

COIT20260 *Cloud Computing and Internet of Things for Smarter Applications*

Term 2 - 2025

Profile information current as at 11/05/2026 09:38 pm

All details in this unit profile for COIT20260 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

Emerging technologies, such as cloud computing and the Internet of Things (IoT), enable you to rapidly design, develop and deploy smart applications. In this unit, you are introduced to the software, devices, and techniques supporting these technologies. You will learn the fundamentals of cloud computing as well as various cloud environments and services, such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS). You will use a Platform as a Service (PaaS) cloud environment, gaining practical experience in designing, developing and deploying smarter cloud-based applications.

Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Pre-requisite units: COIT20245 Introduction to Programming and COIT20246 ICT Services Management

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 - 2025

- 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 Postgraduate 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. Group Work

Weighting: 30%

3. Project (applied)

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 Evaluations

Feedback

Tutorials need to be updated to ensure students have access to the AWS and Azure platforms, aligning with tutorial requirements.

Recommendation

The introductory tutorials will be updated with clear instructions to ensure students have their AWS and Azure accounts ready for tutorial activities.

Unit Learning Outcomes

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

1. Evaluate cloud computing concepts and IoT components for smart applications/systems development
2. Analyse the application of cloud computing and IoT technologies in different scenarios
3. Design and develop cloud based smart applications for business solutions
4. Deploy a smart application using cloud computing and IoT technologies.

The Australian Computer Society (ACS) 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 7](#) (the SFIA code is included)

- Systems design (DESN)
- Systems integration and build (SINT)
- Programming/software development (PROG)
- Testing (TEST)
- Release and deployment (RELM)
- Application support (ASUP)
- Solution architecture (ARCH)
- IT infrastructure (ITOP)

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
1 - Written Assessment - 20%	●	●		
2 - Group Work - 30%	●	●	●	
3 - Project (applied) - 50%			●	●

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes

Learning Outcomes

	1	2	3	4
1 - Knowledge	○	○	○	○
2 - Communication	○	○		
3 - Cognitive, technical and creative skills	○		○	○
4 - Research		○		
5 - Self-management				○
6 - Ethical and Professional Responsibility			○	
7 - Leadership		○		
8 - First Nations Knowledges				
9 - 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
1 - Written Assessment - 20%	○	○	○						
2 - Group Work - 30%	○	○		○			○		
3 - Project (applied) - 50%	○		○		○	○			

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)
- AWS Academy Student Accounts

Referencing Style

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

Teaching Contacts

Salahuddin Azad Unit Coordinator
s.azad@cqu.edu.au

Schedule

Week 1 - 14 Jul 2025

Module/Topic	Chapter	Events and Submissions/Topic
Cloud computing and modern networking	Online resources and recorded videos on Moodle	Practical work during the tutorial. - Create your AWS student's account - Create your Azure Student's account

Week 2 - 21 Jul 2025

Module/Topic	Chapter	Events and Submissions/Topic
Cloud-enabling Technologies and Virtualization	Online resources and recorded videos on Moodle	Practical work during the tutorial. - Getting Started with the AWS Management Console

Week 3 - 28 Jul 2025

Module/Topic	Chapter	Events and Submissions/Topic
Data Centers & Managing Data in the Cloud	Online resources and recorded videos on Moodle	Practical work during the tutorial. - AWS Simple Storage Service (S3) and Relational Database Services (RDB) on AWS

Week 4 - 04 Aug 2025

Module/Topic	Chapter	Events and Submissions/Topic
Cloud Architecture and Design Patterns	Online resources and recorded videos on Moodle	Practical work during the tutorial. - Create and manage a virtual machine EC2 on AWS

Week 5 - 11 Aug 2025

Module/Topic	Chapter	Events and Submissions/Topic
Designing Cloud-based Networks	Online resources and recorded videos on Moodle	Practical work during the tutorial. - Creating a VPC on AWS Cloud Assessment 1 - Written Report Due: Week 5 Friday (15 Aug 2025) 11:45 pm AEST

Vacation Week - 18 Aug 2025

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 25 Aug 2025

Module/Topic	Chapter	Events and Submissions/Topic
Reliability assurance and Edge/Fog Computing in cloud computing	Online resources and recorded videos on Moodle	Practical work during the tutorial. - Creating a Load Balancer on AWS

Week 7 - 01 Sep 2025

Module/Topic	Chapter	Events and Submissions/Topic
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Internet of Things (IoT) and Digital Twin over the cloud	Online resources and recorded videos on Moodle	Practical work during the tutorial. - Azure Fundamentals
Week 8 - 08 Sep 2025 Module/Topic	Chapter	Events and Submissions/Topic Practical work during the tutorial. - Azure IoT Hub
Machine Learning on Cloud for Intelligent Applications	Online resources and recorded videos on Moodle	Assessment 2 - Group Project Due: Week 8 Friday (12 Sept 2025) 11:45 pm AEST
Week 9 - 15 Sep 2025 Module/Topic	Chapter	Events and Submissions/Topic Practical work during the tutorial.
Cloud Security and Ethical Considerations	Online resources and recorded videos on Moodle	- Support on your Project — Part A
Week 10 - 22 Sep 2025 Module/Topic	Chapter	Events and Submissions/Topic Practical work during the tutorial.
Emerging Technologies over the Cloud	Online resources and recorded videos on Moodle	- Support on your Project — Part B
Week 11 - 29 Sep 2025 Module/Topic	Chapter	Events and Submissions/Topic Practical work during the tutorial.
Cloud-enabling convergence of Internet of Everything (IoE), big data and intelligence	Online resources and recorded videos on Moodle	- Working on your Project
Week 12 - 06 Oct 2025 Module/Topic	Chapter	Events and Submissions/Topic Assignment 3 Project: Discussion and addressing questions.
Revision of content		Assessment 3 - Final Project Due: Week 12 Friday (10 Oct 2025) 11:45 pm AEST
Review/Exam Week - 13 Oct 2025 Module/Topic	Chapter	Events and Submissions/Topic
Exam Week - 20 Oct 2025 Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Contact information for Dr Salahuddin Azad: Email: s.azad@cqu.edu.au; Office: Level 6, 120 Spencer Street, Melbourne Vic 3000; P +61 3 9616 0680 | X 50680.

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 Assessment 1 - Written Report

Assessment Type
Written Assessment

Task Description

This is an individual assignment.

In this assignment, you will write a report that will let you compare and contrast between two Platform as a Service (PaaS) cloud providers and their services. You are also required to create a simple application in each of the cloud services as part of your comparative exercise.

The assignment requires you to complete the following tasks:

1. Identify two PaaS cloud provider and investigate all the services they provide. You may create a trial account to try their services.
2. Create a simple application in both of the cloud platforms.
3. Compare and contrast your chosen cloud providers and services.
4. Prepare a report based on the criteria given in the assignment specification.

AI ASSESSMENT SCALE - AI PLANNING

You may use AI for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.

GUIDELINES FOR AI TOOL USAGE FOR STUDENTS

AI may be used for pre-task activities such as brainstorming, outlining and initial research. You may use AI-assisted automatic speech recognition to transcribe notes, AI tools to convert notes into outlines, and AI tools to brainstorm or suggest improvements to already created work. Image generation technologies might be used to generate starting points for designs or tools used to explore possibilities for producing software. You must then use the AI-generated ideas as the starting point and apply your skills and knowledge to refine and improve the initial ideas to the final submission. No GenAI-created content without changes should be included in the final submissions.

Detailed information about this assignment can be accessed from the Moodle unit website.

Assessment Due Date

Week 5 Friday (15 Aug 2025) 11:45 pm AEST

Online via Moodle

Return Date to Students

Week 7 Friday (5 Sept 2025)

Within 2 weeks of submission

Weighting

20%

Assessment Criteria

The students will be assessed mainly against their

1. knowledge about existing cloud providers;
2. ability to identify and evaluate available services of a cloud provider;
3. analytical capability to compare and contrast the services of different service providers.

More detailed marking criteria can be accessed from the Moodle unit website.

Referencing Style

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

Submission

Online

Submission Instructions

Submit via Moodle

Learning Outcomes Assessed

- Evaluate cloud computing concepts and IoT components for smart applications/systems development
- Analyse the application of cloud computing and IoT technologies in different scenarios

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills

2 Assessment 2 - Group Project

Assessment Type

Group Work

Task Description

This is a group assignment and must be accomplished in a group of at least 3 and maximum 4 members.

This assessment requires students to design and implement a scalable, load-balanced, and secure cloud architecture on AWS to host a web application, demonstrating skills in cost optimization, network configuration, and maintaining high availability according to AWS Well-Architected Framework best practices. By separating layers of the application (web server and database) and configuring robust network security, students will showcase their ability to integrate key AWS services, handle peak user load, and maintain an efficient, secure environment.

At the end of the project, the group will submit a report describing their planning with justifications, the architectural diagram they have developed, and any challenges they have faced during implementation. The performance of the cloud architecture and the web application will be monitored through the AWS Academy platform, ensuring alignment with the AWS best practices while verifying that each student can effectively deploy, manage, and secure a fully functioning web application on a cloud service.

AI ASSESSMENT SCALE - AI PLANNING

You may use AI for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.

GUIDELINES FOR AI TOOL USAGE FOR STUDENTS

AI may be used for pre-task activities such as brainstorming, outlining and initial research. You may use AI-assisted automatic speech recognition to transcribe notes, AI tools to convert notes into outlines, and AI tools to brainstorm or suggest improvements to already created work. Image generation technologies might be used to generate starting points for designs or tools used to explore possibilities for producing software. You must then use the AI-generated ideas as the starting point and apply your skills and knowledge to refine and improve the initial ideas to the final submission. No GenAI-created content without changes should be included in the final submissions.

Detailed information about this assignment can be accessed from the Moodle unit website.

Assessment Due Date

Week 8 Friday (12 Sept 2025) 11:45 pm AEST

Online via Moodle

Return Date to Students

Week 10 Friday (26 Sept 2025)

Within 2 weeks of submission

Weighting

30%

Assessment Criteria

The students are assessed mainly against:

1. demonstrate knowledge in designing scalable and redundant cloud application;
2. apply cloud computing technologies in a systematic manner on AWS to host a web application;
3. prepare and demonstrate a optimised design for a cloud based application;

More detailed marking criteria can be accessed from the Moodle unit website.

Referencing Style

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

Submission

Online

Learning Outcomes Assessed

- Evaluate cloud computing concepts and IoT components for smart applications/systems development
- Analyse the application of cloud computing and IoT technologies in different scenarios
- Design and develop cloud based smart applications for business solutions

Graduate Attributes

- Knowledge
- Communication
- Research

- Leadership

3 Assessment 3 - Final Project

Assessment Type

Project (applied)

Task Description

In this assignment, you need to analyse a given business case and issues within it, and come up with a smart application that addresses the business problem(s). You also need to write a report to show the process you followed to create the smart application.

The assessment requires you to:

1. analyse the given business case and identify the issues involved;
2. design a smart application-based solution to address identified issues;
3. develop and deploy the application on a cloud platform;
4. prepare a report to document (as per the given instructions in the assignment) your activities using text and multimedia (for example screenshots, videos).

AI ASSESSMENT SCALE - AI PLANNING

You may use AI for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.

GUIDELINES FOR AI TOOL USAGE FOR STUDENTS

AI may be used for pre-task activities such as brainstorming, outlining and initial research. You may use AI-assisted automatic speech recognition to transcribe notes, AI tools to convert notes into outlines, and AI tools to brainstorm or suggest improvements to already created work. Image generation technologies might be used to generate starting points for designs or tools used to explore possibilities for producing software. You must then use the AI-generated ideas as the starting point and apply your skills and knowledge to refine and improve the initial ideas to the final submission. No GenAI-created content without changes should be included in the final submissions.

Detailed information about this assignment can be accessed from the Moodle unit website.

Assessment Due Date

Week 12 Friday (10 Oct 2025) 11:45 pm AEST

Submit via Moodle

Return Date to Students

Upon grade certification

Weighting

50%

Assessment Criteria

The students are assessed mainly against:

1. depth of analysis to identify the issues stipulated in the business case;
2. level of appropriateness of the solution and its justification;
3. completeness of the solution's implementation and deployment;
4. quality and level of detail presented in the report.

More detailed marking criteria can be accessed from Moodle.

Referencing Style

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

Submission

Online

Learning Outcomes Assessed

- Design and develop cloud based smart applications for business solutions
- Deploy a smart application using cloud computing and IoT technologies.

Graduate Attributes

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

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