

MODULE DESCRIPTOR

Module Title

Programming for Video Games

Reference	CM2123	Version	1
Created	October 2023	SCQF Level	SCQF 8
Approved	June 2022	SCQF Points	15
Amended		ECTS Points	7.5

Aims of Module

To extend student knowledge and proficiency in essential programming skills required for wider video game development approaches. Students will learn to implement game logic, handle user input, create interactive elements, and utilise graphics rendering techniques - enhancing their proficiency when designing and developing basic video games, and laying the foundation for more advanced video game programming concepts.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Show an understanding for fundamental programming principles within a game context, including variables, loops, conditionals, and functions.
- 2 Undertake appropriate design and application of game logic and user/player input and interaction.
- 3 Practice graphics programming within video games in order to render 2D and basic 3D graphics for game environments and characters.
- 4 Use gained knowledge to implement basic physics simulations and introduce simple artificial intelligence elements for interactive gameplay.

Indicative Module Content

Programming fundamentals; Variables, data types, loops, and functions, providing students with a strong foundation in coding. Game-Specific Programming Concepts; Game logic implementation, controlling player input, manage game state, and creation of interactive elements. Graphics and Rendering; Render 2D and basic 3D graphics for game environments and characters. Physics; Basic game physics principles, simulation of motion, collisions, and interactions within the game world. Basic Artificial Intelligence; Simple AI behaviours.

Module Delivery

The module will be delivered through a mixture of lectures, tutorials and laboratory sessions where concepts are practiced and explored.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	120	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	Coursework project that combines learned programming skills in the design and development of a video game prototype.				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The calculation of the overall grade for this module is based on 100% weighing of C1. An overall minimum grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	The student needs to achieve an A in C1.
B	The student needs to achieve a B in C1.
C	The student needs to achieve a C in C1.
D	The student needs to achieve a D in C1.
E	The student needs to achieve an E in C1.
F	The student needs to achieve an F in C1.
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 Adams, E., & Rollings, A. (2020). Fundamentals of Game Design (4th ed.). New Riders.
- 2 DeLoura, M. (Ed.). (2019). Introduction to Game Development (2nd ed.). CRC Press.
- 3 Chamillard, A. T. (2021). Beginning C# Programming with Unity: Visual Studio Edition. Apress.
- 4 Vegas, J. (2020). Unity Basics for Beginners: A Project-Based Introduction to Game Development. Packt Publishing.