

In Progress

Please note that this Unit Profile is still in progress. The content below is subject to change.



ENAM12002 *Mechanical Analysis*

Term 1 - 2022

Profile information current as at 03/05/2024 11:08 pm

All details in this unit profile for ENAM12002 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 introduces you to key concepts and principles of mechanical analysis. You will explain how engineering structures and components carry and transmit loads, and analyse and determine properties of sections, forces in structures and assemblies, stress and strain in members and components, deflections, stresses in circular shafts, principle stresses, and buckling of columns. you will analyse mechanical failures, determine fatigue life of components, and explain common assumptions made in analysis, their consequences, and validity. You are required to show work productively, both individually and collaboratively, to solve problems, and document and communicate your work clearly in a professional manner.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisites: MATH11160 Technology Mathematics AND (ENAG11005 Mechanics OR ENEG11006 Engineering Statics) AND (ENEG11008 Materials for Engineers OR ENAG11003 Engineering Materials)

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 - 2022

No offerings for ENAM12002

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: 30%

2. **Written Assessment**

Weighting: 20%

3. **Written Assessment**

Weighting: 50%

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 Feedback

Feedback

This unit covered the material that would most likely be used for my role. It covered most of the practical aspects of being an engineer and it has been the most useful subject of all.

Recommendation

This will be continued and updated.

Feedback from Student Feedback

Feedback

The workbook activities help you learn the topics.

Recommendation

This will be continued and updated.

Feedback from Student Feedback

Feedback

Several of the workbook questions were provided with solutions that did not use the same methods as we were taught from the book.

Recommendation

The solutions using the normal method will be added.

Feedback from Student Feedback

Feedback

More worked examples of the topics covered in the workbook and assignment would be helpful. Also, more detailed answers to the workbook questions to learn the correct methodology to solve the problems.

Recommendation

They will be provided.

Feedback from Student Feedback

Feedback

The moodle page had a lot of information and was going back and forth a couple of times to get an understanding of some aspects.

Recommendation

The learning resources will be organised well.

Unit Learning Outcomes

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

1. Determine and analyze geometric properties such as moment of inertia and their influence on load carrying capacity of components and structures
2. Explain stress, strain and elasticity and perform simple linear static stress analysis of mechanical components
3. Describe different types of loadings and stresses such as normal, shear, torsional, bending and solve simple problems to estimate them
4. Explain the principle of transformation of stress using Mohr's circle method
5. Develop elastic equation to describe the deflection of beams
6. Work autonomously to solve problems using appropriate engineering language.

The Learning Outcomes for this unit are linked with the Engineers Australia Stage 1 Competency Standards for Engineering Associates in the areas of 1. Knowledge and Skill Base, 2. Engineering Application Ability and 3. Professional and Personal Attributes at the following levels:

Introductory 1.2 Procedural-level understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the practice area. (LO: 1N 2N 3N 4N 5N 6N) 2.2 Application of technical and practical techniques, tools, and resources to well-defined engineering problems. (LO: 1N 2N 3N 4N 5N 6N 7N) 3.1 Ethical conduct and professional accountability. (LO: 1N 2N 3N 4N 5N 6N 7N)

Intermediate 1.3 In-depth practical knowledge and skills within specialist sub-disciplines of the practice area. (LO: 4I) 2.1 Application of established technical and practical methods to the solution of well-defined engineering problems. (LO: 1N 2I 3I 4I 5N 6N 7N) 3.2 Effective oral and written communication in professional and lay domains. (LO: 1I 2I 3I 4I 5N 6N 7N)

Advanced 1.1 Comprehensive, formula-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the practice area. (LO: 1N 2I 3I 4A 5N 6N 7N) 1.6 Understanding of the scope, principles, norms, accountabilities, and bounds of sustainable engineering practice in the area of practice. (LO: 1I 2I 3I 4A 5N 6N)

Note: LO refers to the Learning Outcome number(s) which link to the competency and the levels: N - Introductory, I - Intermediate, and A - Advanced.

Refer to the Engineering Undergraduate Course Moodle site for further information on the Engineers Australia's Stage 1 Competency Standard for Professional Engineers and course level mapping information <https://moodle.cqu.edu.au/course/view.php?id=1511>

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
1 - Written Assessment - 30%	•	•				
2 - Written Assessment - 20%	•	•	•	•	•	•

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
3 - Written Assessment - 50%			•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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 - 30%	•	•	•	•						
2 - Written Assessment - 20%	•	•	•	•						
3 - Written Assessment - 50%	•	•	•	•						

Textbooks and Resources

Textbooks

Information for Textbooks is not yet available.

The textbooks have not yet been finalised.

IT Resources

You will need access to the following IT resources:

Referencing Style

Information for Referencing Style has not been released yet.

This unit profile has not yet been finalised.

Teaching Contacts

Information for Teaching Contacts has not been released yet.

This unit profile has not yet been finalised.

Assessment Tasks

Information for Assessment Tasks has not been released yet.

This unit profile has not yet been finalised.

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.