ENMM20031 *Condition Monitoring and Tribology*
Term 2 - 2017

Profile information current as at 05/07/2022 04:40 pm

General Information

Overview
This unit is focused on the tribological principles to understand fundamentals of friction, wear and lubrication aspects of a machine. The knowledge of tribology will help student analysing root cause of failures and also in selecting an appropriate condition monitoring technique to predict failures. The unit will provide adequate knowledge to use condition monitoring as a maintenance strategy. Students will acquire adequate skills to select a suitable condition monitoring technique from a variety of techniques such as; sensory and function inspection; vibration monitoring; infrared thermography; oil analysis; acoustic emission; stress, strain, displacement; non-destructive testing/inspection; electrical equipment performance analysis; and performance monitoring in general.

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
Prerequisites: ENMM20023 & ENMM20025
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 - 2017

- Distance

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: 20%
2. **Written Assessment**
Weighting: 20%
3. **Presentation and Written Assessment**
Weighting: 60%

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 Moodle

Feedback

There is need of residential school on either a weekly basis or a monthly basis with more interactive exercise. At present black board sessions are either having issues with IT or professor is having time pressure and not getting relevant work done.

Recommendation

Residential schools are not cost effective due to poor attendance. Because of Blackboard Collaborate and multimedia learning tools that are available, fewer students prefer to attend residential schools than in the past. Students are advised to read assignment questions carefully and ask questions via Blackboard Collaborate, email or phone if they are in doubt.

Feedback from Moodle

Feedback

New questions required for all of the assignments for this unit. Assignment questions old and need updating and refreshing.

Recommendation

Assignments will be reviewed and revised where need be.

Unit Learning Outcomes

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

1. Identify the range of condition monitoring techniques suitable in a plant.
2. Establish tribological principles for deciding condition monitoring techniques.
3. Investigate the standards associated with condition monitoring techniques.
4. Justify the use of condition monitoring in a plant.

n/a

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
1 - Written Assessment - 20%	•	•	•	•
2 - Written Assessment - 20%	•	•	•	•
3 - Presentation and Written Assessment - 60%			•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
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 - Written Assessment - 20%	○	○	○	○				
2 - Written Assessment - 20%	○	○	○	○	○			
3 - Presentation and Written Assessment - 60%	○	○	○	○	○	○	○	

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)
- Study Guide electronic copy on the Moodle website

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Subhash Sharma Unit Coordinator
s.sharma2@cqu.edu.au

Schedule

Week 1 - 10 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 1	Introduction to Condition Monitoring	On line lectures or Zoom sessions will be announced by the lecturer in advance.

Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 2	Topic: Tribology Principles, Viscosity systems	View power point slides and the following resources: https://www.youtube.com/watch?v=aoWBUhlN3-0

Week 3 - 24 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 3	Used Oil Analysis and ASTM Lubricant testing standards	Visit ASTM standards website: https://www.cqu.edu.au/courses/study-areas/science-and-environment/research/doctor-of-philosophy-sciences,-engineering-and-health

Week 4 - 31 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 3	Oil cleanliness	

Week 5 - 07 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 3	Oil analysis and Vibration Analysis	**Written Assessment-1** Due: Week 5 Friday (11 Aug 2017) 11:45 pm AEST

Vacation Week - 14 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 21 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 4	Vibration Monitoring	Take part in forum activity.

Week 7 - 28 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 5	Vibration Monitoring	

Week 8 - 04 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 6	Causes of Vibration	**Written Assessment-2** Due: Week 8 Friday (8 Sept 2017) 11:45 pm AEST

Week 9 - 11 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Module 2	Parameters and symptoms limits	Study https://maritimecyprus.files.wordpress.com/2016/05/absequipment_condition_monitoring.pdf

Week 10 - 18 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic

Advance Condition Monitoring	Advanced Condition monitoring techniques an current trends	Visit the following website: https://maritimecyprus.files.wordpress.com/2016/05/absequipment_condition_monitoring.pdf

Week 11 - 25 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Financial Aspects of Condition Motoring	Return on investment- lecture slides	

Week 12 - 02 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
Revision	Mini-project queries	**Presentation and Written Assessment - 3** Due: Week 12 Friday (6 Oct 2017) 11:45 pm AEST

Review/Exam Week - 09 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 16 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Written Assessment-1

Assessment Type
Written Assessment

Task Description
The written assessment will cover general condition monitoring principles, application of Tribology to machines and oil analysis. Details of the assessment will be available in the question sheet posted on the Moodle web page of this unit.

Assessment Due Date
Week 5 Friday (11 Aug 2017) 11:45 pm AEST

Return Date to Students
Week 7 Friday (1 Sept 2017)

Weighting
20%

Assessment Criteria
Please see the unit moodle webpage for the assessment criteria. A rubric will be available in the moodle to explain the assessment criteria explicitly. Proper referencing is essential, use diagrams tables and charts as much as you can to beat the word count limit. Plan your assessment before writing so that it meets the assessment criteria and no part of the question is left unanswered. Quality of the contents carry marks.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
When saving your assignments for submission on Moodle please ensure you use the following file format: example: John Smith_S000111_ENMM20020_Assignment_3.doc

Learning Outcomes Assessed

- Identify the range of condition monitoring techniques suitable in a plant.
- Establish tribological principles for deciding condition monitoring techniques.
- Investigate the standards associated with condition monitoring techniques.

- Justify the use of condition monitoring in a plant.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research

2 Written Assessment-2

Assessment Type
Written Assessment

Task Description
This is a question-answer type assessment which deals with the vibration data collection and its analysis. Assignment questions will be posted on the Moodle Web page of this unit it includes question that may have theoretical answers or based on data that you collect from the work place. Students are expected to research resources listed on the Moodle web page and beyond the study guide.

Assessment Due Date
Week 8 Friday (8 Sept 2017) 11:45 pm AEST

Return Date to Students
Week 10 Friday (22 Sept 2017)

Weighting
20%

Assessment Criteria
The assessment criteria will be explained in the Assignment Question sheet posted on the Moodle web page. Marks have been assigned for each question in the rubric available in the moodle web page. Each part of the question must be answered, part answered question will result in lower grade.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
When saving your assignments for submission on Moodle please ensure you use the following file format: example: John Smith_S000111_ENMM20020_Assignment_3.doc

Learning Outcomes Assessed

- Identify the range of condition monitoring techniques suitable in a plant.
- Establish tribological principles for deciding condition monitoring techniques.
- Investigate the standards associated with condition monitoring techniques.
- Justify the use of condition monitoring in a plant.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management

3 Presentation and Written Assessment - 3

Assessment Type
Presentation and Written Assessment

Task Description
This assessment is a mini-project where the problem will be based on a condition monitoring plan that can be applied to upgrade condition monitoring practices at your own workplace.

Assessment Due Date
Week 12 Friday (6 Oct 2017) 11:45 pm AEST

Return Date to Students
Exam Week Friday (20 Oct 2017)

Weighting
60%

Assessment Criteria
The assignment criteria will be explained in the question sheet available on the Moodle web page. In this assignment a word limit will apply. A rubric is provided in the moodle webpage to explain the assessment criteria explicitly. Proper referencing is essential. Use diagrams tables and charts as much as you can to beat the word count limit. Plan your assessment before writing so that it meets the assessment criteria and no part of the question is left unanswered. Quality of the contents carry marks.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
When saving your assignments for submission on Moodle please ensure you use the following file format: example: John Smith_S000111_ENMM20020_Assignment_3.doc

Learning Outcomes Assessed

- Investigate the standards associated with condition monitoring techniques.
- Justify the use of condition monitoring in a plant.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility
- Leadership

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