

MODULE DESCRIPTOR

MODULE TITLE	GAMES DEVELOPMENT 2		
MODULE CODE	CO3301 (L6)	CREDIT VALUE	20 UK CREDITS / 10 ECTS
SCHOOL	SCHOOL OF SCIENCES		

MODULE AIMS

1. To extend the student's knowledge of Artificial Intelligence.
2. To help students understand some of theoretical underpinnings of computing.
3. To familiarise students with the current techniques and algorithms that are employed in computer games development.
4. To develop the relevant knowledge and abilities required to design, develop and analyse games.
5. To extend the students' skills and knowledge of the games production process.
6. To explore the potential of a variety of technologies used in the games industry.

MODULE CONTENT

Indicative syllabus content:

This module is a continuation of the level 2 module Games Development 1. As such it includes many of the same topics but explores these topics in greater detail based on the foundation provided in the earlier module.

The module will extend the student's understanding of Artificial Intelligence (AI). The module will also explore some of theoretical underpinnings of AI and Computing

The computer games industry is now characterised by very large-scale design and development projects using inter-dependent development tools. The co-ordination of multi-disciplinary development teams and the production of numerous resources to tight commercial deadlines challenge management skills. The commercial pressure to innovate and develop enthralling game-play encourages developers to incorporate novel technology and ideas. This integrative module brings together the production processes, development tools and implementation techniques used in the games industry.

Advanced Artificial Intelligence

Influence Maps
Cellular Automata
Blackboard model
Planning
Production systems
Turing Machines and computability
Machine learning
Behaviour trees
Decision trees

Advanced Games Architecture

Entity IDs and Communication
Object Oriented and Component-Based Entities
Resource Management
Extensibility

Game Data and Scripting

Scripting Languages, Lua, Python, Integrating with C++
XML for Game Data

Games Production

Asset Management
Tool Chains, C# for Tools Programming
Production & Management Processes

INTENDED LEARNING OUTCOMES

On successful completion of this module a student will be able to:

1. Critically evaluate approaches to games development from design to implementation.
 2. Analyse and evaluate game-specific algorithms in terms of their theoretical underpinnings.
 3. Compare and contrast current research issues relevant to computer games.
 4. Critically evaluate the principles and algorithms of artificial intelligence.
 5. Analyse and evaluate the theoretical foundations of artificial intelligence and computing.
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TEACHING METHODS

All the games development techniques covered will be introduced from a programming viewpoint and illustrated practically.

Lectures will present concepts illustrated with examples and will be used to direct student reading and research into relevant topics. Tutorial sessions will allow students to investigate and apply the material illustrated in the lectures.

Tutorials will be used to reinforce the topics covered in the lecture but will also allow the student to examine and evaluate other possible approaches to these topics. Tutorials will also include the presentation and discussion of student investigation.

The summative assessment is designed to test the students' comprehension and application of the concepts taught or discovered in a written examination and their practical skills in the use of games technologies and techniques in a coursework assignment.

ASSESSMENT METHODS

This module is assessed through integrative games development assignment and an examination.