

Module Title:	Artificial Intelligence for Games
Language of Instruction:	English
Credits:	5
NFQ Level:	8
Module Delivered In	1 programme(s)
Teaching & Learning Strategies:	Traditional lectures are used to convey knowledge from teacher to student, and students are actively encouraged to engage in discussion during class. During the practical sessions, students will undertake various laboratory exercises implementing and exploring a variety of algorithms. Group learning is also utilised via a module group project and also a cross-module group project as possible. A term paper will involve a more in-depth study of the topics raised.
Module Aim:	To immerse students in the formal theory, and the application of contemporary techniques in Artificial Intelligence for computer games development.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Compare and contrast a number of search techniques including within adversarial environments
LO2	Illustrate different techniques for modelling/implementing the Game space
LO3	Apply appropriate AI techniques to enhance the Gaming experience
Pre-requisite learning	
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

Module Content & Assessment

Indicative Content

What is Intelligence?

Turing Test. Chinese Room. Philosophical Implications, AI in Games Context.

Basic Behaviours

Flocking, Swarming, Chasing, Evading.

Group Behaviours

Flocking, Swarming, Coordinated movements, Squads

Search

Search space, Basic search algorithms, Heuristic Search, A* Search, Advanced A* variants

Game Search

Mini-max search, alpha-beta search, search space pruning

Basic Decision Making

Finite State Machines, Decision Trees

Fuzzy Logic

Fuzzification, Fuzzy Rule Application, Defuzzification, Combs Method

Assessment Breakdown

	%
Continuous Assessment	35.00%
Project	15.00%
End of Module Formal Examination	50.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Case Studies	Students are required to implement specific algorithms within a gaming context	1,2,3	35.00	n/a

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Intended as a group project	1,2,3	15.00	n/a

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	A written assessment of student's understanding and ability to conceptually apply the course material appropriately.	1,2,3	50.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	12 Weeks per Stage	2.00
Laboratory	12 Weeks per Stage	2.00
Estimated Learner Hours	15 Weeks per Stage	5.13
Total Hours		125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCGD_B	Bachelor of Science (Honours) in Computer Games Development	7	Mandatory