



COIT13235 Enterprise Software Development

Term 2 - 2022

Profile information current as at 13/12/2025 03:59 pm

All details in this unit profile for COIT13235 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 introduces you to the practical issues involved in the design and implementation of robust enterprise software applications enabling business-to-business and business-to-customer operations. You will learn data persistence and management of persistent objects extending your knowledge of object-oriented programming. You will learn to use well-known design patterns to build portable, highly available and maintainable software applications that require integrated use of several open-source tools. You will work in a small team to design and develop a 3-tier enterprise system with a data persistence tier, business logic layer, and a web-based presentation tier. Issues and consequences of complex computing will be discussed in the context of enterprise computing architecture and technology.

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

Prerequisite: COIT11134 and COIT11237 OR COIT11134 and COIT12167

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 - 2022

- Brisbane
- Cairns
- Melbourne
- Online
- Rockhampton
- Sydney
- Townsville

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 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 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: 20%

2. **Practical and Written Assessment**

Weighting: 30%

3. **Practical and Written Assessment**

Weighting: 50%

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 Student feedback and Unit Coordinator's reflection

Feedback

Students and tutors spent too much time fixing software configuration problems instead of the unit's learning activities.

Recommendation

Update the software configuration and lab instructions to simplify the setup and configuration of Glassfish and MySQL. Also, change the first tutorial's activities to focus on setting up the software environment and follow up briefly on subsequent tutorials.

Feedback from Student feedback and Unit Coordinator's reflection

Feedback

Unit content is outdated and lacks industry's current practices and trends.

Recommendation

Identify textbooks and/or resources that cover Enterprise Software Development with state-of-the-art frameworks/tools such as Spring Framework, REST Services, and Microservices.

Unit Learning Outcomes

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

1. Compare the major enterprise software architectures
2. Investigate the design options available for a given scenario depicting a complex enterprise problem
3. Develop software applications using persistent objects and object-relational mapping
4. Build a 3-tiered enterprise software system integrating data persistence, business logic, and web tiers
5. Analyse the effectiveness of enterprise software systems for business operations involving diverse groups of stakeholders with varying needs
6. Work collaboratively in a team contributing to productive software development.

The Australian Computer Society (ACS) recognises the Skills Framework for the Information Age (SFIA). SFIA provides a consistent definition of ICT skills. SFIA is adopted by organisations, governments and individuals in many countries and is increasingly 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)
- Data modelling and design (DTAN)
- Database design (DBDS)
- Software design (SWDN)
- Systems design (DESN)
- Testing (TEST)
- Systems integration and build (SINT)
- Release and deployment (RELM)
- Application support (ASUP)

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 - 20% | • | | | | | |
| 2 - Practical and Written Assessment - 30% | | • | • | | | • |
| 3 - Practical and Written Assessment - 50% | | | • | • | • | • |

Alignment of Graduate Attributes to Learning Outcomes

| Graduate Attributes | Learning Outcomes | | | | | |
|---|-------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 - Communication | • | • | • | • | • | • |
| 2 - Problem Solving | | | • | • | | |
| 3 - Critical Thinking | • | • | • | • | • | |
| 4 - Information Literacy | • | • | | | • | |
| 5 - Team Work | | | • | • | | • |
| 6 - Information Technology Competence | • | • | • | • | | |
| 7 - Cross Cultural Competence | | | | | • | • |
| 8 - Ethical practice | | | | • | | • |
| 9 - Social Innovation | | | | | | |
| 10 - Aboriginal and Torres Strait Islander Cultures | | | | | | |

Alignment of Assessment Tasks to Graduate Attributes

| Assessment Tasks | Graduate Attributes | | | | | | | | | |
|--|---------------------|---|---|---|---|---|---|---|---|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 - Written Assessment - 20% | • | | • | • | | • | | | | |
| 2 - Practical and Written Assessment - 30% | • | • | • | • | • | • | | | | |
| 3 - Practical and Written Assessment - 50% | • | | • | • | • | • | • | • | | |

Textbooks and Resources

Textbooks

COIT13235

Prescribed

Beginning EJB in Java EE 8: Building Applications with Enterprise JavaBeans

Edition: 1st (2018)

Authors: Wetherbee, Jonathan ; Nardone, Massimo ; Rathod, Chirag ; Kodali, Raghu

Berkeley, CA: Apress L. P

ISBN: 9781484235737

Binding: eBook

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Supplementary

Spring Start Here

Edition: 1 (2021)

Authors: Laurentiu Spilca

Manning Publications

ISBN: 9781617298691

Binding: eBook

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Zoom (both microphone and webcam capability)
- NetBeans 13
- OpenJDK 18.0.1.1 from <https://jdk.java.net/18/>
- MySQL Community Server 8.0.29 from <https://dev.mysql.com/downloads/mysql>
- GlassFish 6.2.5 Server from <https://glassfish.org/download>

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Farzad Sanati Unit Coordinator

f.sanati@cqu.edu.au

Salahuddin Azad Unit Coordinator

s.azad@cqu.edu.au

Schedule

Week 1 - 11 Jul 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|--------------------------------|----------------|------------------------------|
| Enterprise Computing & Java EE | Chapters 1 & 4 | |

Week 2 - 18 Jul 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|--------------|---------|------------------------------|
|--------------|---------|------------------------------|

| | |
|---------------------------|-----------|
| Object-Relational Mapping | Chapter 5 |
|---------------------------|-----------|

Week 3 - 25 Jul 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|-----------------------------|----------------|------------------------------|
| Managing Persistent Objects | Chapters 5 & 6 | |

Week 4 - 01 Aug 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|-------------------------|-----------|------------------------------|
| Callbacks and Listeners | Chapter 6 | |

Week 5 - 08 Aug 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|-----------------------|-----------|--|
| Enterprise Java Beans | Chapter 7 | Assignment 1 Due: Week 5 Friday (12 Aug 2022) 11:45 pm AEST |

Vacation Week - 15 Aug 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|-----------------------|---------|------------------------------|
| Student Vacation Week | | |

Week 6 - 22 Aug 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---------------|----------------|------------------------------|
| Session Beans | Chapters 7 & 8 | |

Week 7 - 29 Aug 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|--|-----------|------------------------------|
| Callbacks, Timer Service and Authorization | Chapter 8 | |

Week 8 - 05 Sep 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|------------------|------------|--|
| JavaServer Faces | Chapter 10 | Assignment 2 Due: Week 8 Friday (9 Sept 2022) 11:45 pm AEST |

Week 9 - 12 Sep 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|----------------------|------------|------------------------------|
| Pages and Components | Chapter 10 | |

Week 10 - 19 Sep 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---------------------------|------------|------------------------------|
| Processing and Navigation | Chapter 11 | |

Week 11 - 26 Sep 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|---------------------|------------|------------------------------|
| Restful Web Service | Chapter 15 | |

Week 12 - 03 Oct 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|--------------|------------|------------------------------|
| Messaging | Chapter 13 | |

Review/Exam Week - 10 Oct 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|-------------------------|---------|--|
| Assignment 3 Submission | | Assignment 3 Due: Review/Exam Week Friday (14 Oct 2022) 11:45 pm AEST |

Exam Week - 17 Oct 2022

| Module/Topic | Chapter | Events and Submissions/Topic |
|--------------|---------|------------------------------|
|--------------|---------|------------------------------|

Term Specific Information

Contact information for Dr Farzad Sanati: Email: f.sanati@cqu.edu.au; Office: Room 1.17, CQU Townsville Campus; P +61 7 4726 5386 | X 55386.

Assessment Tasks

1 Assignment 1

Assessment Type

Written Assessment

Task Description

Your task for this assignment is to write a technical review report on the topic of current enterprise computing platforms: Java EE, Service-Oriented Computing and Cloud. The purpose of this assignment is to assess your review competency in terms of critiquing ability, clarification of technical issues, and formal academic report writing.

The complete assignment specification can be accessed from the Moodle unit site.

Assessment Due Date

Week 5 Friday (12 Aug 2022) 11:45 pm AEST

You will have to upload the assignment to Moodle by the above due date and time.

Return Date to Students

Week 7 Friday (2 Sept 2022)

Within 2 weeks of the submission due date.

Weighting

20%

Assessment Criteria

The assignment will be assessed mainly against the depth of the technical content, clarity of writing and citation quality. The detailed marking criteria can be accessed from the Moodle unit site.

Referencing Style

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

Submission

Online

Submission Instructions

You must submit your assignment via the online submission system on the Moodle unit site.

Learning Outcomes Assessed

- Compare the major enterprise software architectures

Graduate Attributes

- Communication
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Assignment 2

Assessment Type

Practical and Written Assessment

Task Description

In this assignment, you are required to work on a three-tier enterprise software given an application scenario. Your task

for this assignment is to design, implement and test only the persistence tier. The purpose of this assignment is to assess your competency of applying Java Persistence API (JPA) to design and manipulate persistence entities.

The assignment specification can be accessed from the Moodle unit site.

Assessment Due Date

Week 8 Friday (9 Sept 2022) 11:45 pm AEST

You will have to upload the assignment to Moodle by the above due date and time.

Return Date to Students

Week 10 Friday (23 Sept 2022)

Within 2 weeks of the submission due date.

Weighting

30%

Assessment Criteria

The assignment will be assessed mainly against the documentation (design and test) quality, and software implementation correctness. The detailed marking criteria can be accessed from the Moodle unit site.

Referencing Style

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

Submission

Online

Submission Instructions

You must submit your assignment via the online submission system from the Moodle unit site.

Learning Outcomes Assessed

- Investigate the design options available for a given scenario depicting a complex enterprise problem
- Develop software applications using persistent objects and object-relational mapping
- Work collaboratively in a team contributing to productive software development.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

3 Assignment 3

Assessment Type

Practical and Written Assessment

Task Description

The application scenario for this assignment is the same as Assignment 2. You will work as part of a small team to design, implement, test and document a complete three-tier enterprise software. The purpose of this assignment is to assess your competency in enterprise computing paradigms, such as Java ServerFaces (JSF), Enterprise Java Beans (EJB), Java Persistence API (JPA) programming, and interoperation between the tiers of an enterprise software. Your ability to work collaboratively in a small team will also be assessed.

The complete assignment specification can be accessed from the Moodle unit site.

Assessment Due Date

Review/Exam Week Friday (14 Oct 2022) 11:45 pm AEST

You will have to upload the assignment to Moodle by the above due date and time.

Return Date to Students

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

Weighting

50%

Assessment Criteria

The assignment will be assessed mainly against the documentation (design and test) quality, software implementation correctness, and team work report. The detailed marking criteria can be accessed from the Moodle unit site.

Referencing Style

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

Submission

Online Group

Submission Instructions

You must submit your assignment via the online submission system on the Moodle unit site.

Learning Outcomes Assessed

- Develop software applications using persistent objects and object-relational mapping
- Build a 3-tiered enterprise software system integrating data persistence, business logic, and web tiers
- Analyse the effectiveness of enterprise software systems for business operations involving diverse groups of stakeholders with varying needs
- Work collaboratively in a team contributing to productive software development.

Graduate Attributes

- Communication
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

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