MODULE **DESCRIPTOR**

MODULE TITLE	GAMES DEVELOPMENT 1		
MODULE CODE	CO2301 (L5)	CREDIT VALUE	20 UK CREDITS / 10 ECTS
SCHOOL	SCHOOL OF SCIENCES		

MODULE **AIMS**

1. To introduce students to the approach and techniques of Artificial Intelligence.
2. To introduce a range of technologies, techniques and theoretical knowledge required to produce computer games.
3. To enhance skills in game architecture, development and implementation
4. To provide an opportunity for the critical evaluation of game algorithms, environments and tools.

MODULE **CONTENT**

Indicative syllabus content:

The development of computer games software requires general software skills, an understanding of a variety of games-specific algorithms and the ability to apply these using traditional languages and games-specific tools. The module will see the students applying general programming skills in a games-specific context. The module will also enhance the students' ability to evaluate game algorithms and development environments.

Artificial Intelligence
Game Agents
Finite State Machines
Search algorithms. This will be done in the context of pathfinding: Breadth-First, Depth-First, Hill-Climbing, Dijkstra's algorithm, Best-First, A*
Decision Making, Conceptual Search

Games Implementation
3D Modelling & 3D Model Import / Export
Working with Artists
Sound Effects & DirectSound
Physics Engines & Physics Models

Introductory Games Architecture
Timing and Structure of the Game Loop
Architectures for Games
Portability & Reuse
Game Entities

INTENDED **LEARNING OUTCOMES**

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

1.	Explain the theoretical underpinnings of algorithms and techniques specific to artificial intelligence.
2.	Implement artificial intelligence algorithms.
3.	Apply a systematic approach to games development from specification to implementation.
4.	Develop software using game-specific tools and environments.

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.

Coursework measures the students' practical skills and competence by assessing their achievements in learning outcomes 2 to 4. 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 application of AI algorithms and concepts in a coursework assignment.

ASSESSMENT METHODS

This module is assessed through a coursework and an examination.