

Module specification

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Module Code	GME512
Module Title	Real-Time Environment Production
Level	5
Credit value	20
Faculty	FACE
HECoS Code	101267
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
BA (Hons) Game Art and Animation	Core

Breakdown of module hours

Learning and teaching hours	30 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	30 hrs
Placement hours	0 hrs
Guided independent study hours	170 hrs
Module duration (Total hours)	200 hrs

Module aims

This module aims to do the following:

- Revisit industry standard workflow techniques for game environment production.
- Explore contemporary examples of game environments to generate insight to enhance future practice.
- Explore real-time VFX as part of real-time rendering workflows.
- Discuss and appraise contemporary lighting models (baked vs GI) to ensure fitness for purpose practice with game product output.
- Produce a high-quality game environment with aesthetically pleasing real-time effects to demonstrate portfolio development.

Module Learning Outcomes

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

1	Develop an aesthetically pleasing game environment that meets an appropriate technical benchmark.
2	Demonstrate examples of real-time VFX as part of a real-time game environment.
3	Appraise contemporary technical lighting solutions based on fitness-for-purpose outcomes.
4	Construct an industry-facing showcase piece that demonstrates environment design, real-time VFX and contemporary lighting techniques.

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 represent the bulk of the module work and will represent a full game environment workflow. Students will initially start with pre-production work before creating a real time environment. Students will specifically be required to focus further on real-time VFX and lighting within their game environment and add both elements in a strategy that enhances their chosen game assets. As part of this process students will benchmark their scenes against an appropriate team chosen benchmark (likely to change yearly). Students will produce a final

showcase piece that demonstrates broad understanding and delivery of both the technical and artistic skills required to produce a real-time game environment.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1, 2, 3, 4	Portfolio	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 real-time additions to game environments. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning.

As this module progresses, experiential and peer learning strategies will be encouraged as the students' progress with their coursework. Class time will shift to more student-led coursework development time to focus of formative feedback for individual student achievement.

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:

- Full Game Environment Workflow
- Conceptualisation, Photo bashing & Mood boards
- Topographic Maps & Diorama Design
- White boxing & Grey boxing
- In-Engine Materials Editor
- In-Engine landscape Sculpting
- Baked Lighting, Ray Tracing & Global Illumination Techniques

- Real-time VFX and Shaders
- Performance Benchmarking

Indicative Bibliography

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

Essential Reads:

Butler-Boschma, T. (2025), *Unreal Engine 5 Best Practises: The ultimate guide to advanced visual storytelling, design, lighting and performance in UE5*, Birmingham: Packt Publishing

Other indicative reading:

Austin, T., (2021), *Narrative Environments and Experience Design: Space as a Medium of Communication*, London: Routledge Research in Design Studies.

Kelly, H. (2021), *Environment Art in the Game Industry: A Guide to Rich and Realistic Environments Using Substance Designer*, Boca Raton: CRC Press.

Romero, M.F., Sewell, B., Cataldi, L. (2022), *Blueprints visual scripting for Unreal Engine 5*, Third Edition, Birmingham: Packt Publishing.

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