PROG: Gameplay Programming for Mobile Devices

Module Title:	Gameplay Programming for Mobile Devices
Language of Instruction:	English

Credits:	10

NFQ Level:	7

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	This module is delivered as a mix of traditional lectures and practical sessions within a laboratory setting with a blend of interactive lectures and practical work. Learners are actively participating in class work throughout each scheduled session.

Module Aim:	To give the student a thorough understanding of the application of physics to gameplay for mobile platforms.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Design, implement and test 2D game prototypes for mobile platforms.
LO2	Model and simulate physical systems and refine these simulations to meet gameplay requirements.
LO3	Use game analytics and playtesting data to inform design iterations
LO4	Run an internal test through an app store.
LO5	Send and receive data over a network.

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		
4418	PROG H4203	Prog for Games Devices I
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*		
Successful completion of year 2 or equivalent.		

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Module Content & Assessment

Indicative Content
Development Process Project planning and tracking. Coordinating work within a team. Agile development. Source code management. Coding Standards.
Fundamentals of mobile 2D game programming Game loop, collision detection, game input, audio, timers, animation, sprites (sprite sheets, texture packing).
Mobile devices Deploying and debugging an application on a mobile device. Supporting multiple screen resolutions. Loading game data from external resources. Persistence.
Modelling physical systems Vectors and movement. Forces: force field, force accumulation, wind, gravity, friction, air/fluid resistance. Projectiles. Particle systems. Collisions (conservation of linear and angular momentum), Newton's law of restitution, impulse on collision, resolution of collisions in 2D. Physics joints.
Game systems Gameplay. Designing and refining a game system. Game feel. Playtesting. Game analytics. Integrating systems.
User interface Creating game menus and navigating between them. UI components. UI/UX. Managing game states.
Publishing Certificates. Asset preparation. Development and distribution builds. Internal and external test tracks. Releasing a game for testing. Submission process.
Fundamentals of Networking IP Addresses. Ports. Sockets. TCP/IP. HTTP. Standard data formats such as JSON.

Assessment Breakdown	%
Project	40.00%
Practical	30.00%
End of Module Formal Examination	30.00%

No Continuous Assessment

Project

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Design and develop a mobile game.	1,2,3	15.00	Week 6
Project	This project builds on the first project and uses game analytics and playtesting data to inform design and development iterations.	1,2,3,4,5	25.00	Week 12

Practical

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Practical Work	1,2,3	30.00	Sem 1 End

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	This mainly assesses the modelling and simulation of physical systems.	1,2,3,4	30.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Laboratory	12 Weeks per Stage	4.00
Lecture	12 Weeks per Stage	3.00
Independent Learning	15 Weeks per Stage	11.07
	Total Hours	250.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCGD_B	Bachelor of Science (Honours) in Computer Games Development	5	Mandatory