Organisation of the submission
3. 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 Bibliography

Assessment Type
Written Assessment

Task Description
This assessment item has been designed to help you prepare for your annotated mind map and final report. You will prepare an annotated bibliography from one of the two topics listed below. An annotated bibliography is an organised list of sources, each of which is followed by a brief description of the source, or annotation.
The topics you can choose from are:

1. Define human-machine relationships
2. Conceptual presentations of socio-technical systems that address the design of work

For your chosen topic you are required to complete:

1. A review of five peer reviewed journal articles, books, book chapters, or conference papers that further understanding of the topic; AND
2. A review of a useful, professional website that furthers understanding of the topic (NOT Wikipedia!): AND
3. A reference list for the sources cited.

Your annotations for your chosen topic must include:

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

- each annotation should be approximately 300 words (+ or - 10%)

You may use your annotated bibliography when creating your mind map for assessment three.

Assessment Due Date
Week 6 Friday (25 Aug 2023) 11:55 pm AEST

Return Date to Students

Within two weeks of submission

Weighting
20%

Assessment Criteria
As a general guide, the annotated bibliographies will be assessed on the following:

- includes a description of the content and focus of the article, book, book chapter, conference paper and website
- suggestions regarding the source's usefulness to your research
- an evaluation of its methods, conclusions and reliability
- a record of reaction to the article (connections made etc.)
- organisation, accurate grammar and spelling and referencing.

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

3 Annotated mind map and PreMiSTS analysis

Assessment Type
Written Assessment

Task Description
This assessment item is a complex output that will draw on your learning throughout the term.
This assessment consists of two parts.
Part A (15%)
You will prepare an annotated mind map of an accident case study of your choice. You can not use any accidents from the unit AINV11001 Real World Investigation. You may use your annotated bibliographies from assessment 2 to assist you. You are encouraged to use mind mapping software e.g. Coggle or Free Mind, or similar. Your submission should be uploaded as a PDF.
In order to complete the PreMiSTS analysis for Part B of this assessment, your mind map should include consideration of the following:

- what happened
- why it happened
- nature of systems and system parts
- design failures and system life cycle
- issues related to people, workplaces and management and anything else you consider pertinent to your accident case study.

Part B (15%)
Using the information contained in your mind map, you are required to construct a PreMiSTS analysis diagram to analyse the accident in your case study.
Your PreMiSTS analysis diagram should include:

- the accident analysis or causation factors
- recommendations for improvement with respect to the active failures, preconditions and latent failures.

Assessment Due Date
Week 9 Friday (15 Sept 2023) 11:55 pm AEST

Return Date to Students

Within two weeks of submission

Weighting
30%

Assessment Criteria
Your mind map and PreMiSTS analysis will be assessed based on the quality and depth of the following:

- communicates all salient issues related to 'what happened'
- identifies the relationships between people and other system parts
- applies knowledge of the system life cycle and explains its effect on failure
- recognises system failure and investigates the reported failures (causation)
- examines the nature of systems failure and demonstrates ability to appropriately categorise to people, workplaces and management issues
- organisation, spelling and grammar
- 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 Formal Report

Assessment Type
Written Assessment

Task Description
This assessment builds on the work carried out in assessments one, two and three. You will choose a complex socio-technical systems failure from a list provided in Moodle. You will not be allowed to use the case study you chose for assessment three.
Your report will include:

- title page
- content page
- what happened - description of circumstances
- why it happened (discussion of findings) - demonstrated by the use of a socio-technical systems model

- appropriately categorise people, workplace and management issues
- conclusions regarding major learning from the accident
- consideration of prevention strategies to prevent recurrence
- formal referencing and reference list
- appendix (as required).

Assessment Due Date
Review/Exam Week Monday (9 Oct 2023) 9:00 am AEST

Return Date to Students

Within two weeks of submission

Weighting
30%

Assessment Criteria
Your report will be assessed as shown by the following:

- communicates all salient issues related to 'what happened'
- identifies the relationships between people and other system parts
- applies knowledge of the system life cycle and explains its effect on failure
- recognises, and investigates the reported system failures
- examines the nature of systems failure and demonstrates ability to appropriately categorise to people, workplace and management issues
- proposes appropriate prevention strategies based on the taught principle of safe design, resilience engineering and redundancy
- demonstrates understanding of complexity and systems thinking
- selects and applies appropriate evidence sources to support analysis
- organisation, spelling, grammar and 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.
- 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