ENAM12002 *Mechanical Analysis*
Term 1 - 2020

Profile information current as at 08/05/2024 12:08 pm

General Information

Overview
This unit introduces students to key concepts and principles of mechanical analysis. They 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. Students analyse mechanical failures, determine fatigue life of components, and explain common assumptions made in analysis, their consequences and validity. Students are required to show they work productively, both individually and collaboratively, to solve problems, and document and communicate their 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 - 2020

- 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. **Written Assessment**
Weighting: 30%
2. **Written Assessment**
Weighting: 20%
3. **Written Assessment**
Weighting: 50%
4. **Written Assessment**
Weighting: Pass/Fail

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 Survey

Feedback
Study guides were well presented, the lecturer was very quick to respond to questions and there was freedom to learn at your own pace.

Recommendation
Will continue

Feedback from Student Survey

Feedback
No live lectures or tutorials made it harder to get help on specific questions.

Recommendation
Weekly Zoom sessions will be set to carry out tutorials

Feedback from Student Survey

Feedback
Additional assignment feedback would be helpful.

Recommendation
Additional assessment feedback would be provided through Zoom sessions

Feedback from Student Survey

Feedback
This material is very difficult to learn. Associate Degree students do not do enough mathematics to follow the proofs in this unit

Recommendation
Unit content and prerequisites will be reviewed and modified as required

Feedback from Student Survey

Feedback
Some of the assignment questions could have been explained better in the problem statement.

Recommendation
Assignments will be reviewed and revised

Feedback from Student Survey

Feedback
Some Q&A topics were not attended in time

Recommendation
Visit the Q&A twice each day & answer the questions

Feedback from Self-reflection

Feedback
Help students with different levels of pre-requisite knowledge.

Recommendation
Actively contact students to ensure they understand each week's learning tasks

Unit Learning Outcomes

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

1. Explain the basic concepts and principles of engineering mechanics
2. Explain how engineering structures and components carry and transmit loads
3. Analyse and determine: o Properties of plane cross sections o Forces acting in members of structures and assemblies in static equilibrium o Normal stress and strain in members and components in static equilibrium o Deflection of simple beams and trusses o Stresses in circular shafts o Principle stresses and maximum shear stresses using Mohr's circle o Buckling behaviour of columns
4. Analyse failure of structures and components and determine fatigue lives of components
5. Explain the nature of engineering assumptions and explain commonly made assumptions and consequent limitations of the validity of analyses based on such assumptions
6. Communicate professionally and provide evidence of personal reflection on, and critical assessment of, team contributions and professional development
7. Formulate and solve problems and record and communicate clearly and professionally the approach used to solve problems and the reasons for adopting such approaches to problems

The Learning Outcomes for this unit are linked with Engineers Australia's Stage 1 Competency Standard for Engineering Associates.

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 - 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%	•	•	•	•						
4 - Written Assessment - 0%	•	•	•	•	•	•	•	•		

Textbooks and Resources

Textbooks

ENAM12002

Prescribed

Mechanics of Materials
Edition: 6th (2007)
Authors: Riley, WF, Sturges, LD & Morris, DH
John Wiley & Sons
ISBN: 13 978-0-471-70511-6
Binding: Other

Additional Textbook Information
Copies can be purchased from the CQUni Bookshop here: http://bookshop.cqu.edu.au (search on the Unit code)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- A4 scanner - To allow online submission of hand written assignments and workbook, and to allow posting of work to discussion forums.

Referencing Style

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

Teaching Contacts

Yan Sun Unit Coordinator
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Schedule

Week 1 - 09 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 1.1: Structures and mechanisms, Loads, type of supports, and reaction components, Equilibrium and free body diagrams, Analysis of pin jointed structures: method of joints and method of sections	Chapter 1 Rigid body mechanics	Weekly reflection submission, Due 5pm Monday 16th Mar.

Week 2 - 16 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 1.2: Analysis of beams: Shear force & SFD, Bending moment & BMD; Geometrical properties of plane sections: Centroid, Moment of inertia and polar moment of intertia	Chapter 1 Rigid body mechanics	Weekly reflection submission, Due 5pm Monday 23th Mar.

Week 3 - 23 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 2.1: Elastic bodies and engineering materials, Hooke's law, Young's modulus of elasticity and Poisson's ratio, Normal stress, Normal strain, Axial deformation: Axial load vs axial deformation relation, Tensile stress and tensile strain	Chapter 2 Deformation of solids	Weekly reflection submission, Due 5pm Monday 30th Mar.

Week 4 - 30 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 2.2: Bending stress, Shear stress due to lateral loading: Beams of rectangular cross section, I beams; Torsion of circular shafts: Shear stress distribution in circular shaft, Angle of twist, Hollow sections, Shear flow, Open section an	Chapter 2 Deformation of solids	Weekly reflection submission, Due 5pm Monday 6th April. Submit your workbook completed so far (due 5pm Monday 6th April)

Week 5 - 06 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 3.1 Analysis of stress: Strain gauging and strain measurement: linear gauges, rosettes; Combined axial, bending and torsional stresses, Stress at a point	Chapter 3 Analysis of stress	Weekly reflection submission, Due 5pm Monday 20th April.

Vacation Week - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
		Assignment 1 Due: Vacation Week Monday (13 Apr 2020) 5:00 pm AEST **Assignment 1** Due: Vacation Week Monday (13 Apr 2020) 5:00 pm AEST

Week 6 - 20 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 3.2 Stress transformation: stress in oblique planes, Principal stresses, principal planes, and maximum shear stress, Mohr's circle, Stress concentration, Thermal stresses	Chapter 3 Analysis of stress	Weekly reflection submission, Due 5pm Monday 27th April.

Week 7 - 27 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 4.1: Columns: buckling, long and short columns, Effective length and effect of boundary conditions	Chapter 4 Structures	Weekly reflection submission, Due 5pm Monday 4th May.

Week 8 - 04 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 4.2: Beams: deflection of beams, slender beams and lateral buckling	Chapter 4 Structures	Weekly reflection submission, Due 5pm Monday 11th May.

Week 9 - 11 May 2020

Module/Topic	Chapter	Events and Submissions/Topic

Section 4.3: Design of simple structures: struts and ties, shafts, Springs	Chapter 4 Structures	Weekly reflection submission, Due 5pm Monday 18th May. Assignment 2 Due: Week 9 Monday (11 May 2020) 5:00 pm AEST **Assignment 2** Due: Week 9 Monday (11 May 2020) 5:00 pm AEST

Week 10 - 18 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 5.1: Yielding, Failure criteria for ductile materials, Fracture of brittle materials	Chapter 5 Plasticity and failure	Weekly reflection submission, Due 5pm Monday 25th May.

Week 11 - 25 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
Section 5.2: Fatigue, Viscoelasticity	Chapter 5 Plasticity and failure	Weekly reflection submission, Due 5pm Monday 1st June.

Week 12 - 01 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
Revision		Weekly reflection submission, Due 5pm Monday 8th June.

Review/Exam Week - 08 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 15 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
		Submit your workbook (due 5pm Monday 15th June) Assignment 3 Due: Exam Week Monday (15 Jun 2020) 5:00 pm AEST Workbook Due: Exam Week Monday (15 Jun 2020) 5:00 pm AEST **Assignment 3** Due: Exam Week Monday (15 June 2020) 5:00 pm AEST **Workbook** Due: Exam Week Monday (15 June 2020) 5:00 pm AEST

Assessment Tasks

1 Assignment 1

Assessment Type
Written Assessment

Task Description
This assignment will assess the material from Weeks 1 to 4. Full assignment details are on the moodle course website.

Assessment Due Date
Vacation Week Monday (13 Apr 2020) 5:00 pm AEST

Return Date to Students
Week 6 Monday (20 Apr 2020)

Weighting
30%

Minimum mark or grade
15/30

Assessment Criteria
Your assignment will be assessed against four assessment criteria:

1) Accuracy and correct results
    - Correct application of maths and arithmetic
    - Answers clearly identified (please underline or highlight answers)
    - Correct results
2) Evidence of correct procedures
    - All necessary steps in analysis are present
    - Clear presentation of mathematical and arithmetical working linking the given details of the problem to the results obtained
    - Indication of the equations used when using spreadsheets (eg Microsoft Excel) or other software
    - Evidence of checking results (mathematical, graphical, logic-common sense)
3) Evidence of understanding of the topic
    - Explanation of any assumptions made
    - Explanation of choices made in the analysis (why is this procedure is required)
    - Interpretation of results, eg limitations, direction of vectors
4) Professional presentation
    - The work (job) is clearly identified (problem, date, analyst)
    - Clear statement of each problem and its details and requirements
    - Logical layout of analysis
    - Clear statement of equations and theory used
    - Appropriate use of diagrams, clear diagrams, adequately labelled
    - Correct use of terminology, conventions
    - Clear English in the explanation of procedure and interpretation of results
    - Referencing of authoritative sources of equations and data

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Scan your assignment and submit via the moodle course website

Learning Outcomes Assessed

- Explain the basic concepts and principles of engineering mechanics
- Explain how engineering structures and components carry and transmit loads
- Analyse and determine: o Properties of plane cross sections o Forces acting in members of structures and assemblies in static equilibrium o Normal stress and strain in members and components in static equilibrium o Deflection of simple beams and trusses o Stresses in circular shafts o Principle stresses and maximum shear stresses using Mohr's circle o Buckling behaviour of columns
- Explain the nature of engineering assumptions and explain commonly made assumptions and consequent limitations of the validity of analyses based on such assumptions
- Communicate professionally and provide evidence of personal reflection on, and critical assessment of, team contributions and professional development
- Formulate and solve problems and record and communicate clearly and professionally the approach used to solve problems and the reasons for adopting such approaches to problems

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

2 Assignment 2

Assessment Type
Written Assessment

Task Description
This assignment will assess the material from Weeks 1 to 8. Full assignment details are on the moodle course website.

Assessment Due Date
Week 9 Monday (11 May 2020) 5:00 pm AEST

Return Date to Students
Week 10 Monday (18 May 2020)

Weighting
20%

Minimum mark or grade
10/20

Assessment Criteria
Your assignment will be assessed against four assessment criteria:
1) Accuracy and correct results
- Correct application of maths and arithmetic
- Answers clearly identified (please underline or highlight answers)
- Correct results

2) Evidence of correct procedures
- All necessary steps in analysis are present
- Clear presentation of mathematical and arithmetical working linking the given details of the problem to the results obtained
- Indication of the equations used when using spreadsheets (eg Microsoft Excel) or other software
- Evidence of checking results (mathematical, graphical, logic-common sense)

3) Evidence of understanding of the topic
- Explanation of any assumptions made
- Explanation of choices made in the analysis (why is this procedure is required)
- Interpretation of results, eg limitations, direction of vectors

4) Professional presentation
- The work (job) is clearly identified (problem, date, analyst)
- Clear statement of each problem and its details and requirements
- Logical layout of analysis
- Clear statement of equations and theory used
- Appropriate use of diagrams, clear diagrams, adequately labelled
- Correct use of terminology, conventions
- Clear English in the explanation of procedure and interpretation of results
- Referencing of authoritative sources of equations and data

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Scan your assignment and submit via the moodle course website

Learning Outcomes Assessed

- Explain the basic concepts and principles of engineering mechanics
- Explain how engineering structures and components carry and transmit loads
- Analyse and determine: o Properties of plane cross sections o Forces acting in members of structures and assemblies in static equilibrium o Normal stress and strain in members and components in static equilibrium o Deflection of simple beams and trusses o Stresses in circular shafts o Principle stresses and maximum shear stresses using Mohr's circle o Buckling behaviour of columns
- Explain the nature of engineering assumptions and explain commonly made assumptions and consequent limitations of the validity of analyses based on such assumptions
- Communicate professionally and provide evidence of personal reflection on, and critical assessment of, team contributions and professional development
- Formulate and solve problems and record and communicate clearly and professionally the approach used to solve problems and the reasons for adopting such approaches to problems

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

3 Assignment 3

Assessment Type
Written Assessment

Task Description
This assignment will assess the material from Weeks 1 to 12. Full assignment details are on the moodle course website.

Assessment Due Date
Exam Week Monday (15 June 2020) 5:00 pm AEST

Return Date to Students

Assignment three will be returned after the CQU Certification of Grades.

Weighting
50%

Minimum mark or grade
20/50

Assessment Criteria
Your assignment will be assessed against four assessment criteria:
1) Accuracy and correct results
- Correct application of maths and arithmetic
- Answers clearly identified (please underline or highlight answers)
- Correct results

2) Evidence of correct procedures
- All necessary steps in analysis are present
- Clear presentation of mathematical and arithmetical working linking the given details of the problem to the results obtained
- Indication of the equations used when using spreadsheets (eg Microsoft Excel) or other software
- Evidence of checking results (mathematical, graphical, logic-common sense)

3) Evidence of understanding of the topic
- Explanation of any assumptions made
- Explanation of choices made in the analysis (why is this procedure is required)
- Interpretation of results, eg limitations, direction of vectors

4) Professional presentation
- The work (job) is clearly identified (problem, date, analyst)
- Clear statement of each problem and its details and requirements
- Logical layout of analysis
- Clear statement of equations and theory used
- Appropriate use of diagrams, clear diagrams, adequately labelled
- Correct use of terminology, conventions
- Clear English in the explanation of procedure and interpretation of results
- Referencing of authoritative sources of equations and data

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Scan your assignment and submit via the moodle course website

Learning Outcomes Assessed

- Explain the basic concepts and principles of engineering mechanics
- Explain how engineering structures and components carry and transmit loads
- Analyse and determine: o Properties of plane cross sections o Forces acting in members of structures and assemblies in static equilibrium o Normal stress and strain in members and components in static equilibrium o Deflection of simple beams and trusses o Stresses in circular shafts o Principle stresses and maximum shear stresses using Mohr's circle o Buckling behaviour of columns
- Analyse failure of structures and components and determine fatigue lives of components
- Explain the nature of engineering assumptions and explain commonly made assumptions and consequent limitations of the validity of analyses based on such assumptions

- Communicate professionally and provide evidence of personal reflection on, and critical assessment of, team contributions and professional development
- Formulate and solve problems and record and communicate clearly and professionally the approach used to solve problems and the reasons for adopting such approaches to problems

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

4 Workbook

Assessment Type
Written Assessment

Task Description
This task is in two parts:
1) Weekly reflection:
A weekly reflection on your learning is required to be posted on the moodle course site. This is to include one sentence for each of the following questions. (Directions on how to post your reflections will be provided on the moodle course site.)
a. What did you learn during the past week?
b. How did you learn it?
c. How do you think you could apply it, either now or later in your career?
d. What did you find hard to understand?
2) Workbook:
The Workbook provides a record and detailed diary of your learning and completed activities throughout the course. Preparation of a Workbook should be understood as good study technique. It also provides evidence that you have adequately studied the whole course and achieved the course learning outcomes. It is worthwhile doing a good attempt at the workbook as, if at the end of the course you are on the border line between two final grades the workbook can be used to determine if the higher grade should be awarded.
The Workbook is best handwritten and then scanned and submitted electronically. A handwritten Workbook is most appropriate and most time effective as the course involves many equations and diagrams. It is much quicker to write and sketch freehand. The presentation of the workbook is not as crucial as an assignment as it is recognised you will make mistakes during your learning. Rough sketches and partial attempts/re-attempts of questions are acceptable and may add to your grade. The start of each section of work should be dated and all pages should be numbered. It should be prepared week by week, not at the end of term. Show rough attempts at problems including failures and fixes, brainstorming, draft notes and developing ideas.
In the Workbook students must record:

- workbook activities you are asked to complete in the course notes

In the Workbook students may also record:

- study notes taken while studying textbooks and course resources
- personal study summaries of key concepts
- notes, sketches/ drawings
- initial attempts of assignment tasks

Workbook submission
- A Workbook progress submission is required 1pm Monday Week 5. Just submit your workbook to date to enable the teaching team to provide some feedback to let you know how you are going on this task.
- The whole Workbook is due at the end of the term, the due date is shown in the course profile.

Assessment Due Date
Exam Week Monday (15 June 2020) 5:00 pm AEST

Return Date to Students

The workbook will be returned after the CQU Certification of Grades.

Weighting
Pass/Fail

Minimum mark or grade
Successful completion of this assessment is a requirement for passing this course.

Assessment Criteria
To pass this assessment you must:
- make a legitimate attempt of at least 50% of the Workbook activities for each topic in the course notes.
- submit weekly reflections on the moodle course site. (To provide flexibility you are permitted to submit your reflections 1 week late past the due date to enable those on 7 or 10 day rosters to submit. One week after the reflection due date you will not be able to submit to that week so please add your late reflection in the following week's reflection and label it accordingly ie 'Week 4 reflection'. If you work ahead, feel free to submit reflections in that learning week's reflection submission activity.)

Workbook activities guidelines:
Workbook activities are set for each Topic and are detailed in the Course Study Guide. All workbook activities have a brief solution provided so that students can check their results. Do not copy the solutions provided and submit as your own work. The solutions provided are only basic and should not be seen as a complete solution. I suggest you first attempt the questions without looking at the solutions. If having difficulty, work through the provided solution and then re-attempt the question without looking at the solution. If still having difficulty you are encouraged to scan your work and post it on the moodle course website Q&A forum.
As mentioned in the task description the presentation and accuracy of results of the workbook activities are not as crucial as an assignment as it is recognised you will make mistakes during your learning. Rough sketches and partial attempts/re-attempts of questions are acceptable and may add to your grade. Workbook activities are seen as ways to stimulate your own learning rather than final work you would submit to a colleague. However there should be some attempt to set out and document your work to show your understanding. Set out and document the activities in a way you could revisit them at a later date if required. The following repeated assignment criteria will help guide the layout of your workbook activities but should not be viewed as rigid.
Accuracy and correct results
• Correct application of maths and arithmetic
• Answers clearly identified (please underline or highlight answers)
• Correct results
Evidence of correct procedures
• All necessary steps in analysis are present
• Clear presentation of mathematical and arithmetical working linking the given details of the problem to the results obtained
• Indication of the equations used when using spreadsheets (eg Microsoft Excel) or other software
• Evidence of checking results (mathematical, graphical, logic-common sense)
Evidence of understanding of the topic
• Explanation of any assumptions made
• Explanation of choices made in the analysis (why is this procedure is required)
• Interpretation of results, eg limitations, direction of vectors
Professional presentation
• The work (job) is clearly identified (problem, date, analyst)
• Clear statement of each problem and its details and requirements
• Logical layout of analysis
• Clear statement of equations and theory used
• Appropriate use of diagrams, clear diagrams, adequately labelled
• Correct use of terminology, conventions
• Clear English in the explanation of procedure and interpretation of results
• Referencing of authoritative sources of equations and data

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Scan your workbook and submit via the moodle course website

Learning Outcomes Assessed

- Explain the basic concepts and principles of engineering mechanics
- Explain how engineering structures and components carry and transmit loads
- Analyse and determine: o Properties of plane cross sections o Forces acting in members of structures and assemblies in static equilibrium o Normal stress and strain in members and components in static equilibrium o Deflection of simple beams and trusses o Stresses in circular shafts o Principle stresses and maximum shear stresses using Mohr's circle o Buckling behaviour of columns

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Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- 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