Module Descriptor

Title	Game Engine 1		
Session	2025/26	**Status**	Published
Code	COMP08079	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Marco Gilardi		

Summary of Module

Game engines, such as Unity and Unreal, have changed the creative industry significantly. By using game engines, individuals and indie game companies and industries from various sectors are capable to create professional games and interactive application in a shorter period of time.

The module will provide students with the opportunity to develop their skills in producing a game product from concept to high-fidelity prototype, while will providing them with soft-skills such as project and time management.

This module focuses on providing object oriented programming concepts for games using the C# programming language within the Unity game engine, introducing students to the prototyping stages of a game using a game engine, allowing them to develop their ideas from the development of a design concept using an industry standard template to grey-box prototyping and finally into a high-fidelity prototype implementation.

The module discusses programming concepts and data structures using C#, as well as Unity as a game development environment, its architecture, how to configure the interfaces and editors.

Programming, design principles, physics, animation, and state machines are discussed.

• This module embeds the key “I am UWS” graduate attributes and in particular:

• Universal (critical and analytical thinking, Emotionally-intelligent, Collaborative, Research-minded),

• Work Ready (digitally literate, problem solver, effective communicator, Motivated, Potential leader, Ambitious)

• and Successful (Autonomous, Innovative, Driven, Transformational)

Module Delivery Method	On-Campus[1] ☒	Hybrid[2] ☐	Online[3] ☐	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1 ☐		Term 2 ☒	Term 3 ☐	
Long-thin Delivery over more than one Term	Term 1 – Term 2 ☐		Term 2 – Term 3 ☐	Term 3 – Term 1 ☐	

Learning Outcomes	
L1	Demonstrate knowledge and understanding of programming and data structures
L2	Demonstrate knowledge and understanding of good game design principles
L3	Demonstrate ability of designing and planning of a grey box game prototype
L4	Demonstrate the ability to implement a well-structured and documented hi-fidelity game prototype using an industry Game Engine
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 8** Knowledge of software issues related to programming games Understanding of object oriented game design
Practice: Applied Knowledge and Understanding	**SCQF 8** Application of programming constructs to produce a desired outcome in a game development environment
Generic Cognitive skills	**SCQF 8**

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

	Planning and problem solving in a programming context
Communication, ICT and Numeracy Skills	**SCQF 8** Use of a game (software) development environment Specification writing
Autonomy, Accountability and Working with Others	**SCQF 8** Work autonomously to deliver a game product. Collaborate with other to come up with individual solutions

Prerequisites	**Module Code** COMP07027 COMP07028	**Module Title** Introduction to Programming Intro to Games Development
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. 48	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	8
Laboratory / Practical Demonstration / Workshop	24
Tutorial / Synchronous Support Activity	16
Independent Study	152
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Whitaker R.B. The C# Player's Guide Starbound Software 2022 Unity on-line tutorials (https://learn.unity.com/) and on-line documentation
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Computing**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☒ **Yes** ☐ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Creative Computing
Moderator	Thomas Hainey
External Examiner	Professor Sylvester Arnab
Accreditation Details	TIGA
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1

Assessment (also refer to Assessment Outcomes Grids below)

Assessment 1
Game design (25%)
Assessment 2
Grey boxing game prototype (25%)
Assessment 3
High-fidelity game prototype (50%)
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Design/ Diagram/ Drawing/ Photograph/ Sketch	☐	☒	☐	☐	☐	25	

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Creative output/ Audiotapes/ Videotapes/ Games/ Simulations	☒	☐	☒	☐	☐	25	

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Creative output/ Audiotapes/ Videotapes/ Games/ Simulations	☒	☐	☐	☒	☐	50	
Combined total for all components						100%	0 hours

Change Control

What	**When**	**Who**
Corrected contact hours to sum to 48	13 Mar 2023	Marco Gilardi
Updated Extenal examiner to new appointee	13 Mar 2023	Marco Gilardi
