Prifysgol Wrecsam
Wrexham University

Module specification

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Module Code	GM502
Module Title	Mobile Game Development
Level	5
Credit value	20
Faculty	FACE
HECoS Code	101020
Cost Code	GAGM

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Computer Game Development	Core
BSc (Hons) Computer Game Development (with Industrial Placement)	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	30 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**30 hrs**
Placement / work based learning	0 hrs
Guided independent study	170 hrs
Module duration (total hours)	**200 hrs**

For office use only	
Initial approval date	10/05/2023
With effect from date	September 2023

Module aims

This module aims to cover the key elements of mobile game development. The essential pillars of Object-Oriented Programming (OOP) will be the main focus through the scope of mobile game development. Early work through the module will ensure that students have the understanding of objects and data structures whilst continuing to expand on more complex techniques and strategies.

This module will further students understanding of the OOP paradigm through experimentation and development within a game engine environment. Within this, there will be a specific focus on visual and non-visual tools and strategies, how they relate to one another, when it is best to use them within mobile game development. Students will finish this module with portfolio work that demonstrates their learning and programming acumen to date.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Apply concepts of Object-Oriented Programming within the scope of mobile game development.
2	Using the appropriate Data Structures, Classes and Objects to solve programming-based problems.
3	Distinguish between Visual and Non-visual programming strategies within a mobile game engine and relate them to suitable uses.
4	Produce an application that demonstrates current Mobile Game Programming paradigms.

Assessment

Indicative Assessment Tasks:

This module will present to students the key concepts required to develop mobile game apps and applications. The development process will include the following stages: Conceptualization, Design, Implementation, Testing, Release and Maintenance; all of these stages would need to be documented.

The completed coursework would demonstrate key features of the development process and at least some will represent a portfolio-worthy artefact.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2, 3, 4	Coursework	100

Derogations

N/A

Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, sections of code/diagrams or any additional content that supports their learning.

As this module progresses, a structured strategy will be used to support the students engaging with the key threshold concepts relating to the learning outcomes. The module will include a balanced mixture of engaging tutor-led lectures, demonstrations, and facilitation. As the module continues experiential and peer learning strategies will be encouraged as the students' progress with their coursework.

Indicative Syllabus Outline

Depending on the relevance to current industry trends a programming language will be chosen that aligns with a contemporary Game Engine. Indicatively C++ and Blueprint programming languages and a current version Unreal Engine 5 will be the focus of teaching and assessment. Students will be required to demonstrate the module outcomes to the specified language and engine chosen. The following essential topics will be delivered through the syllabus as core programming concepts.

- OOP Programming Strategies
- Visual & Non-Visual programming
- Mobile application platforms
- Classes and Encapsulation
- Inheritance and Parent/Child relationships
- Mobile Programming efficiencies
- File sizing and Optimisation
- Rapid Prototyping
- Technical Portfolio Development

Indicative Bibliography:

Essential Reads

Fozi, H., Marques, G., Pereira, D., Sherry, D. (2020), *Game Development Projects with Unreal Engine*, Birmingham: Packt Publishing.

Other indicative reading

Doran, J. P. (2020), *Unity 2020 Mobile Game Development: Discover practical techniques and examples to create and deliver engaging games for Android and iOS*, Second Edition, Birmingham: Packt Publishing

Felicia, P. (2022), *Unreal Engine from Zero to Proficiency (Foundations): A Step-by-step guide to your first game with Unreal Engine*, New York: Patrick Felicia.

Ferrone, H. (2022), *Learning C# by Developing Games with Unity 2022*, Seventh Edition, Birmingham: Packt Publishing.

Horton, J. (2019), *Beginning C++ Game Programming: Learn to program with C++ by building fun games*, Birmingham: Packt Publishing