



# COIT20271 *Mobile Game Development*

## Term 1 - 2022

Profile information current as at 26/05/2022 08:40 pm

All details in this unit profile for COIT20271 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

In this unit, you will learn how to develop a mobile game using an agile methodology and device agnostic software tools. You will look at using 3D models and sound assets to develop this game, as well as techniques for good game development. This development process highlights, in particular, the impact that limited computing resources and wireless communication speeds have on the development of games. You will also conduct research on what makes a good game, supported by relevant gaming theories.

### 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: COIT20268 Responsive Web Design.

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 - 2022

- 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 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. **Practical Assessment**

Weighting: 20%

#### 2. **Practical Assessment**

Weighting: 30%

#### 3. **Written Assessment**

Weighting: 30%

#### 4. **Portfolio**

Weighting: 20%

### 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

**Feedback**

The hands-on approach in the textbook and labs helped students learn how to develop mobile games from scratch.

**Recommendation**

Continue using a hands-on approach to teach how to develop mobile games from scratch.

#### Feedback from Unit evaluation

**Feedback**

Need more clarity about the portfolio assessment.

**Recommendation**

Latest developments will be incorporated from the recently published textbook and updated supporting materials.

#### Feedback from Unit coordinator's reflection

**Feedback**

The learning materials of this unit need to be redeveloped.

**Recommendation**

A new prescribed textbook will be introduced and the lecture and tutorial materials will be updated.

## Unit Learning Outcomes

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

1. Design and implement a mobile game
2. Detail the challenges in developing mobile apps requiring heavy use of hardware resources
3. Apply an agile methodology in the development of software
4. Critically assess the user interface design on different platforms, with different hardware affordances.

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

ACS members can use the tool MySFIA to build a skills profile at <https://www.acs.org.au/professionalrecognition/mysfia-b2c.html>

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

- Systems Design (DESN)
- System Integration (SINT)
- Programming/Software Development (PROG)
- Testing (TEST)
- Applications Support (ASUP).

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Practical Assessment - 20%	•		•	
2 - Practical Assessment - 30%	•		•	
3 - Written Assessment - 30%		•		•
4 - Portfolio - 20%		•		•

### 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 - 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
1 - Practical Assessment - 20%	○		○		○			
2 - Practical Assessment - 30%	○		○		○			
3 - Written Assessment - 30%	○	○	○	○	○			
4 - Portfolio - 20%	○	○			○			

## Textbooks and Resources

### Textbooks

COIT20271

#### Prescribed

##### **Sams Teach Yourself Unity 2018 Game Development in 24 Hours**

3rd Edition (2018)

Authors: Mike Geig

Sams

ISBN: 978-0134998138

Binding: Paperback

COIT20271

#### Supplementary

##### **Unity in Action**

Edition: 2nd (2018)

Authors: Joseph Hocking

Manning

Shelter Island , New York , United States

ISBN: 9781617294969

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Internal students are encouraged to bring a laptop to all classes
- Zoom (both microphone and webcam capability)
- Unity learning resource (free)

## Referencing Style

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

For further information, see the Assessment Tasks.

## Teaching Contacts

**Andrew Chiou** Unit Coordinator

[a.chiou@cqu.edu.au](mailto:a.chiou@cqu.edu.au)

## Schedule

### Week 1 - 07 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 1: Introduction to Unity Topic 2: Game Objects	Greig, Hour 1 & 2	

### Week 2 - 14 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
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Topic 3: Models, Materials, and Textures  
Topic 4: Terrain and Environments  
Greig, Hour 3 & 4

### Week 3 - 21 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 5: Lights and Cameras Topic 6: Game 1- Amazing Racer	Greig, Hour 5 & 6	

### Week 4 - 28 Mar 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 7: Scripting, Part 1 Topic 8: Scripting, Part 2	Greig, Hour 7 & 8	<b>Portfolio</b> starts

### Week 5 - 04 Apr 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 9: Collision Topic 10: Game 2 - Chaos Ball	Greig, Hour 9 & 10	<b>Portfolio</b> continues <b>Practical Assignment 1</b> Due: Week 5 Friday (8 Apr 2022) 11:45 pm AEST

### Vacation Week - 11 Apr 2022

Module/Topic	Chapter	Events and Submissions/Topic
Mid-term Break	Catch-up if behind. Relax and refresh.	<b>Portfolio</b> continues

### Week 6 - 18 Apr 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 11: Prefabs Topic 12: 2D Game Tools	Greig, Hour 11 & 12	<b>Portfolio</b> continues

### Week 7 - 25 Apr 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 13: 2D Tilemap Topic 14: User Interfaces	Greig, Hour 13 & 14	<b>Portfolio</b> continues

### Week 8 - 02 May 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 15: Game 3 - Captain Blaster Topic 16: Particle Systems	Greig, Hour 15 & 16	<b>Portfolio</b> continues

### Week 9 - 09 May 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 17: Animations Topic 18: Animators	Greig, Hour 17 & 18	<b>Portfolio</b> continues

### Week 10 - 16 May 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 19: Timeline Topic 20: Game 4 - Gauntlet Runner	Greig, Hour 19 & 20	<b>Portfolio</b> continues

### Week 11 - 23 May 2022

Module/Topic	Chapter	Events and Submissions/Topic
Topic 21: Audio Topic 22: Mobile Development	Greig, Hour 21 & 22	<b>Portfolio</b> completes <b>Practical Assignment 2</b> Due: Week 11 Friday (27 May 2022) 11:45 pm AEST

### Week 12 - 30 May 2022

Module/Topic	Chapter	Events and Submissions/Topic
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Topic 23: Polish and Deploy  
Topic 24: Wrap-up

Greig, Hour 23 & 24

**Critical Evaluation of a Game** Due:  
Week 12 Friday (3 June 2022) 11:45  
pm AEST

### Review/Exam Week - 06 Jun 2022

Module/Topic

Chapter

Events and Submissions/Topic

**Portfolio** Due: Review/Exam Week  
Monday (6 June 2022) 11:45 pm AEST

### Exam Week - 13 Jun 2022

Module/Topic

Chapter

Events and Submissions/Topic

## Term Specific Information

Unit Coordinator: Dr. Andrew Chiou  
email: a.chiou@cqu.edu.au

## Assessment Tasks

### 1 Practical Assignment 1

#### Assessment Type

Practical Assessment

#### Task Description

This is a **group** assignment that can be undertaken by **3 students**. You are required to submit a design and interface prototype for a simple 3D Unity game for Android mobile devices. This should include documentation of the game concept and design details, as well as the beginning of a Unity project that implements some sample interface and game mechanics for your game to give an idea of how the game will run. Your submission should demonstrate the application of the knowledge from the first four chapters of the textbook.

#### Assessment Due Date

Week 5 Friday (8 Apr 2022) 11:45 pm AEST

#### Return Date to Students

Feedback will be provided within 2 weeks of submission.

#### Weighting

20%

#### Assessment Criteria

- Game has clear play instructions and an end goal.
- Game interface is well designed and suitable for the game.
- Game design shows creativity and original thinking.

#### Referencing Style

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

#### Submission

Online Group

#### Submission Instructions

The entire Unity project should be submitted in a format that can be executed by the marker in an emulator or on an Android phone. Include your report as a PDF or Word document.

#### Learning Outcomes Assessed

- Design and implement a mobile game
- Apply an agile methodology in the development of software

#### Graduate Attributes

- Knowledge
- Cognitive, technical and creative skills
- Self-management

## 2 Practical Assignment 2

### Assessment Type

Practical Assessment

### Task Description

This assignment is a continuation of Practical Assignment 1. This is a **group** assignment that can be undertaken by **3 students**. You are required to design, implement and playtest a simple 3D Unity game for Android mobile devices.

### Design and implementation

The game is based on the game concept that you have provided in Practical Assignment 1.

As the game is for mobile devices, your implementation should demonstrate a competent knowledge of the following:

- Mobile game interfacing i.e., the use of mobile touch screen, device orientation, sensors and GUI
- Exploring and using legal sources of graphics, sounds and 2D/3D models
- Applying the overall concepts from the first ten weeks of lessons
- Include intermediate and advanced techniques, such as those used in the creation of Game 3: Captain Blaster and Game 4: Gauntlet Runner.

You are also required to write a report explaining your demonstration and the game elements that you have successfully implemented according to the design in Assignment 1.

### Playtesting

Your game should be playtested by two of your friends. You should write a report that includes your observations during the playtesting, your playtesters' comments and your ideas for improving the game.

### Assessment Due Date

Week 11 Friday (27 May 2022) 11:45 pm AEST

### Return Date to Students

Feedback will be provided within 2 weeks of submission.

### Weighting

30%

### Assessment Criteria

- Game clearly and successfully demonstrates desired game features.
- Game uses visual and auditory resources appropriately.
- Game code is well written and shows competency in Unity.
- Report is well written and provides a clear rationale for the implemented game features and relationship to the original game.

### Referencing Style

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

### Submission

Online Group

### Submission Instructions

The entire Unity project should be submitted in a format that can be executed by the marker in an emulator or on an Android phone. Your report should be a PDF or Word document.

### Learning Outcomes Assessed

- Design and implement a mobile game
- Apply an agile methodology in the development of software

### Graduate Attributes



- Knowledge
- Cognitive, technical and creative skills
- Self-management

### 3 Critical Evaluation of a Game

#### Assessment Type

Written Assessment

#### Task Description

Critical evaluation of games is an important skill for game designers. You will be provided with a game to critically evaluate with the intention of identifying those aspects that work well, and provide recommendations for improvements.

Your task is to research game design literature to locate current, relevant game theories and evaluate your game within the context of those theories. Game theories related to game mechanics, game usability, game design patterns, playability heuristics, and context of the game are examples of those which may be considered for your critical evaluation.

You should write an essay briefly explaining the game theories you have researched, how they apply to your game, the implications thereof, and your recommendations. The list of references should form the last page of the essay, which is expected to include **at least two** peer reviewed (scientific) journal articles or conference papers.

As a guideline, the main body of your essay should be approximately **1500 words**.

#### Assessment Due Date

Week 12 Friday (3 June 2022) 11:45 pm AEST

#### Return Date to Students

Feedback will be provided on the date of certification of grades.

#### Weighting

30%

#### Assessment Criteria

- Each game theory relevant and clearly explained
- Insightful discussion on the application of each game theory and the resulting implications
- Recommendations for improvements provided
- Quality references chosen

#### Referencing Style

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

#### Submission

Online

#### Submission Instructions

You should submit the essay in a Word or PDF document.

#### Learning Outcomes Assessed

- Detail the challenges in developing mobile apps requiring heavy use of hardware resources
- Critically assess the user interface design on different platforms, with different hardware affordances.

#### Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Self-management

### 4 Portfolio

#### Assessment Type

Portfolio

#### Task Description

Your portfolio is for your future reference. The portfolio will contain two sections: **demonstrations** and **bibliography**.

The demonstrations section will showcase the mobile game concepts that you have mastered. The bibliography section will contain a list of references of the learning resources that you have found useful.

### **CQU Portfolio**

Your portfolio should be constructed in **CQU Portfolio** which is available on the Moodle unit site.

### **Demonstrations**

From **Week 3** to **Week 11**, each week you are expected to add **one new mobile game concept** to your portfolio with your most impressive demonstration of the concept. For each concept, you should write a short discussion to show how the concept is used in a gaming context. Where possible, your demonstration should be built to run on the web player. Alternatively, you must provide screenshots and/or video clips of your demonstrations embedded in the portfolio. You may be asked to demonstrate your work to your local lecturer and/or tutor.

The textbook hands-on exercises and online Unity tutorials are good resources for this task. As you complete the textbook exercises and tutorials, record and document your work for demonstration. **Bonus marks** will be given for innovative demonstrations of newly learned concepts.

### **Bibliography**

As you learn mobile game development, you will access extracurricular materials such as the Unity website, YouTube videos, help documentation and books. When you find a useful resource, you should add a reference to it to the bibliography section along with a short discussion of the resource which also justifies the inclusion of the resource. Your bibliography is expected to contain **at least 24 useful references** - you should try to add roughly two to three per week.

### **Assessment Due Date**

Review/Exam Week Monday (6 June 2022) 11:45 pm AEST

You are required to complete one portfolio item per week from Week 4 to Week 11. You need to submit a secret URL to your CQU Portfolio page or collection by the above due date and time.

### **Return Date to Students**

Feedback will be provided on the date of certification of grades.

### **Weighting**

20%

### **Assessment Criteria**

- Demonstrations are of high quality with well written code. Work of a high distinction standard would be expected to demonstrate newly learned concepts in new and innovative gaming contexts.
- Bibliography references point to quality or rare resources, the reference discussions should provide some insights into the resources. Categorise and rate the resources by their content, quality, usefulness and ease of use.

### **Referencing Style**

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

### **Submission**

Online

### **Submission Instructions**

You should submit a Word or PDF document containing a secret URL to your CQU Portfolio page or collection.

### **Learning Outcomes Assessed**

- Detail the challenges in developing mobile apps requiring heavy use of hardware resources
- Critically assess the user interface design on different platforms, with different hardware affordances.

### **Graduate Attributes**

- Knowledge
- Communication
- Self-management

## 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