ENMM20025 *Asset Maintenance Strategies*

Term 3 - 2023

Profile information current as at 06/05/2024 11:43 am

All details in this unit profile for ENMM20025 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

In this unit, you will examine the business drivers and operations strategy that impact on the maintenance decision-making framework. You will develop maintenance objectives and maintenance planning controls using a systems engineering framework. You will also develop asset life plans based upon the four known maintenance strategies.

Details

Career Level: *Postgraduate*
Unit Level: *Level 8*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

Prerequisite: ENMM20023 Introduction to Asset and Maintenance Management.
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 3 - 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 Postgraduate 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: 15%
2. **Written Assessment**
Weighting: 30%
3. **Written Assessment**
Weighting: 45%
4. **Online Quiz(zes)**
Weighting: 10%

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 evaluations

Feedback

Students appreciated the knowledgeable and experienced industry lecturer and the relevance of the unit content.

Recommendation

Continue delivery of the unit by an experienced industry practitioner in order to ensure content is contemporary and relevant.

Feedback from Student evaluations

Feedback

Although the content has been reviewed in an effort to make it more relevant to a range of industries, some students commented that they felt the unit was still too focused on production processes and manufacturing.

Recommendation

Resources, case studies and assessment questions should be reviewed again to improve relevance to a broad range of industries.

Feedback from Student evaluations

Feedback

Some students indicated they would like more opportunities to ask questions and discuss content.

Recommendation

The structure of Zoom sessions should be reviewed to encourage more interaction.

Unit Learning Outcomes

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

1. Research and analyse the business drivers and operations strategy including internal and external influences that impact on the maintenance decision-making framework
2. Define and develop maintenance objectives
3. Research and develop maintenance planning controls based upon Systems Engineering Plans, Configuration Management Plans and Asset Management Plans
4. Apply the business-centred maintenance (BCM) approach to develop or modify maintenance strategy
5. Develop and implement asset life plans based upon the four (4) known maintenance strategies.

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
1 - Written Assessment - 15%	•		•		
2 - Written Assessment - 30%	•	•	•	•	
3 - Written Assessment - 45%		•	•	•	•
4 - Online Quiz(zes) - 10%	•	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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					

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

Muralitheran V Kanagarajoo Unit Coordinator
m.kanagarajoo@cqu.edu.au

Schedule

Week 1 - 06 Nov 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 1	Industrial organisations and life cycle costs	All lectures and tutorials are online using Zoom. You will find the link in the Virtual Classes tile on Moodle. Lecture/ Tutorial - Wednesday @ 8:00pm AEDT (daylight savings time)

Week 2 - 13 Nov 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 2	Formulating maintenance strategy, a business centred approach	Lecture/ Tutorial - Wednesday @ 8:00pm AEDT (daylight savings time)

Week 3 - 20 Nov 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 3	The structure of industrial assets	Lecture/ Tutorial - Wednesday @ 8:00pm AEDT (daylight savings time) Assignment 1 due: Week 3 Friday (24 November 2023) @ 11.45pm AEDT **Assignment 1** Due: Week 3 Friday (24 Nov 2023) 11:45 pm AEST

Week 4 - 27 Nov 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 4	Maintenance objectives	Lecture/ Tutorial - Wednesday @ 8:00pm AEDT (daylight savings time)

Vacation Week - 04 Dec 2023

Module/Topic	Chapter	Events and Submissions/Topic

Week 5 - 11 Dec 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 5	Preventative maintenance decision making Part 1: Concepts and techniques	Lecture/ Tutorial - Wednesday @ 8:00pm AEST

Week 6 - 18 Dec 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 6	Preventative maintenance decision making Part 2: Maintenance task selection	Lecture/ Tutorial - Wednesday @ 8:00pm AEST

Vacation Week - 25 Dec 2023

Module/Topic	Chapter	Events and Submissions/Topic

Week 7 - 01 Jan 2024

Module/Topic	Chapter	Events and Submissions/Topic
Module 7	Maintenance task selection using reliability maintenance	Lecture/ Tutorial - Wednesday @ 8:00pm AEST Assignment 2 due: Week 7 Friday (5 January 2024) @ 11.45pm AEDT **Assignment 2** Due: Week 7 Friday (5 Jan 2024) 11:45 pm AEST

Week 8 - 08 Jan 2024

Module/Topic	Chapter	Events and Submissions/Topic
Module 8	Determining the asset life plan and schedule	Lecture/ Tutorial - Wednesday @ 8:00pm AEST

Week 9 - 15 Jan 2024

Module/Topic	Chapter	Events and Submissions/Topic
Module 9	Lean maintenance	Lecture/ Tutorial - Wednesday @ 8:00pm AEST

Week 10 - 22 Jan 2024

Module/Topic	Chapter	Events and Submissions/Topic
Module 10	Asset reliability maintenance control	Lecture/ Tutorial - Wednesday @ 8:00pm AEST

Week 11 - 29 Jan 2024

Module/Topic	Chapter	Events and Submissions/Topic
Module 11	Management of asset turnarounds	Lecture/ Tutorial - Wednesday @ 8:00pm AEST

Week 12 - 05 Feb 2024

Module/Topic	Chapter	Events and Submissions/Topic
Unit review	Time to review unit and finalise mini-project	Lecture/ Tutorial - Wednesday @ 8:00pm AEST Assignment 3 due: Week 12 (9 February 2024) @ 11.45pm AEDT **Assignment 3** Due: Week 12 Friday (9 Feb 2024) 11:45 pm AEST

Exam Week - 12 Feb 2024

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Lecturer: Mr Greg Saywell (g.saywell@cqu.edu.au)
Unit Coordinator: Dr. Muralitheran V Kanagarajoo (m.kanagarajoo@cqu.edu.au)

Assessment Tasks

1 Assignment 1

Assessment Type
Written Assessment

Task Description
The details of the assessment will be available on the unit Moodle site.
This assessment is based upon unit learning modules 1 to 3.
In answering the questions, you will relate the theory you have learnt to your own organisation.

Assessment Due Date
Week 3 Friday (24 Nov 2023) 11:45 pm AEST

Return Date to Students
Week 5 Monday (11 Dec 2023)
It is expected that the marked assessment will be returned within 2 weeks of the due date when submitted on time.

Weighting
15%

Assessment Criteria
This is a criterion - based assessment.
It is highly recommended that you read beyond the unit materials to complete assessment items.
A detailed marking rubric is available on the Moodle site.
Your submission for this assessment will be evaluated according to the following:

- Demonstration of knowledge and understanding of concepts
- Evidence of research beyond own experience and unit material
- Clarity of expression, including use of terminology, ease of reading, spelling and grammar, orderly and logical presentation and use of diagrams to illustrate points
- Quality of technical presentation including neatness, appropriate use of Figures and Tables
- Referencing (both in-text and Reference List)
- Assignment word count

Note that late submissions will be penalised according to the CQU Assessment Policy and Procedure.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assignments must be submitted through the Moodle upload link.

Learning Outcomes Assessed

- Research and analyse the business drivers and operations strategy including internal and external influences that impact on the maintenance decision-making framework
- Research and develop maintenance planning controls based upon Systems Engineering Plans, Configuration Management Plans and Asset Management Plans

2 Assignment 2

Assessment Type
Written Assessment

Task Description
The details of the assessment will be available on the unit Moodle site.

This assessment is based upon unit learning modules 1 to 6.
In answering the questions, you will relate the theory you have learnt to your own organisation.

Assessment Due Date
Week 7 Friday (5 Jan 2024) 11:45 pm AEST

Return Date to Students
Week 9 Monday (15 Jan 2024)
It is expected that the marked assessment will be returned within 2 weeks of the due date when submitted on time.

Weighting
30%

Assessment Criteria
This is a criterion - based assessment.
It is highly recommended that you read beyond the unit materials to complete assessment items.
A detailed marking rubric is available on the Moodle site.
Your submission for this assessment will be evaluated according to the following:

- Demonstration of knowledge and understanding of concepts
- Evidence of research beyond own experience and unit material
- Clarity of expression, including use of terminology, ease of reading, spelling and grammar, orderly and logical presentation and use of diagrams to illustrate points
- Quality of technical presentation including neatness, appropriate use of Figures and Tables
- Referencing (both in-text and Reference List)
- Assignment word count

Note that late submissions will be penalised according to the CQU Assessment Policy and Procedure.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assignments must be submitted through the Moodle upload link.

Learning Outcomes Assessed

- Research and analyse the business drivers and operations strategy including internal and external influences that impact on the maintenance decision-making framework
- Define and develop maintenance objectives
- Research and develop maintenance planning controls based upon Systems Engineering Plans, Configuration Management Plans and Asset Management Plans
- Apply the business-centred maintenance (BCM) approach to develop or modify maintenance strategy

3 Assignment 3

Assessment Type
Written Assessment

Task Description
The details of the assessment will be available on the unit Moodle site.
This assessment is based upon unit learning modules 1 to 11.
In answering the questions, you will relate the theory you have learnt to your own organisation.

Assessment Due Date
Week 12 Friday (9 Feb 2024) 11:45 pm AEST

Return Date to Students

It is expected that the marked assessment will be returned after grade certification date

Weighting
45%

Assessment Criteria
This is a criterion - based assessment.
It is highly recommended that you read beyond the unit materials to complete assessment items.
A detailed marking rubric is available on the Moodle site.

Your submission for this assessment will be evaluated according to the following:

- Demonstration of knowledge and understanding of concepts
- Evidence of research beyond own experience and unit material
- Clarity of expression, including use of terminology, ease of reading, spelling and grammar, orderly and logical presentation and use of diagrams to illustrate points
- Quality of technical presentation including neatness, appropriate use of Figures and Tables
- Referencing (both in-text and Reference List)
- Assignment word count

Note that late submissions will be penalised according to the CQU Assessment Policy and Procedure.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Assignments must be submitted through the Moodle upload link.

Learning Outcomes Assessed

- Define and develop maintenance objectives
- Research and develop maintenance planning controls based upon Systems Engineering Plans, Configuration Management Plans and Asset Management Plans
- Apply the business-centred maintenance (BCM) approach to develop or modify maintenance strategy
- Develop and implement asset life plans based upon the four (4) known maintenance strategies.

4 Weekly Review Questions

Assessment Type
Online Quiz(zes)

Task Description
Each week during the term, you will work through the learning materials for that week. Under 'Learning Activities' you will find the Module Review Questions. These questions are designed to assist you to consolidate your understanding of the material for that week. You will also find that completing these activities will help you to complete the other assessment items.

Number of Quizzes
11

Frequency of Quizzes
Weekly

Assessment Due Date

The Weekly Review Questions are due by the following Monday at 5:00pm each week.

Return Date to Students

Detailed feedback will not be provided for the Weekly Review Questions. If you have any queries related to this learning activity, please raise them at the weekly tutorial.

Weighting
10%

Assessment Criteria
Note that detailed feedback will not be provided for the Weekly Review Questions. If you have questions related to this learning activity, please raise them at the weekly tutorial.
Review Questions are directly related to the course content for that week. Full marks are awarded for correct answers.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Complete the Review Questions in the Learning Activities section each week.

Learning Outcomes Assessed

- Research and analyse the business drivers and operations strategy including internal and external influences that impact on the maintenance decision-making framework
- Define and develop maintenance objectives
- Research and develop maintenance planning controls based upon Systems Engineering Plans, Configuration Management Plans and Asset Management Plans
- Apply the business-centred maintenance (BCM) approach to develop or modify maintenance strategy
- Develop and implement asset life plans based upon the four (4) known maintenance strategies.

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