COIT20273 *Software Design and Development Project*
Term 1 - 2024

Profile information current as at 19/05/2024 06:24 am

General Information

Overview

In this integrative capstone project, you are required to synthesise and demonstrate your technical and generic skills developed across the units studied previously. This unit will help you to consolidate your competence with a relevant set of software engineering concepts, practices, and tools. To achieve this, you will work in small teams with a designated customer to identify an authentic problem, document and present the design process, and the results from a developed software solution to the identified problem. In addition to the documented application, your team will also identify and produce the project management, quality assurance, and cyber security components required to ensure that the project is delivered within specified project outcome parameters. You will also evaluate and discuss your contribution to the teamwork and the overall team performance.

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: PPMP20007 Project Management Concepts COIT20246 Networking and Cyber Security COIT20257 Distributed Systems: Principles and Development COIT20258 Software Engineering COIT20259 Enterprise Computing Architecture
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 - 2024

- 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. **Written Assessment**
Weighting: 10%
2. **Written Assessment**
Weighting: 15%
3. **Written Assessment**
Weighting: 25%
4. **Project (applied)**
Weighting: 40%
5. **Presentation**
Weighting: 10%

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 Unit Evaluation Data

Feedback

The response rate for the evaluation survey was below the expected level.

Recommendation

Educate students about the importance of unit evaluation and encourage them to complete the survey.

Unit Learning Outcomes

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

1. Apply a systems engineering process in the context of enterprise application development, 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, cyber security best practices, 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. Critically review individual and team performance, along with identifying areas for improvement.

The Australian Computer Society (ACS), the professional association for Australia's ICT sector, recognises the Skills Framework for the Information Age (SFIA). SFIA is adopted by organisations, governments, and individuals in many 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.
This unit contributes to the following workplace skills as defined by SFIA 8 (the SFIA code is included):

- Requirements definition and management (REQM)
- Programming/software development (PROG)
- Software design (SWDN)
- Database design (DBDS)
- Data modelling and design (DTAN)
- Systems integration and build (SINT)
- Configuration management (CFMG)
- Testing (TEST)
- Research (RSCH)
- User experience evaluation (USEV)
- Application support (ASUP)
- System installation and removal (HSIN)
- Systems and software life cycle engineering (SLEN)
- Information security (SCTY)

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
1 - Written Assessment - 15%			•			
2 - Written Assessment - 10%			•	•		
3 - Written Assessment - 25%	•	•			•	
4 - Project (applied) - 40%	•	•		•		•
5 - Presentation - 10%					•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Knowledge	◦	◦			◦	
2 - Communication	◦		◦	◦	◦	◦
3 - Cognitive, technical and creative skills	◦	◦				
4 - Research	◦					
5 - Self-management	◦	◦	◦	◦		
6 - Ethical and Professional Responsibility				◦		◦
7 - Leadership				◦		◦
8 - Aboriginal and Torres Strait Islander Cultures						

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)
- Zoom (both microphone and webcam capability)
- MySQL Community Server 8.0.26 (available from https://dev.mysql.com/downloads/mysql/)
- JavaFX 11.0.12 (available from https://gluonhq.com/products/javafx/)
- NetBeans 20 (available from: https://netbeans.apache.org/front/main/download/nb20/)
- Open JDK 21 (available from: https://jdk.java.net/21/)
- Scene Builder 21 (available from: https://gluonhq.com/products/scene-builder/)
- Jakarta EE 10 (available from https://jakarta.ee/release/10/)

Referencing Style

All submissions for this unit must use the referencing styles below:

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

For further information, see the Assessment Tasks.

Teaching Contacts

Farzad Sanati Unit Coordinator
f.sanati@cqu.edu.au

Schedule

Week 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Project Management and Project Planning	Form groups & topic explorationForm groups & topic explorationReference book: Software Engineering by Ian Sommerville Chapter 1 Section 1.2 Software Engineering Ethics Chapter 22 22.1 Risk Management 22.3 Teamwork Chapter 23 23.2 Plan-driven development 23.3 Project Scheduling	• Form project group, identify and discuss project topic

Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

Requirements Engineering and Quality Management	Reference book: Software Engineering by Ian Sommerville Chapter 23 23.4 Agile Planning Chapter 4 4.1 Requirements elicitation Chapter 5 5.1 Context Models Chapter 24 24.2 Software Standards 24.4 Quality Management and Agile Development	• Finalize project topic and scope • Work on project proposal

Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
System Modeling	Reference book: Software Engineering by Ian Sommerville Chapter 5 5.2 Interaction models	• Finalize project proposal • Submit project proposal **Project Proposal** Due: Week 3 Friday (22 Mar 2024) 11:45 pm AEST

Week 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Requirements Engineering and Architectural Design	Reference book: Software Engineering by Ian Sommerville Chapter 4 4.1 Functional and Non-Functional Requirements 4.4 Requirements Speciifcation Chapter 6 6.3 Architectural Patterns	Work on: • detailed user stories, • user interfaces, • data structures, • database schema, • software architecture, • platforms/tools/frameworks, • test plan, and • project tracking tool

Week 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Object-Oriented Design and Testing	Reference book: Software Engineering by Ian Sommerville Chapter 7 7.1 Object-Oriented design using the UML Chapter 8 8.2 Test-driven development	• Start developing prototype • Submit Progress Report 1 **Progress Report 1** Due: Week 5 Friday (5 Apr 2024) 11:45 pm AEST

Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Enjoy the break.		

Week 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
		• Keep working on prototype • Track progress • Update GitHub repository

Week 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
System Implementation	Reference book: Software Engineering by Ian Sommerville Chapter 7 7.3 Implementation Issues	• Start developing in-class presentation • Submit Progress Report 2 **Progress Report 2** Due: Week 7 Friday (26 Apr 2024) 11:45 pm AEST

Week 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic

System Implementation		• Keep working on in-class presentation • Keep working on prototype • Track progress • Update GitHub repository

Week 9 - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Configuration management	Reference book: Software Engineering by Ian Sommerville Chapter 24 24.3 Reviews and Inspections Chapter 25 25.1 Version Management 25.2 System Building	• Keep working on in-class presentation • Keep working on prototype • Track progress • Update GitHub repository

Week 10 - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Software Testing	Reference book: Software Engineering by Ian Sommerville Chapter 8 8.3 Release Testing 8.4 User Testing	• Deliver in-class presentation • Start writing report • Keep working on a prototype • Track progress • Update GitHub repository **In-class Project Demonstration and Report** Due: Week 10 Friday (17 May 2024) 11:45 pm AEST

Week 11 - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
		• Keep working on report • Keep working on prototype • Test prototype • Track progress • Update GitHub repository

Week 12 - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
		• Submit report • Complete software development • Complete user acceptance test • Complete final presentation development, and practice

Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic
Final Project Presentation		• Deliver public presentation **Public Presentation and Demonstration of Final Project Outcomes** Due: Review/Exam Week Monday (3 June 2024) 9:00 am AEST

Exam Week - 10 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Contact information for Dr Farzad Sanati: Email: f.sanati@cqu.edu.au; Office: Level 6, 120 Spencer Street, Melbourne Vic 3000; P +61 3 9616 0640 | X 50640.
If you have any queries, please email me and I will get back to you within one business day or so. For an individual discussion, please ring me during business hours (or leave a message if I am not in) and I will return your call as soon as possible.

Assessment Tasks

1 Project Proposal

Assessment Type
Written Assessment

Task Description
This is a **group** assessment. In this assessment, you are required to develop a project proposal for the development of an enterprise application. You should come up with an original or semi-original idea for an enterprise application, which should have some business value.

The project proposal should be written into a document including the following 5 components or sections:

1. Project background
2. Project objective
3. High-level user requirements
4. Hardware and software requirements
5. Risk management and quality assurance plan

The detailed specifications of this assessment will be provided on the Moodle unit website.

Assessment Due Date
Week 3 Friday (22 Mar 2024) 11:45 pm AEST
The assessment must be submitted to Moodle by the due date and time.

Return Date to Students
Week 5 Friday (5 Apr 2024)
The feedback will be returned within two weeks of the submission due date.

Weighting
10%

Assessment Criteria
The assessment criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
You must upload your project proposal as a Microsoft Word document which should include all components or sections outlined in the assessment specification. All group members must submit the same copy of the assignment.

Learning Outcomes Assessed

- 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

2 Progress Report 1

Assessment Type
Written Assessment

Task Description
This is a **group** assessment, however, individuals may receive different scores based on their contributions.

In this assessment, you are required to report progress on the following 8 items:

1. Detailed user stories
2. Wireframes of all user interfaces
3. Major data structures
4. Database schema
5. Software architecture illustrating all components
6. Platforms/languages/tools/frameworks
7. Test plan (should include user acceptance test)
8. Project tracking tool

The detailed specifications of this assessment will be provided on the Moodle unit website.

Assessment Due Date
Week 5 Friday (5 Apr 2024) 11:45 pm AEST
The assessment must be submitted to Moodle by the due date and time.

Return Date to Students
Week 7 Friday (26 Apr 2024)
The feedback will be returned within two weeks of the submission due date.

Weighting
15%

Assessment Criteria
The assessment criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
You must upload your progress report as a Microsoft Word document which should include all components or sections outlined in the assessment specification. All group members must submit the same copy of the assignment.

Learning Outcomes Assessed

- Plan and manage the software development project, particularly the scheduling of time and resources and the generation of supporting documentation

3 Progress Report 2

Assessment Type
Written Assessment

Task Description
This is a **group** assessment, however, individuals may receive different scores based on their contributions. For this assessment, you will demonstrate the current prototype of your enterprise application in the class as well as submit an updated report on the progress.
In the demonstration, you will run the current prototype of your enterprise application in a lab computer/your personal computer/your mobile device to demonstrate the user stories/interfaces/features/business logic that have been fully or partially implemented during the current progress period. You are also required to show evidence of tracking the progress of your project using a project-tracking tool (e.g., Jira).
In the update report, you will provide a brief update on the following 6 items for the current progress period:

1. User stories/interfaces/features/business logic implemented (provide screenshots of your outputs)
2. Implementation details of the various components of the prototype (provide screenshots of your code)
3. Test results for the implemented user stories/interfaces/features/business logic (provide screenshots and annotations)
4. Errors/problems with the implemented user stories/interfaces/features/business logic (provide screenshots, if possible).
5. User stories or other features introduced (if any)
6. User stories or other features dropped or modified (if any)

A copy of the prototype source code must be maintained in a GitHub repository and the link to the repository must be included in the report. The repository must contain the history of all changes in the source code.

The detailed specifications of this assessment will be provided on the Moodle unit website.

Assessment Due Date
Week 7 Friday (26 Apr 2024) 11:45 pm AEST
The assessment must be submitted to Moodle by the due date and time.

Return Date to Students
Week 9 Friday (10 May 2024)
The feedback will be returned within two weeks of the submission due date.

Weighting
25%

Assessment Criteria
The assessment criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
You must upload your progress report as a Microsoft Word document which should include all components or sections outlined in the assessment specification. All group members must submit the same copy of the assignment.

Learning Outcomes Assessed

- Apply a systems engineering process in the context of enterprise application development, 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, cyber security best practices, risk mitigation strategies, ethics and professional responsibility
- Communicate effectively by using written and oral presentation, understanding the needs of various stakeholders

4 In-class Project Demonstration and Report

Assessment Type
Project (applied)

Task Description
This is a **group** assessment, however, individuals may receive different scores based on their contributions. This assessment has two components - **Part 1: In-class Presentation and Demonstration**, and **Part 2: Final Report**. Part1 and Part 2 submissions are due in Week 10 and Week 12 respectively.

Part 1: In-class Presentation and Demonstration (20 marks)
In this part, you are required to present all aspects of your enterprise application including the project background, objective, user stories, major data structures, database design, software architecture, sequence diagram, platforms/tools/frameworks, test results (including user acceptance test), and lessons learnt. Moreover, you will run the current prototype of your enterprise application in a lab computer/your personal computer/your mobile device to demonstrate the user stories/interfaces/features/business logic that have been fully or partially implemented during the current progress period. You are also required to show evidence of tracking the progress of your project using a project tracking tool (e.g., Jira).

For this part, you must submit a presentation file to Moodle by the end of Week 10.

Part 2: Final Report (20 marks)
In this part, you are required to develop a final report containing a final project summary, user stories, major data structures, database design, software architecture, sequence diagram, platforms/tools/frameworks, test results (including user acceptance test), user manual and a project reflection.

A copy of the prototype source code must be maintained in a GitHub repository and the link to the repository must be included in the report.

For this part, you must submit the report as well a copy of the final source code to Moodle by the end of Week 12.

The detailed specification of this assessment will be provided on the Moodle unit website.

Please note: This assessment task is selected to be included in your course-wide portfolio. The outcomes/artifacts of this assessment must be uploaded to Portfolium (https://portfolium.com/activity) by the submission due dates in addition to your submission to Moodle for marking.

Assessment Due Date
Week 10 Friday (17 May 2024) 11:45 pm AEST
Part 1 presentation must be submitted by Week 10 Friday 11:45 pm AEST. Part 2 report and source code must be submitted by Week 12 Friday 11:45 pm AEST.

Return Date to Students
Week 12 Friday (31 May 2024)
The feedback will be returned within two weeks of the corresponding submission due dates.

Weighting
40%

Assessment Criteria
The assessment criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
You must upload your presentation as a PowerPoint Presentation file, your report as a Microsoft Word file, and the source code as a Zip file. All group members must submit the same copy of the assignment.

Learning Outcomes Assessed

- Apply a systems engineering process in the context of enterprise application development, 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, cyber security best practices, risk mitigation strategies, ethics and professional responsibility
- Work collaboratively as part of a productive team
- Critically review individual and team performance, along with identifying areas for improvement.

5 Public Presentation and Demonstration of Final Project Outcomes

Assessment Type
Presentation

Task Description
This is a **group** assessment. In this assessment, each group is required to present their final project outcomes in a public presentation. Each member of a group MUST take part in the presentation. In general, all team members will receive the same mark in this assessment. However, if performance varies significantly across team members, individual marks can be awarded.

The presentation will cover:

1. Demonstration of a fully running enterprise application
2. Presentation of the final project outcomes

Each group will have **15-20 minutes** to present the above items to the plenary.

With (1) above, it is advised that each group must install their enterprise application on their personal computer/mobile device prior to the delivery of the presentation. The mobile app must be demonstrated during the presentation.

With (2) above, each group must also present all aspects of their enterprise application development project covering the project background, objective, user stories, major data structures, database design, software architecture, sequence diagram, platforms/tools/frameworks, test results (including user acceptance test), and lessons learnt.

The final presentation session will be held on Monday Review/Exam Week. The presentation session will be a conference-style event, running up to 1 day. Groups will be assigned to present at time slots during the day, and also be required to view presentations of other groups. You will have to make yourself available for the whole day on the day of presentation. The Head of Course or Unit Coordinator will schedule the time of presentation.

The detailed specification of this assessment will be provided on the Moodle unit website.

Please note: This assessment task is selected to be included in your course-wide portfolio. The outcomes/artifacts of this assessment must be uploaded to Portfolium (https://portfolium.com/activity) by the submission due date in addition to your submission to Moodle for marking.

Assessment Due Date
Review/Exam Week Monday (3 June 2024) 9:00 am AEST
The assignment must be submitted to Moodle by the above time and date.

Return Date to Students

The feedback will be returned on the day of certification of grades.

Weighting
10%

Assessment Criteria
The assessment criteria will be provided on the Moodle unit website.

Referencing Style

- Harvard (author-date)
- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
The submission should contain your presentation file, fully running enterprise application, and a link to the GitHub repository of your source code. All group members must submit the same copy of the assignment.

Learning Outcomes Assessed

- Communicate effectively by using written and oral presentation, understanding the needs of various stakeholders

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