

<b>Module code: MOD003199</b>	<b>Version: 1 Date Amended: 19/Mar/2010</b>
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<b>1. Module Title</b>
Game Design and Development

<b>2a. Module Leader</b>
GARY BUNN

<b>2b. School</b>
Cambridge School of the Creative Industries

<b>2c. Faculty</b>
Faculty of Arts, Humanities and Social Sciences

<b>3a. Level</b>
5

<b>3b. Module Type</b>
Standard (fine graded)

<b>4a. Credits</b>
30

<b>4b. Study Hours</b>
300

<b>5. Restrictions</b>			
<b>Type</b>	<b>Module Code</b>	<b>Module Name</b>	<b>Condition</b>
Pre-requisite:	MOD002582	Introduction to Computer Gaming	Compulsory
Co-requisites:	None		
Exclusions:	None		
<b>Courses to which this module is restricted:</b>	None		

## LEARNING, TEACHING AND ASSESSMENT INFORMATION

### 6a. Module Description

This module provides the student with a formally rigorous approach to the design of computer games, and provides a sound understanding of the development and delivery technologies which underpin modern high performance games. The theoretical aspects of the module involve understanding the development and management processes required to create a modern computer game. Students will also gain an understanding of how to represent games in formal, game-theoretic terms, and also the computational models and architectures which underpin modern games. Mathematical aspects include core concepts for implementing interactions within a game environment. These are introduced through the practical needs of simple interactive games which provide a rationale for trigonometry, vector manipulation, algebra and problem solving with algorithms. A key theoretical part of the module involves an understanding of the architecture and function of modern game engines. This theoretical knowledge is applied in the practical aspects of the module. These practical aspects require the student to develop a game from a specified genre, utilising a carefully-managed production cycle, and to become familiar with the range of tools which underpin games production: level editors, game engines and scripting languages. This rigorous approach is central to the skill set of contemporary professional games developers. The assessment programme for the module consists of the production of a working game, with an emphasis on the development of a clear underlying game model, the disciplined development of the game from this model, and the production of high-quality documentation. The game will be developed as part of a group project, simulating conditions in the games industry. The module uses a wide range of resources, since it is important for students to be exposed to a number of different development tools and game engines, as these typically have restricted and specialised functionality. In addition to a proprietary game development environment, extensive use is made of open source development tools.

### 6b. Outline Content

- Game development roles and skills: underlying game design, level design, artwork and texture design, sound design, programming, testing. Appropriate documentation of specialised contributions to a game project.
- Professional game development cycle: pre-production - concept and commercial context, game design, proof of concept; production - sprite/3D modelling, scripting actions, level design, integration, testing.
- Game engine functions and architecture: graphics rendering, game physics, game AI, etc. Types of engine: 3D engines, physics engines - middleware engines. Game APIs, languages.
- Game genres. Principles of genre classification; genre hybridisation. Typical genres such as: first person and third person shooters, simulation, role-playing and adventure, strategy, etc.
- Formal properties of games from different genres.
- Level design and editing: typical proprietary and public domain level editors.
- Game testing strategies.

### 6c. Key Texts/Literature

The reading list to support this module is available at: <http://readinglists.anglia.ac.uk/modules/mod003199>

### 6d. Specialist Learning Resources

Access to a full suite of current multimedia hardware and software including: proprietary 3D games development environment with scripting language, open source level editors and open source game engines.

7. Learning Outcomes (threshold standards)		
No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Analyse examples of different genres of computer game, representing their underlying properties and interactions in an appropriate formalism.
2	Knowledge and Understanding	Explain the functionality and architecture of a range of game engines.
3	Knowledge and Understanding	Assess the benefits of disciplined product development and differentiation of roles in the computer games industry.
4	Intellectual, practical, affective and transferrable skills	Design variants of existing computer games from different genres, including their game properties, graphical appearance and underlying software architecture.
5	Intellectual, practical, affective and transferrable skills	Implement variants of existing computer games using 2D and 3D graphics packages, level editors, scripting languages and game engines.
6	Intellectual, practical, affective and transferrable skills	Adopt a well-defined professional role in the group design and implementation of a variant of an existing computer game.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2018/9	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	12	1-6	1hr lecture per week
Other teacher managed learning	36	1-6	3hr workshop/tutorial per week
Student managed learning	252	1-6	Self-managed learning and development work
TOTAL:	300		

**9. Assessment for the above Module Occurrence**

<b>Assessment No.</b>	<b>Assessment Method</b>	<b>Learning Outcomes</b>	<b>Weighting (%)</b>	<b>Fine Grade or Pass/Fail</b>	<b>Qualifying Mark (%)</b>
010	Coursework	1-6	100 (%)	Fine Grade	30 (%)

**Group Assignment : 6000 words. Design, implement and document a simple variant of an existing computer game in a group.**

**In order to pass this module, students are required to achieve an overall mark of 40%.**

**In addition, students are required to:**

- (a) achieve the qualifying mark for each element of fine graded assessment of as specified above**
- (b) pass any pass/fail elements**