

MODULE DESCRIPTOR

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| MODULE TITLE | Games Development 1 | | |
| MODULE CODE | CO2301 (L5) | CREDIT VALUE | 20 / 10 ECTS |
| SCHOOL | SCHOOL OF SCIENCE | | |
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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

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. Tutorials 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: Integrative Development, AI & Game Technologies (70%) and an examination (30%).