



## **Module Specification**

### **Games Tech: 101**

Version: 2023-24, v2.0, 27 Feb 2023

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## Part 1: Information

**Module title:** Games Tech: 101

**Module code:** UFCFJL-30-1

**Level:** Level 4

**For implementation from:** 2023-24

**UWE credit rating:** 30

**ECTS credit rating:** 15

**Faculty:** Faculty of Environment & Technology

**Department:** FET Dept of Computer Sci & Creative Tech

**Partner institutions:** None

**Field:** Computer Science and Creative Technologies

**Module type:** Module

**Pre-requisites:** None

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** 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.

**Features:** Not applicable

**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 specialisation 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

## Part 3: Teaching and learning methods

### Teaching and learning methods: Delivery

Lectures will be used to deliver new ideas and concepts to the students.

Studio time 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 and are designed to encourage students 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.

**Module Learning outcomes:** On successful completion of this module students will achieve the following learning outcomes.

**MO1** Use code to show 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

**Hours to be allocated:** 300

### Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufcfjl-30-1.html) via the following link <https://uwe.rl.talis.com/modules/ufcfjl-30-1.html>

## **Part 4: Assessment**

**Assessment strategy:** In order to reach the learning outcomes, students will complete a range of tasks. Tasks will be focused around the use of technology in games and will result in a portfolio of work.

The portfolio has two distinct parts. The first is guided, in that students are asked to complete individual tasks that are well-defined and directly related to the concepts being taught. Code samples and snippets will be provided to help complete these. The second part of the portfolio sees a higher level of creative freedom; students will be free to design and implement their own games, within a prescribed framework. Development work will be accompanied by a viva or appropriate equivalent (videos, developer diaries etc.). Although a group task, students will be graded individually.

### **Formative feedback**

During all studio sessions the module team will be present. The team will look to engage with students as they progress throughout the semesters, 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.

### **Assessment tasks:**

#### **Portfolio (First Sit)**

Description: Portfolio of individual worksheets, culminating in a group presentation of students' own games. Students will be expected to participate in a Q&A session as part of the presentation.

Weighting: 100 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

**Portfolio (Resit)**

Description: Portfolio of individual worksheets, culminating in a group presentation of students' own games. Students will be expected to participate in a Q&A session as part of the presentation.

Weighting: 100 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

**Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Games Technology [Frenchay] BSc (Hons) 2023-24

Games Technology {Foundation} [Frenchay] BSc (Hons) 2022-23