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

ENEX13004 *Robotics and Autonomous Systems*
Term 1 - 2027

Profile information current as at 12/11/2026 11:19 am

All details in this unit profile for ENEX13004 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 will introduce you to robotics and artificial intelligence in autonomous systems. You will learn the principles of robotic manipulators, mobile robots, robotic vision systems, forward kinematics, inverse kinematics of robotic manipulators, and programming. You will program industrial and mobile robots using Python programming language to model robotic systems mathematically, plan their path trajectories and predict and avoid collision with objects in the surrounding environment by fusing information from various sensors. The Robotic Operating System (ROS) is used with Gazebo robotic simulator to build and test various robotic applications. You are introduced to Linux operating system and will learn different ROS commands to test and troubleshoot real-world robotic systems. In addition, you will complete laboratory activities with real robots to strengthen your knowledge before completing a project in Gazebo simulated environment to solve a real-world problem. This unit supports the UN sustainable development goal 9-industry, innovation and infrastructure by discussing sustainable industrialisation using robotic applications.

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

Prerequisites: ENEM12010 Engineering Dynamics AND MATH11219 Applied Calculus.
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 - 2027

- 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 11 January 2027

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
- Academic Progression Policy and Procedure
- Student Refund and Credit Balance Policy and Procedure
- 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 SUTE Survey

Feedback
Student feedback indicated low overall satisfaction with the unit and clarity of unit requirements.

Recommendation
Overall student satisfaction and clarity of unit requirements should be improved by providing clearer weekly learning expectations, assessment requirements, and consistent guidance throughout the term.

Feedback from SUTE Survey

Feedback
Students requested earlier access to learning materials and assessment information.

Recommendation
Learning materials and assessment information should be released earlier by preparing and reviewing the required resources a few weeks before each teaching week.

Feedback from SUTE Survey

Feedback
Student participation in the SUTE survey remained low despite regular reminders and encouragement.

Recommendation
Students should be reminded of the importance of the SUTE survey and how their feedback can help improve the unit and support the continuation of effective learning practices.

Unit Learning Outcomes

Information for Unit Learning Outcomes has not been released yet.
This information will be available on Monday 11 January 2027

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 11 January 2027

Textbooks and Resources

Information for Textbooks and Resources has not been released yet.
This information will be available on Monday 11 January 2027

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.
This unit profile has not yet been finalised.