

In Progress

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



ENEX13005 *Machine Design and Vibrations*

Term 1 - 2026

Profile information current as at 23/01/2025 12:04 am

All details in this unit profile for ENEX13005 have been officially approved by CQU University 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 will introduce you to the fundamental synthesis of mechanisms and machines. You will start by carrying out analysis of linkages in terms of their transmission angles, toggle positions and mobility for a certain mechanism. The kinematic analysis of any mechanism requires an acceleration analysis that depends on its position and velocity. You will be able to carry out this position, velocity, and acceleration analysis of these mechanisms (kinematic systems) using analytical equations and graphical methods. This unit will enable you to work on 3D CAD modelling and computer simulation of various mechanisms or machines. You will move on to kinetic analysis of systems thereby discussing static and dynamic balancing of rotating masses. After learning concepts of dynamics, you will study vibrations (free and forced) of single and multi-degree of freedom systems and will be able to carry out analysis of such systems using force and energy methods. In this unit, you must complete compulsory practical activities. Refer to the Engineering Undergraduate Course Moodle site for proposed dates.

Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

MATH11219 Applied Calculus AND [ENEM12007 Statics & Dynamics OR ENEM12010 Engineering Dynamics].

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 - 2026

- Mackay
- Mixed Mode

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

Information for Class and Assessment Overview has not been released yet.

This information will be available on Monday 12 January 2026

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 email and chat messages through Microsoft Teams

Feedback

Students complimented useful self-learning resources for Dynamic Simulation and the responsive behaviour of the unit coordinator.

Recommendation

The unit coordinator will also inform students of an additional communication channel which is Microsoft Teams. Through this platform, students can send casual messages instead of formal emails to consult the unit coordinator.

Unit Learning Outcomes

Information for Unit Learning Outcomes has not been released yet.

This information will be available on Monday 12 January 2026

Alignment of Learning Outcomes, Assessment and Graduate Attributes

Information for Alignment of Learning Outcomes, Assessment and Graduate Attributes has not been released yet.

This information will be available on Monday 12 January 2026

Textbooks and Resources

Information for Textbooks and Resources has not been released yet.

This information will be available on Monday 16 February 2026

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.