

Module 8: Game Design and Development

Stage	1						
Semester	1						
Module Title	Game Design and Development						
Module Number/Reference	8						
Module Status (Mandatory/Elective)	Mandatory						
Module ECTS credit	5						
Module NFQ level (only if applicable)	9						
Pre-requisite Module Titles	None						
Co-requisite Module Titles	None						
Is this a capstone module? (Yes or No)	No						
List of Module Teaching Personnel	Mr Eoin Carroll						
Contact Hours				Non-contact Hours			Total Effort (Hours)
Lecture	Practical	Tutorial	Seminar	Assignment	Placement	Independent work	
18	18			30		34	100
Allocation of Marks (Within the Module)							
	Continuous Assessment	Project	Practical	Final Examination	Total		
Percentage contribution	60%	40%			100%		

Intended Module Learning Outcomes

On successful completion of this module learners will be able to:

1. Understand and demonstrate advanced knowledge of phases in game development (from idea to product)
2. Demonstrate a detailed understanding of game system architectures.
3. Critically analyse level design and engagement
4. Discuss ludology and emergent behaviour
5. Employ advanced programming skills in the production of a small sized game to a usable level
6. Demonstrate advanced knowledge of the structure of a games engine using a design pattern

Module Objectives

This module focuses on the design and development of digital games using a standard games development environment. The module has a strong practical element focussed on developing skills in game development. The learner also covers the core elements of game design and engagement with the user.

Module Curriculum

Game Design and Ludology (25%)

- What are the rules and how are they structured?
- Creating a balance of obstacles/aids, penalties/rewards
- Discrete/continuous input
- Deterministic/random outcome
- Information flow
- Two player games and strategies
- Game genre and platform affects

The Pipeline (25%)

- Brainstorming
- Pitching game ideas
- Turning ideas into game concepts
- Evaluating concepts
- Design documents
- Source control
- Prototyping
- Playtesting
- Digital marketplaces and deployment

Introduction to Game Development (40%)

- The game loop
- Handling user input
- Collision detection
- Events and triggers
- Models and animation
- Non-player characters
- Sound and effects
- Level design
- Engaging the user
- Emergent gameplay

Introduction to Middleware and Game Engines (10%)

- The role of middleware
- Using existing middleware
- Developing middleware tools

Recommended reading

Beginning 3D Game Development with Unity: All-in-One, Multi-Platform Game Development	Blackman, S	Apress	2011
Introduction to Game Development (2 nd Revised Edition)	Rabin, S.	Cengage Learning Inc	2009
Unity 3D Game Development by Example Beginner's Guide	Creighton, R.	PACKT Publishing	2010

Secondary reading

Game Development with Unity	Menard, M.	Delmar	2011
Game Coding Complete (3 rd Edition)	McShaffrey, M.	Delmar	2009

Web Resources

www.unity3D.com
www.gamedevelopers.ie

Module Learning Environment

Accommodation

Lectures are carried out in class rooms / lecture halls in the College. Lab tutorials are carried out in computer labs throughout the Campus. All have the language software required to deliver the programme.

Library

All learners have access to an extensive range of physical and electronic (remotely accessible) library resources. The library monitors and updates its resources on an on-going basis, in line with the College's Library Acquisition Policy. Lecturers update reading lists for this course on an annual basis as is the norm with all courses run by Griffith College.

Module Teaching and Learning Strategy

The module is delivered through a combination of lectures, tutorials and practical lab programming sessions. The learners complete a series of worksheets throughout the module which build on the learning in lectures. The emphasis is on developing practical programming skills based on sound theoretical knowledge.

Module Assessment Strategy

The module assessment consists of a series of continuous assignments and a final examination.

Element No	Weighting	Type	Description	Learning Outcome assessed
1	60%	Weekly Work Submission	A series of weekly milestones covering the desing and development of a game	1-5, 7
2	40%	Project	Design, develop, test and debug a game and related documentation	1, 2, 5, 6, 7