ENEE14006 *Embedded Microcontrollers*

Term 1 - 2025

Profile information current as at 05/09/2024 01:18 pm

General Information

Overview

In this unit, you will learn the concepts of programming, interfacing, and controlling the operations of a microcontroller using the C language. The unit is designed to provide you with an understanding of the architecture and programming of embedded systems with microcontrollers. The course will cover essential programming elements such as data types, loops, branching statements, and functions. Additionally, you will learn about interrupt handling, timers, and counters. Furthermore, you will gain hands-on experience in designing, prototyping, and testing embedded systems using commercially available microcontroller devices. You will be given practical exercises to apply the concepts learned in the unit. The course will also cover advanced topics such as interfacing with peripherals, analog and digital sensors, and communicating with external devices through different communication protocols. Finally, you will design and prototype a real-world application as your final project. To complete the compulsory practical activities and the project, you will be required to purchase the hardware components needed. Please refer to the unit Moodle site for a list of hardware components and their costs. The unit supports the UN sustainable development goal 9 - industry, innovation, and infrastructure by discussing how microcontroller systems could be used in small-scale industries for low-cost automation.

Details

Career Level: *Undergraduate*
Unit Level: *Level 4*
Credit Points: *12*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.25*

Pre-requisites or Co-requisites

Prerequisite: (ENEE13020 Digital Electronics AND ENEE13018 Analogue Electronics) OR ENEX12002 Introductory Electronics.
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 - 2025

- Bundaberg
- Cairns
- Gladstone
- Mackay
- Mixed Mode
- Rockhampton

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 13 January 2025

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 unit evaluation survey

Feedback
The students appreciated the use of Microsoft Teams to provide timely feedback and support for the project.

Recommendation
Microsoft Teams should be used to provide timely feedback and support to students.

Feedback from Unit Coordinator's self-reflection

Feedback
The current hardware platform used in this unit limits the level of difficulty and complexity that the final project can achieve.

Recommendation
A hardware platform capable of handling challenging projects should be introduced.

Unit Learning Outcomes

Information for Unit Learning Outcomes has not been released yet.
This information will be available on Monday 13 January 2025

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 13 January 2025

Textbooks and Resources

Information for Textbooks and Resources has not been released yet.

This information will be available on Monday 17 February 2025

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.