

Module specification

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Module Code	GME419
Module Title	Games Technology
Level	4
Credit value	20
Faculty	FACE
HECoS Code	101020
Cost Code	GAGM
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BSc (Hons) Game Development	Core

Breakdown of module hours

Learning and teaching hours	36 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	0 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	36 hrs
Placement hours	0 hrs
Guided independent study hours	164 hrs
Module duration (Total hours)	200 hrs

Module aims

This module aims to do the following:

- Explore a variety of games-based tools and technologies.
- Relate contemporary game technology strategies with traditional mathematical and computing concepts.
- Introduce a variety of strategies to implement game mechanics into game-based projects.
- Enhance student self-efficacy in relation to previous mathematical experience.

Module Learning Outcomes

At the end of this module, students will be able to:

1	Identify technical fundamentals in relation to game design and development.
2	Utilise software packages to relate mathematical concepts to development tools and technologies.
3	Apply technical solutions to game-based scenarios using industry standard technologies.
4	Demonstrate engagement with games technology using contemporary technical strategies.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

This assessment will be comprised of coursework that will take place throughout the module using scenarios based upon contemporary technologies/strategies in game development. Students will be required to demonstrate their knowledge of applied mathematics and system hardware through questioning and demonstration in game-based scenarios. The focus of these tasks will largely focus on challenging assumptions and/or existing code bases and projects rather than direct development and implementation of game mechanics.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1, 2, 3, 4	Coursework	N/A	100%	N/A

Derogations

None

Learning and Teaching Strategies

The primary skill base of this module will be delivered through a series of lectures, demonstrations and practical work that will equip the students with the technical skills and confidence to develop small computer programs. This content will also be fully represented online through VLE content and will be available to students as they progress with the module. Indicatively these could be sections of code/diagrams/PDF tutorials/pre-recorded videos depending on what is most appropriate.

Welsh Elements

Students will have the right to submit assessed work in Welsh, to receive academic supervision and access learning resources and correspondence in Welsh. Students are encouraged to engage with Welsh cultural themes, creative elements and enterprising opportunities as part of student-led activities and assignments to facilitate wider contextual awareness and distinctive creative outputs.

Indicative Syllabus Outline

Indicative Syllabus includes the following topic areas:

- Programming Languages for Game Development.
- Algebra & Number Systems for Computing
- Statistics & Probability for Game Design.
- Euclidean Geometry in 2D & 3D Space.
- Software & Hardware Architecture
- Algorithms and Optimisation in Game Development.
- Artificial Intelligence & Behaviour Trees.
- Python Scripting for 3D Production Workflows & DCCs.
- Render Pipeline Techniques.

Indicative Bibliography

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads:

Romero, M., Sewell, B. (2022), *Blueprints Visual Scripting for Unreal Engine 5: Unleash the true power of Blueprints to create impressive games and applications in UE5*, Third Edition, Birmingham: Packt Publishing.

Other indicative reading:

Horton, J. (2024), *Beginning C++ Game Programming: Learn C++ from scratch by building fun games*, Third Edition, Birmingham: Packt Publishing.

Kalb, K. (2022), *Object-Oriented Python: Master OOP by Building Games and GUIs*, San Francisco: No Starch Press.

Lynn, M., Sharif, C. (2022), *Game Development with Unreal Engine 5: Learn the Basics of Game Development in Unreal Engine 5*, London: BPB Online.

Administrative Information

For office use only	
Initial approval date	July 2026
With effect from date	September 2027
Date and details of revision	
Version number	1