COMP2160

Game Development

Session 2, In person-scheduled-weekday, North Ryde 2026

School of Computing

Contents

General Information

Unit convenor and teaching staff
Convenor / Lecturer
Kayson Whitehouse
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By appointment only

Lecturer
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By appointment only

Credit points
10

Prerequisites
COMP1151 AND COMP1010 AND (HSC Mathematics Advanced Band 4 and above OR Extension 1 Band E2 and above OR Extension 2 Band E2 and above OR MATH1000)

Corequisites

Co-badged status

Unit description
This unit covers the production processes involved in the development of videogames. Students will learn how to apply software engineering principles to develop a game in a 3D game engine, focusing on specific programming problems that arise in the context of game development. Practical exercises emphasise agile team-based production process for project management.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals (UNSDGs) Gender Equity; Decent Work and Economic Growth; Industry, Innovation and Infrastructure; Reduced Inequality

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

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

ULO1: Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
ULO2: Demonstrate knowledge of project management within the context of game development.
ULO3: Apply software engineering principles to develop a game in a 3D game engine.
ULO4: Apply good programming practices in the context of game development.
ULO5: Identify and reflect upon the ethical issues that arise in the development of games.

General Assessment Information

Assessment Latest Release Dates

- **Game Development Task 1**: 23/08/2026
- **Ethics Report:** 13/09/2026
- **Game Development Task 2** 11/10/2026

Requirements To Pass This Unit

To pass this unit, you must:

- Achieve a total mark equal to or greater than 50

In order to achieve this criteria, it is recommended that students attempt all assessment tasks including Game Development Task 1, Game Development Task 2, and the Ethics Essay.

Late Assessment Submission Penalty

- 5**% penalty per day**: If you submit your assessment late, 5% of the total possible marks will be deducted for each day (including weekends), up to 7 days.
    - Example 1 (out of 100): If you score 85/100 but submit 20 hours late, you will lose 5 marks and receive 80/100.
    - Example 2 (out of 30): If you score 27/30 but submit 1 day late, you will lose 1.5 marks and receive 25.5/30.
- **After 7 days:** Submissions more than 7 days late will receive a mark of 0.
- **Extensions**:
    - **Automatic short extension:** Some assessments are eligible for automatic short extension. You can only apply for an automatic short extension before the due date.
    - **Special Consideration:** If you need more time due to serious issues and for any assessments that are not eligible for Short Extension, you must apply for Special

Consideration.

Need help? Review the Special Consideration page HERE

Assessments where Late Submissions will be accepted

- Game Development Task 1 – YES, Standard Late Penalty applies
- Ethics Essay – YES, Standard Late Penalty applies
- Game Development Task 2 – NO, unless Special Consideration is Granted

Special Consideration

The Special Consideration Policy aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through http://connect.mq.edu.au/.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Game Development Task 1	30%	No	06/09/2026	Individual	Yes	Open
Ethics Report	30%	No	04/10/2026	Individual	Yes	Open
Game Development Task 2	40%	No	08/11/2026	Individual and Group	No	Open

Game Development Task 1

Assessment Type [1]: Experiential task
Indicative Time on Task [2]: 20 hours
Due: **06/09/2026**
Weighting: **30%**
Groupwork/Individual: Individual
Short extension [3]: Yes
AI Approach: Open

Students will develop a video game prototype to meet a specified design and report on the software architecture employed and the performance of the game in terms of time and memory usage.

On successful completion you will be able to:

- Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
- Apply software engineering principles to develop a game in a 3D game engine.
- Apply good programming practices in the context of game development.

Ethics Report

Assessment Type [1]: Written Submission
Indicative Time on Task [2]: 20 hours
Due: **04/10/2026**
Weighting: **30%**
Groupwork/Individual: Individual
Short extension [3]: Yes
AI Approach: Open

Students will write a structured report analysing the ethical issues at play in a realistic game development scenario and making recommendations based on relevant industry codes of practice.

On successful completion you will be able to:

- Identify and reflect upon the ethical issues that arise in the development of games.

Game Development Task 2

Assessment Type [1]: Experiential task
Indicative Time on Task [2]: 30 hours
Due: **08/11/2026**
Weighting: **40%**
Groupwork/Individual: Individual and Group
Short extension [3]: No
AI Approach: Open

Students will work in pairs to develop a video game prototype to meet a specified design. The group submission will consist of a technical prototype, as well as a supporting document describing the software architecture employed, and the QA testing performed. Students will receive an individual mark based on itemised contributions towards the development of these deliverables (to be included in the proposal document) and an individual peer assessment submission.

On successful completion you will be able to:

- Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
- Demonstrate knowledge of project management within the context of game

development.

- Apply software engineering principles to develop a game in a 3D game engine.
- Apply good programming practices in the context of game development.

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- Academic Success for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation.

[3] An automatic short extension is available for some assessments. Apply through the Service Connect Portal.

Delivery and Resources

Week 1 classes

Lectures and practical classes begin in week 1.

Methods of Communication

Communication is largely through lectures and workshops, but please keep an eye on your university email and announcements on iLearn. Queries to teaching staff can be saved for workshops or live lectures, placed on the iLearn discussion board or sent to the unit convenor via the contact email on iLearn.

Software Used

This unit uses the Unity game engine, which is avaliable on lab PCs. The software can also be downloaded and used at home from https://unity.com/. See iLearn for the Unity version currently installed in the labs.

It is students' responsibility to ensure their device can run Unity before attempting their assignments on their home computers.

Assignments and practical tasks are distributed through Classroom50. Although Github Desktop is used as an example Git client, students are able to use whatever tool they wish, but must understand technical support cannot be provided for all tools.

Students are expected to attempt practical tasks before coming to class. If students are unable to work on practicals and assignments on their own devices and require additional access to University computers, they can request special lab access. See iLearn for details.

Use of Generative AI

The use of Generative AI including LLMs and image generators is permitted in this unit where

this use does not undermine the Learning Outcomes of the unit and specific assessment tasks. All use of Generative AI must be appropriately acknowledged, evidenced and referenced.

The particularities and affordances of Generative AI usage will vary between assessments. Please consult the assessment specifications of each task for details. Use of Generative AI that does not adhere to assessment-specific details may result in a breach of Academic Integrity.

For more information on the use of Generative AI in your studies, please see the FSE Gen AI module: https://ishare.mq.edu.au/prod/file/c6b0caa4-23dd-4372-b07d-5a03379fc3e8/1/FSE_GenAI-module.zip/content/index.html#/

Unit Schedule

This schedule is subject to change. Please see iLearn for the most up-to-date version of the schedule.

Week	Lecture topics
1	• Programming: Intro to C# • Programming: Event-based & Behaviour-based programming • Programming: 2D & 3D geometry: Vectors and Quaternions
2	• Programming: Transformations • Programming: Input • Production: Ethical Game Dev Overview
3	• Programming: Prefabs, Instantiation & Destruction • Programming: Finite state machines • Production: Sustainability
4	• Programming & Production: Code Architecture • Programming: Trigger-based collisions, rigidbodies and raycasting • Production: Diversity and Inclusion
5	• Programming: UI implementation • Programming: Scene Management Production: Accessibility
6	• Testing: Quality Assurance • Testing: Game Analytics • Production: Cybersecurity & Data Privacy
7	• Testing: Profiling • Production: IP, Ownership & Generative AI
8	• Production: Version control for teams

Week	Lecture topics
9	• Programming: Game Physics • Programming: Collision handling
10	• Programming: Physics pt. 2
11	• Programming: Cameras and visuals • Programming: Coroutines
12	• Programming: Cameras pt. 2

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Academic Success

Academic Success provides resources to develop your English language proficiency, academic writing, and communication skills.

- Ask a Study Coach
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the Service Connect Portal, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit https://students.mq.edu.au/support/technology/service-desk.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

Late submissions on the final assessment task without an extension will no longer be accepted, in order to allow sufficient time for submissions to be assessed. This change is due to shortened marking deadlines and the consequences of the automatic 3-day extension.

Student feedback is highly valued to be help us to continually improve the way we offer our units, and has resulted in significant changes to this unit over the years. As such we encourage students to provide constructive feedback via student surveys, to the teaching staff directly, or via the FSE Student Experience & Feedback link in the iLearn page.

Unit information based on version 2026.05 of the Handbook