COIT12211 *Introduction to Blockchain Technologies*
Term 3 - 2026

Profile information current as at 12/11/2026 11:52 am

All details in this unit profile for COIT12211 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
Blockchain is a decentralised digital ledger with a growing list of records called blocks, which contain timestamp data, cryptographic information and transaction details. Blockchain is considered a disruptive and emerging technology, with a wide range of potential applications despite being mainly associated with cryptocurrency. The use of blockchain technologies has grown exponentially over the years in many industries including retail, service and finance. While there is a huge potential for blockchain technologies in many industries, there currently exists a blockchain skills shortage. This unit will introduce you to the blockchain concepts, business applications and security concerns. In addition, the unit complements this knowledge with opportunities to design and develop your own blockchain applications.

Details
Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
Pre-requisite COIT11238
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 3 - 2026
- Online

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

Assessment Task	Part Weighting (% of assessment)	Assessment Security Level	Gen AI Guidance Levels
1. Solidity Practical Quiz (*20% of unit*)			
Solidity Practical Quiz (Online Quiz(zes))	100% of 20%	Low	AI-Assisted (Guided Collaboration)
2. Group Presentation: Blockchain Business Case (*30% of unit*)			
Group Presentation: Blockchain Business Case (Presentation)	100% of 30%	Medium	AI-Assisted (Guided Collaboration)
3. Solution Development: Smart Voting Application (*50% of unit*)			
Solution Development: Smart Voting Application (Group Work)	100% of 50%	Medium	AI-Assisted (Guided Collaboration)

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
- 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 Unit coordinator's reflection and Teaching Team feedback

Feedback
Students with no programming background struggled with programming content.

Recommendation
Introduce students to basic-level solidity programming and then guide them in developing blockchain applications.

Feedback from In-class student feedback

Feedback
Students were unable to install and configure blockchain tools on the lab PCs.

Recommendation
Identify and use online tools to avoid the need for installing and configuring blockchain tools on lab PCs.

Unit Learning Outcomes

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

1. Explain the fundamentals of blockchain technologies
2. Examine the application of blockchain technologies in various industries
3. Prepare a business case for blockchain technologies adoption
4. Design an enterprise blockchain application
5. Implement an enterprise blockchain application
6. Report relevant critical success factors and best practices in blockchain technologies adoption.

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, providing 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 9 (the SFIA code is included):

- Sustainability (SUST)
- Business Process Improvement (BPRE)
- Innovation management (INOV)
- Information Security (SCTY)
- Technology service management (ITMG)

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. Assessment 1 *(20% of unit)* Online Quiz(zes)	•	•		•		•

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
2. Assessment 2 *(30% of unit)* Presentation	•	•	•	•	•	
3. Assessment 3 *(50% of unit)* Group Work			•		•	•

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 - First Nations Knowledges						

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)

Referencing Style

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

Teaching Contacts

Mahmoud El Khodr Unit Coordinator
m.elkhodr@cqu.edu.au

Schedule

Week 1 - 09 Nov 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Blockchain Technology		
Week 2 - 16 Nov 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Types of Blockchain		
Week 3 - 23 Nov 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Cryptography		
Week 4 - 30 Nov 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Blockchain Network		
Week 5 - 07 Dec 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Blockchain Development		Solidity practical activities in Remix
Week 6 - 14 Dec 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Smart Contracts		Week 6 tutorial: SimpleVote smart contract, the starting point for Assessment 3. Solidity practical activities in Remix.
Mid-Term Break - 21 Dec 2026		
Module/Topic	Chapter	Events and Submissions/Topic
Week 7 - 04 Jan 2027		
Module/Topic	Chapter	Events and Submissions/Topic
Blockchain Applications		Solidity Practical Quiz Due: Week 7 Friday (8 Jan 2027) 11:59 pm AEST
Week 8 - 11 Jan 2027		
Module/Topic	Chapter	Events and Submissions/Topic
Blockchain and Cloud Computing		
Week 9 - 18 Jan 2027		
Module/Topic	Chapter	Events and Submissions/Topic
Blockchain and Other Emerging Technologies - I		Group Presentation: Blockchain Business Case Due: Week 9 Friday (22 Jan 2027) 11:59 pm AEST
Week 10 - 25 Jan 2027		
Module/Topic	Chapter	Events and Submissions/Topic
Blockchain and Other Emerging Technologies - II		

Week 11 - 01 Feb 2027

Module/Topic	Chapter	Events and Submissions/Topic
Blockchain Best Practices		

Week 12 - 08 Feb 2027

Module/Topic	Chapter	Events and Submissions/Topic
Solution Development		Solution Development: Smart Voting Application Due: Week 12 Friday (12 Feb 2027) 11:59 pm AEST

Exam Week - 15 Feb 2027

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Unit Coordinator: Dr Mahmoud Elkhodr
m.elkhodr@cqu.edu.au

Assessment Tasks

1. Solidity Practical Quiz (*20% of unit*)

Online Quiz(zes)

Assessment Title
Solidity Practical Quiz

Task Description
This is an individual practical assessment delivered as a Solidity practical quiz through Moodle.
Students complete three practical checks in Remix, using the Remix VM and test Ether only, and submit screenshot evidence of their own execution for each check. Personalised quiz values, derived from the student identification number, are used so that the required evidence is specific to each student.
The quiz assesses the foundational Solidity and Remix skills developed in the Week 5 and Week 6 practical activities, namely creating, compiling, deploying and interacting with a smart contract. Each screenshot must clearly show the required contract, result, error message or other evidence.
Only one attempt is permitted. Further instructions are provided in the quiz on the unit Moodle site.

Number of Quizzes
1

Frequency of Quizzes
Other

Assessment Due Date
Week 7 Friday (8 Jan 2027) 11:59 pm AEST
Week 7. The quiz is completed individually in Moodle under the conditions stated in the quiz instructions.

Return Date to Students
Week 9 Friday (22 Jan 2027)

Weighting
100% of 20%

Assessment Criteria
The quiz is assessed on whether each of the three practical checks has been completed correctly in Remix.
Marks are awarded for a correct contract, deployment or interaction as specified in each check, for screenshots that clearly show the required evidence (the contract, result, error message or other output), and for evidence that originates from the student's own Remix execution using the personalised quiz values.
No written explanation is required unless a check specifically requests one.

Referencing Style
Harvard (author-date)

Submission
Online

Submission Instructions
Submitted online as screenshot uploads for each of the three checks in the Moodle quiz. One attempt only.

Learning Outcomes Assessed
- Explain the fundamentals of blockchain technologies
- Examine the application of blockchain technologies in various industries
- Design an enterprise blockchain application
- Report relevant critical success factors and best practices in blockchain technologies adoption.

2. Group Presentation: Blockchain Business Case (*30% of unit*)

Presentation

Assessment Title
Group Presentation: Blockchain Business Case

Task Description
This is a group assessment in which groups of up to four students select a real or realistic problem in a business, industry, workplace or community setting and decide, with justification, whether blockchain is a sensible way to solve it. The group presents its position as a recorded presentation of 8 to 10 minutes supported by approximately 8 to 10 slides. The presentation covers the problem and its context, the current process and stakeholders, why blockchain might help, an honest comparison with a conventional database or cloud system using a supplied template, the feasibility and direction of a possible solution, and the risks, limitations and assumptions. Concluding that blockchain is not a good fit is an acceptable result provided the reasoning is sound. Each group selects and reads one anchor source from a supplied bank, or an equivalent credible source, and uses it as a fixed reference point for judging any generative AI output. Generative AI use is permitted provided the SAGE process is followed and recorded in a short SAGE log with a reflection. Each group submits the recorded presentation, the slides, a reference list in Harvard (author-date) style, a contribution statement, and the SAGE log and reflection.
All members are expected to contribute to the research, the slides and the recording.

Assessment Due Date
Week 9 Friday (22 Jan 2027) 11:59 pm AEST
The recorded presentation, slides, reference list, contribution statement, and SAGE log and reflection are submitted together.

Return Date to Students
Week 11 Friday (5 Feb 2027)

Weighting
100% of 30%

Assessment Criteria
The presentation is assessed on problem definition and context, including a specific and realistic case with clear stakeholders; blockchain suitability, including a reasoned comparison with a simpler database alternative tested against the chosen anchor source; research quality and use of the anchor, including credible sources and no unverified or invented references; the realism and feasibility of the solution direction; the quality of the recorded presentation, including structure, delivery, readable slides, sensible timing and contributions from all members; and the group contribution statement and SAGE log, which show that the group tested generative AI output against its anchor and owned the decisions.

Referencing Style
Harvard (author-date)

Submission
Online Group

Submission Instructions
One submission is made per group through the group Moodle link. All group members submit the same files, and every member's name is listed.

Learning Outcomes Assessed
- Explain the fundamentals of blockchain technologies
- Examine the application of blockchain technologies in various industries
- Prepare a business case for blockchain technologies adoption
- Design an enterprise blockchain application
- Implement an enterprise blockchain application

3. Solution Development: Smart Voting Application (*50% of unit*)

Group Work

Assessment Title
Solution Development: Smart Voting Application

Task Description
This is a group practical development project in which groups of four students build a Solidity smart contract for a smart voting application in Remix. Using the Remix VM and its supplied test accounts, the contract must support at least three voting options, one vote per blockchain address, rejection of invalid options, a voting period governed by block time, a contract owner, owner-controlled early closure, the reporting of current results, and winner and tie handling.
Each group evidences the contract through ten required tests, with screenshots recorded in a supplied Answer Template, and explains the design of the contract in a written submission of approximately 800 to 1,000 words.
Part A (30 marks) assesses the working solution and the written submission.
Part B (20 marks) assesses a recorded demonstration of the solution in Remix, in which every group member presents a part of the work, so that individual understanding and contribution are verified. Generative AI may be used for guidance, syntax support, troubleshooting, explanation and code review, provided that the SAGE process is applied and briefly recorded in the Answer Template and that the group can explain everything it submits.
Each group submits the completed Answer Template, the final Solidity source file and the recorded demonstration.
Marks are not awarded for interface design, visual polish or the quantity of code.

Assessment Due Date
Week 12 Friday (12 Feb 2027) 11:59 pm AEST
The completed Answer Template, the final Solidity source file and the recorded demonstration are submitted together by the due date.

Return Date to Students
Exam Week Friday (19 Feb 2027)
On grade cerification day

Weighting
100% of 50%

Assessment Criteria
The assessment is marked out of 50, comprising Part A (30 marks) and Part B (20 marks). Part A assesses required functionality across the eight requirements (10 marks), smart contract quality including validation, access control, reason strings and comments (10 marks), testing evidence for the ten required tests (5 marks), and the Answer Template and SAGE section (5 marks).
Part B assesses the recorded demonstration on application overview and structure (5 marks), code walkthrough and understanding (5 marks), deployment and operation in Remix (5 marks), and the demonstration of behaviour and individual contribution (5 marks). Individual contribution is assessed through the recording, and a member who does not appear in it cannot be awarded the marks associated with Part B.

Referencing Style
Harvard (author-date)

Submission
Online Group

Submission Instructions
One submission is made per group through the group Moodle link, consisting of the completed Answer Template, the final Solidity source file and the recorded demonstration. File names include the unit code, assessment number and Moodle group number.

Learning Outcomes Assessed
- Prepare a business case for blockchain technologies adoption
- Implement an enterprise blockchain application
- Report relevant critical success factors and best practices in blockchain technologies adoption.

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