MODULE SPECIFICATION

Part 1: Information			
Module Title	Games Tech: 101		
Module Code	UFCFJL-30-1	Level	Level 4
For implementation from	2020-21		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Computer Science and Creative Technologies
Department	FET Dept of Computer Sci & Creative Tech		
Contributes towards			
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Games Tech 101 looks to explore the core various techniques and technologies used in modern day game development. Many game studios rely on the use of first-party technologies to power their games and this module aims to give students an insight in to the typical demands of a modern day games developer.

Educational Aims: Students who pass the module will have a clearer understanding of games development within the context of modern programming languages, technologies and techniques. They will also gain the ability to implement working solutions to game technology related problems. The knowledge acquired from successful completion will provide the foundations for coming years of study. Irrespective of the specalisation the students career follows, the grounding provided in this module will ensure they can be a valuable and versatile asset in any game studio.

Outline Syllabus: The following provides an indicative list of module content, which may vary with delivery to respond to current trends:

Introduction to algorithms
* Common algorithms used in a games context
* Sorting algorithms
* Big O Notation and performance optimisation

Data Structures
* Collation of data in user managed container types
* Discussion and implementation of common container types used in the games industry
* Discussion of performance and related practical considerations

AI in games
* What we mean by "AI" in the context of gaming and the role of AI in games
* The purist vs practical approach to game AI and the trade-off between them
* The use of finite state machines to manage state data and model simplistic AI
* Implementation and/or illusion of agency in simulated worlds
* The black-box model
* An introduction to Deep Learning...!

Rendering
* Overview of the typical rasterisation rendering pipeline
* Primitive rendering techniques such as points, lines, triangle strips etc
* Intro to Shaders
* Window management

Teaching and Learning Methods: Delivery
Lectorials will be used throughout the module where students are offered the opportunity to practice the concepts they are introduced to. These sessions will be attended by module staff, where students will be encouraged to think beyond the scope of the materials presented. The scheduled lab sessions will offer the perfect opportunity for formative development, where students can interact with both lecturers and their peers alike.

Part 3: Assessment

Reaching the outcomes
In order to reach the learning outcomes the students will need to digest the content being delivered throughout the module. They will implement a range of tasks that illustrate their understanding of the learning outcomes. This will be accompanied with a viva where they are given the opportunity to answer questions regarding their completed work. The module team will use this to ascertain whether the student has engaged and understood the module's content.

Plagiarism
A viva will be used to determine both the student's knowledge but also the authenticity of the work they have completed. This will take the form a presentation where the student will have the opportunity to demonstrate their work and answer any questions the module team may have. The viva will be performed under controlled conditions.

Group assessment
The practical tasks will be undertaken in small groups and the module team will endeavour to ensure marks are allocated on a fair and even basis, included but not limited to peer weightings.

Formative feedback
During all studio sessions, the module team will be present. The module team will look to engage with students as they progress throughout the semester, providing support and guidance on the work being produced. By providing continual support and feedback, students should be better able to produce quality of work sufficient to pass the assessment.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**

Portfolio - Component B		75 %	Students will need to complete a number of tasks that are provided by the module team. This will be completed in groups. At the end of the module, a viva under controlled conditions will be used to ascertain their understanding. The viva is the second component for this module and takes the form of a demo session/presentation.
Presentation - Component A	✓	25 %	This forms the controlled conditions part of the module. Students will need to demo their work and will be expected to expected to answer questions on the tasks they completed and their suitability in the games development environment. The viva along with questions and answers will aim to be around 10 minutes, which provides enough time to demo work and answer any relevant questions.
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Report - Component B		75 %	A typical games development scenario will be provided to the student. In return they will be expected to produce a technical report with sufficient depth of analysis on how they would meet the requirements laid out in the brief.
Presentation - Component A	✓	25 %	Accompanying the technical report, students will have the opportunity to present their findings and be expected to highlight the strengths and weaknessess of their reports. This allows the module team to establish the student's knowledge under controlled conditions.

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will be able to:

	Module Learning Outcomes
MO1	Demonstrate an understanding of core algorithms and data structures used in computer games development
MO2	Explain how games are rendered and the typical pipelines used in these processes
MO3	Identify and implement solutions to common AI related problems faced when developing typical video games
MO4	Reflect on and provide appropriate rationale as to which technologies are applicable to solve a given problem within the domain of games technology

Contact Hours

Contact Hours

	Independent Study Hours:	
	Independent study/self-guided study	228
	Total Independent Study Hours:	228
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	72
	Total Scheduled Learning and Teaching Hours:	72
	Hours to be allocated	300
	Allocated Hours	300
Reading List	*The reading list for this module can be accessed via the following link:* http://readinglists.uwe.ac.uk/lists/3854828E-4C55-C400-B1BD-E9AF4C34EB49.html	