

<b>Module Title:</b>	Online Gaming Technologies I (minor)
<b>Language of Instruction:</b>	English
<b>Credits:</b>	5
<b>NFQ Level:</b>	8
<b>Module Delivered In</b>	No Programmes
<b>Teaching &amp; Learning Strategies:</b>	The course is delivered via an equal mixture of laboratory and lecture sessions. Lecture sessions will present high level on-line gaming concepts, which are further supported by practical implementation of concepts during laboratory sessions and assessments.
<b>Module Aim:</b>	To enable the student to develop on-line games in accordance with industrial practice.
<b>Learning Outcomes</b>	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Develop a basic two player networked game
LO2	Explain the main challenges of developing online games and detail techniques for addressing these challenges
LO3	Design, develop, and deploy an online game for three or more players that uses information management and latency management techniques.
<b>Pre-requisite learning</b>	
<b>Module Recommendations</b> <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
<b>Incompatible Modules</b> <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
<b>Co-requisite Modules</b>	
No Co-requisite modules listed	
<b>Requirements</b> <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
Games Engineering I or equivalent Programming II or equivalent	

## Module Content & Assessment

Indicative Content
<b>A brief history of online games</b> n/a
<b>Networking primer</b> Fundamental networking concepts; TCP/IP Model; Internetworking; IP
<b>Network programming</b> Streams; datagrams; non-blocking calls; serialization;
<b>Network limitations and consistency</b> Latency and jitter; unreliable data transfer; bandwidth; the Information Principle;
<b>Network Architectures</b> Client-Server; P2P; Authoritative host; multiple servers; Network Address Translators (NATs);
<b>Information Management</b> Packet Rate Modification; Interpolation, extrapolation, and convergence; Predictive Contracts; Dead Reckoning; Compression;
<b>Latency Management</b> Effects of Latency; clock synchronization; optimistic and pessimistic latency compensation techniques;

Assessment Breakdown	%
Continuous Assessment	30.00%
Project	40.00%
Practical	30.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Class Examinations	2	30.00	n/a

Project				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Project	3	40.00	Sem 1 End

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Practical Laboratories	1	30.00	Sem 1 End

No End of Module Formal Examination
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ITCarlow reserves the right to alter the nature and timings of assessment

**Module Workload**

<b>Workload: Full Time</b>		
<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	24 Weeks per Stage	2.17
	Total Hours	100.00

