GAME H2201: Gameplay Programming I

Module Title:	Gameplay Programming I
Language of Instruction:	English

Credits:	10

NFQ Level:	6

Module Delivered In	1 programme(s)

Module Aim:	Introduce learners to the skill of gameplay programming for specific genres. Students will understand how to program 2D games. Students will learn how to program entertaining interactions and understand the formation of harmony through actions and feedback through visuals, haptics, reactions, events and sound. The focus will be the creation of titles with engaging playability.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Understand the domain of programming applied to games development
LO2	Problem solving techniques applied to gameplay programming and appreciation of the game engine solutions
LO3	Interpretation and construction of algorithms to solve problems the implement sub-systems within a game title
LO4	Programming games that respond to gamer input for specific genres
LO5	Apply trigonometry, vectors and matrices within a game title
LO6	Implement physics simulations for gravity, forces, acceleration, velocity and time

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

Module Content & Assessment

Indicative Content
Architecture of common game engines Game engine technology and graphic api's
Mathematics for Graphics Implementation of coordinate geometry, trigonometry and the unit circle. Vector and matrix operations applied to Game Objects. Implementation of Game Object Physics.
Drawing Primitives Drawing primitives including lines, ellipses, boxes, sprites and application of color
Gamer Input Handling user input from keyboard, mouse, game controllers, motion control, multi-touch haptic input and gesture based systems
Immersion Identification of appropriate game control, expression of gameplay goals, events, responses to gamer actions, responses to systems events, implementation of game rules and refinement of game balance
Game Object Assets Integration of (assets) content pipeline
Game State Management Implementation of Game state persistence
Case Study Implementation of titles internal economy, key millstones and checkpoints. Implementation of replica game(s) titles within a Game Studio environment

Assessment Breakdown	%
Continuous Assessment	100.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Create 3D Game Scene	1,5	33.00	n/a
Project	Create 3D Game Scene	1,6	33.00	n/a
Project	Create 3D Game Scene	1,2,3,4	34.00	n/a

No Project

No Practical

No End of Module Formal Examination

ITCarlow reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	Every Week	1.00
Laboratory	Every Week	3.00
	Total Hours	4.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCGD_B	Bachelor of Science (Honours) in Computer Games Development	2	Mandatory