Module Title:	Fundamentals of Game Networking
Language of Instruction:	English

Credits:	5

NFQ Level:	8

Module Delivered In	1 programme(s)

Teaching & Learning Strategies:	The course is delivered via an equal mixture of laboratory and lecture sessions. Lecture sessions present fundamental game networking concepts, which are further supported by practical implementation of concepts during laboratory sessions and assessments.

Module Aim:	To enable the student to develop multiplayer video games in accordance with industry practice.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Build an understanding of the fundamental concepts of computer networking
LO2	Apply the architectural principles of computer networking and compare different approaches to organising networks.
LO3	Design, develop and deploy distributed, multiplayer gaming applications.

Pre-requisite learning	
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*	
No recommendations listed	
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*	
Games Engineering II or equivalent Web Development and Databases or equivalent Programming II and Operating Systems or equivalent	

Module Content & Assessment

Indicative Content
Introduction History and challenges of Online Games
Network fundamentals IP, TCP, UDP, Sockets, latency, bandwidth, packet loss
Network architectures Client-server, P2P, multiple servers, multicast, NAT
Design a multiplayer game Serialisation, replication, input and state based updates, design decisions

Assessment Breakdown	%
Project	20.00%
Practical	30.00%
End of Module Formal Examination	50.00%

No Continuous Assessment

Project				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Design and Implementation of a Multiplayer Video Game	1,2,3	20.00	End-of-Semester

Practical				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Practical/Skills Evaluation	Laboratory Work	1,2,3	30.00	Every Week

End of Module Formal Examination				
Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	n/a	1,2	50.00	End-of-Semester

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

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
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