



# COIT20273 *Software Design and Development* Project Term 2 - 2021

Profile information current as at 03/05/2024 05:59 am

All details in this unit profile for COIT20273 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

In this capstone project, you are required to synthesise and demonstrate your technical and generic skills developed across the units studied previously. To achieve this, you will work in small teams with a designated customer to identify a small software application, its requirements (both functional and non-functional) and a software development methodology for its realisation. Your team will then develop a well designed and documented application that meets the identified requirements. In addition to the documented application, your team will also identify and produce the project management and quality assurance components required to ensure that the project is delivered within specified project outcome parameters. Emerging technologies and current research issues will support your design choices.

### Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

Credit Points: *12*

Student Contribution Band: *8*

Fraction of Full-Time Student Load: *0.25*

### Pre-requisites or Co-requisites

Pre-requisites: PMP20007 Project Management Concepts COIT20258 Software Engineering Co-requisites: COIT20259 Enterprise Computing Architecture COIT20257 Distributed Systems: Principles and Development

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 2 - 2021

- Brisbane
- Melbourne
- Online
- Rockhampton
- Sydney

### 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 12-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 25 hours of study per week, making a total of 300 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. **Project (applied)**

Weighting: 100%

### 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 Feedback from ACS accreditation

**Feedback**

The skills development plan should be reinforced.

**Recommendation**

Integrate the SFIA framework into the unit.

#### Feedback from Student unit evaluation and unit coordinators' reflection

**Feedback**

Authentic industry projects provide students real-world experience which is well received.

**Recommendation**

Continue to establish more links with industry and introduce more industry projects into the unit.

## Unit Learning Outcomes

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

1. Apply a systems engineering process, including requirement analysis, application software design, algorithm design, coding and debugging, software testing, and software project management, informed by research into best practice
2. Demonstrate professional standards of software development including technical skills, documentation, software quality assurance, risk mitigation strategies, ethics and professional responsibility
3. Plan and manage the software development project, particularly the scheduling of time and resources and the generation of supporting documentation
4. Work collaboratively as part of a productive team
5. Communicate effectively by using written and oral presentation, understanding the needs of various stakeholders
6. Review and critically evaluate team and individual performance, reflecting on the processes followed and identifying areas for improvement.

Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA is in use in over 100 countries and provides a widely used and consistent definition of ICT skills. SFIA is increasingly being used when developing job descriptions and role profiles.

ACS members can use the tool MySFIA to build a skills profile at

<https://www.acs.org.au/professionalrecognition/mysfia-b2c.html>

This unit contributes to the following workplace skills as defined by SFIA. The SFIA code is included:

- Programming/software development (PROG)
- Project Management (PRMG)
- System Design (DESN)
- Database design (DBDS)
- Enterprise and business architecture (STPL)
- Application support (ASUP)
- Testing (TEST)
- Research (RSCH)
- User experience analysis (UNAN)
- User experience design (HCEV)
- User experience evaluation (USEV)
- Configuration management (SYSP)
- Quality assurance (QUAS)
- Quality standards (QUST)



## Textbooks and Resources

### Textbooks

There are no required textbooks.

### IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Webcam and headset

## Referencing Style

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

## Teaching Contacts

**Jamie Shield** Unit Coordinator  
[j.shield@cqu.edu.au](mailto:j.shield@cqu.edu.au)

## Schedule

### Week 1 Forming - 12 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Workshop: <ul style="list-style-type: none"><li>• Skills Development plan</li><li>• Feasibility study</li><li>• Review software engineering and project management topics</li></ul>		<ul style="list-style-type: none"><li>• Identify project</li><li>• Form groups</li></ul>

### Week 2 Sprint 1 Storming - 19 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Product Owner (PO) (tutor) meeting		<ul style="list-style-type: none"><li>• <b>Submit Skills Development plan</b></li><li>• <b>Submit Feasibility study</b></li><li>• <b>Submit Sprint 1 artefacts</b></li></ul>

### Week 3 Sprint 2 Norming - 26 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Product Owner (PO) (tutor) meeting		<ul style="list-style-type: none"><li>• <b>Submit Sprint 2 artefacts</b></li></ul>

### Week 4 Sprint 3 Design - 02 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Product Owner (PO) (tutor) meeting		<ul style="list-style-type: none"><li>• <b>Submit Design artefacts</b></li><li>• Practise presentation of Sprint 2 review &amp; refine Sprint 3 plan with PO</li></ul>

### Week 5 Sprint 4 Quality and Risks - 09 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
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Product Owner (PO) (tutor) meeting

- **Submit Quality & Risk management plans**
- **Present Sprint 3 review to tutor**
- Refine Sprint 4 plan with PO. The plan will be marked at the next meeting.

#### **Vacation Week - 16 Aug 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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#### **Week 6 Sprint 5 Maturity Increment - 23 Aug 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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Product Owner (PO) (tutor) meeting

- **Present Sprint 4 review**
- Refine Sprint 5 plan with PO.

#### **Week 7 Class Presentation - 30 Aug 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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Presentation

- **Present project to class**

#### **Week 8 Sprint 6 - 06 Sep 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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Product Owner (PO) (tutor) meeting

- Review Sprint 5 & refine Sprint 6 plan with PO. Sprints 5-8 will be marked at the end of the term.

#### **Week 9 Sprint 7 - 13 Sep 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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Product Owner (PO) (tutor) meeting

- Review Sprint 6 & refine Sprint 7 plan.

#### **Week 10 Sprint 8 - 20 Sep 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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Product Owner (PO) (tutor) meeting

- Review Sprint 7 & refine Sprint 8 plan.

#### **Week 11 Public Presentation - 27 Sep 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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Presentation

- **Present project to public**
- **Submit Maturity increment report**
- **Submit all project artefacts including all code, the PM tool contents including the product backlog, user stories, sprint plans, updated quality and risk management plans and updated designs**

#### **Week 12 - 04 Oct 2021**

Module/Topic	Chapter	Events and Submissions/Topic
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No meeting

## Term Specific Information

Unit Coordinator: Jamie Shield, Cairns, [j.shield@cqu.edu.au](mailto:j.shield@cqu.edu.au),  
Office: 07 4037 4750

You are expected to attend each week to, for example, present your sprint reviews.

Even if you enrol on campus, you might be required to join a distance team.

To ease deployment, some teams might choose to use cloud resources. Some cloud resources require a credit card and/or payment.

# Assessment Tasks

## 1 Project Artefacts

### Assessment Type

Project (applied)

### Task Description

You will work in teams using an Agile approach on the realisation of a small software development project. You will develop your project over eight sprints. Some weeks will require the submission of additional artefacts such as your design and quality and risk management plans. Towards the end of the project you will be required to plan and implement an innovation or change to increase the maturity of your software development project skills. There are two major presentations at which you will demonstrate your project to an audience other than your tutor.

You will be required to submit project artefacts such as:

- Skills development plan: assess your own Skills Framework for the Information Age (SFIA) skills against those required by your future career, and create a plan to acquire those skills.
- Feasibility study: you will need to perform a feasibility study to create a business case for the project. You will need to create a budget to plan for expenditures such as cloud computing resources.
- Sprints: you will need to submit artefacts such as code, virtual machines, product backlogs, user stories, sprint plans, sprint reviews, acceptance tests, developer focussed subtasks, issues, videos and presentations to demonstrate that you are delivering business value each week.
- Design: you will need to submit artefacts that communicate your design using techniques such as activity diagramming, and user interface prototyping.
- Quality and Risk management plans: you will need to submit artefacts that provide evidence that you produce quality software and that you manage project risk effectively.
- Maturity increment: you will need to submit a report of an innovation or change that would improve the maturity of some aspect of your project. You will be expected to collect evidence and use industry and research literature to support your arguments.

More details are provided on the unit website.

### Assessments Due

Week	Assessment due	Weight
2	- Skills development plan - Feasibility study - Sprint 1 artefacts	10%
3	Sprint 2 artefacts	10%
4	Design artefacts	10%
5	- Quality & Risk management artefacts - Sprint 3 review	10%
6	Sprint 4 review	10%
7	Practice Presentation	10%
11	- Public Presentation - Maturity increment report - All project artefacts	40%

### Assessment Due Date

Refer to the unit schedule for due dates.

### Return Date to Students

On-time submissions will generally be returned within 1 week. Feedback for the final submission will be returned on Certification day.

### Weighting

100%

## Assessment Criteria

The following are examples of the marking criteria:

Skills development plan	An excellent plan including choice of certificate(s), SFIA codes, goal, rationales and "next steps".
Feasibility study	Feasibility study contains a realistic budget and business case with excellent arguments which include calculations such as the ROI.
Code repo	Repo contains high-quality sprint code & build scripts. Code adheres to a referenced coding standard.
User stories	The product backlog contains high-value user stories and is appropriately prioritised. User stories adhere to template & INVEST. Estimated effort & value are included. Includes excellent acceptance tests.
Sprint plan	User stories in the current plan are decomposed into excellent developer subtasks.
Agile PM tool	The PM tool captures the state of the project completely & accurately
Sprint review	Excellent walkthrough of implemented user stories & explanation of current status of project using PM tool
Design	The most important design choices have been identified & well justified. Reasonable design alternatives have been provided for the 2 most important design choices. Excellent use of appropriate modelling techniques.
Quality	Excellent quality management plan which addresses the encouragement of quality, how quality is measured, and how the team identifies where quality efforts need to focus
Risk	Excellent risk management plan which addresses risk management processes and assesses and responds to the project's risks
Stage presence	Excellent stage presence including well prepared, stands up straight, loud clear voice, good eye contact, does not speak too fast or too slow; appropriate use of cue cards: does not read; appropriate use of time, e.g. all team members present an appropriate amount of time.
Maturity increment	Excellent innovation or change with rationale, implementation, issues encountered & evidence of results. Excellent use of industry & research literature to justify arguments.

Where possible the assessment criteria will be marked based on your team's submission. However, the tutor may mark team criteria individually to account for aspects such as individual productivity and attendance. Criteria related to the skills development plan, sprint 1 artefacts and stage presence will be marked individually.

## Submission Summary

A variety of tool will be used for submission, for example, Moodle, GitHub, Taiga, Jira and OneDrive. You will be submitting links to shared documents and videos. Marks will be deducted if the tutor cannot access the documents and videos through the links. You will need to maintain these links throughout the term to ensure the tutor always has access. In Week 11 you will need to export all documents, excluding videos, and submit them to Moodle.

Code, scripts and other developments artefacts will be submitted weekly to a shared code repository such as GitHub. You will need to perform weekly walkthroughs of your system at your tutor meetings. Each week you will need to deploy the system so that the tutor can use your system on their own device. In Week 11 you will need to export all contents of the code repository and submit it to Moodle.

Project management artefacts such as sprint plans will be submitted by keeping your team's shared Agile project management tool up-to-date and presenting them at your tutor meetings. In Week 11 you will need to export all contents of your project management tool and submit it to Moodle.

Reports such as the following will be submitted as Word documents to Moodle:

- Week 2 Skills development plan
- Week 2 Feasibility study
- Week 11 Maturity increment report

Presentation slides such as the following will be submitted as Powerpoint documents to Moodle:

- Week 4 Design
- Week 5 Quality and Risk management plans
- Week 7 Presentation
- Week 11 Presentation

Every person needs to submit the Skills development plan and Sprint 1. Only one submission per team is required for team submissions.



## Referencing Style

- [Harvard \(author-date\)](#)

## Submission

Online

## Submission Instructions

Please refer to the submission summary above. More details are provided on the unit website.

## Learning Outcomes Assessed

- Apply a systems engineering process, including requirement analysis, application software design, algorithm design, coding and debugging, software testing, and software project management, informed by research into best practice
- Demonstrate professional standards of software development including technical skills, documentation, software quality assurance, risk mitigation strategies, ethics and professional responsibility
- Plan and manage the software development project, particularly the scheduling of time and resources and the generation of supporting documentation
- Work collaboratively as part of a productive team
- Communicate effectively by using written and oral presentation, understanding the needs of various stakeholders
- Review and critically evaluate team and individual performance, reflecting on the processes followed and identifying areas for improvement.

## Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management
- Ethical and Professional Responsibility
- Leadership

## 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