



Title:	Game Development APPROVED
Long Title:	Game Development
Module Code:	SOFT8009
Duration:	1 Semester
Credits:	5
NFQ Level:	Advanced
Field of Study:	Computer Software
Valid From:	Semester 1 - 2018/19 (September 2018)
Module Delivered in	2 programme(s)
Module Coordinator:	Sean McSweeney
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Module Description:	This module equips students with the skills and knowledge required to critically analyse computer games and to design and build small-scale 2D and / or 3D multi-platform computer games. The module covers game mechanics, game engines, the history of games, the design of games, and how games can achieve commercial, social, political and pedagogical aims.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
LO1	Critically analyse a computer game's genre, mechanics, aesthetics, level and story design, and its place in the evolution of computer games.
LO2	Discuss how game mechanics can help achieve commercial, social, political and pedagogical aims.
LO3	Explain how mathematics, physics and artificial intelligence can be applied to create a realistic game environment.
LO4	Design a computer game, incorporating story and level design.
LO5	Develop a 2D or 3D game using a game development engine.
Pre-requisite learning	
Module Recommendations	
<i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>	
Object Oriented Programming 2	
Incompatible Modules	
<i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.</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. You may not enrol on this module if you have not acquired the learning specified in this section.</i>	
No requirements listed	

Module Content & Assessment

Indicative Content

Introduction

The evolution of games from ancient times to the digital era; A history of electronic games including arcade, mainframe, consoles, home computers, PCs, mobile, and virtual reality; The economics of the video games industry; Game Based Learning; Persuasive games; Gamification.

Game Design

Game genres; Game mechanics; Aesthetics; Storytelling and narrative; Level design; Character development; Choosing from single-player, co-operative, multiplayer and massively-multiplayer online gameplay (MMOG).

Game Development Cycle

The production cycle; The polyskilled production team; Integration of multimedia into games, including audio, 3D assets and animation.

Game Implementation

Development of 2D and 3D games using leading game engines / IDEs, such as Unreal, Unity, CryEngine and GameMaker; Contrasting game engines / IDEs with bespoke game engine development; Application of mathematics and physics; Artificial intelligence in games; Algorithms, design patterns and data structures pertinent to games engines; Graphics rendering.

Assessment Breakdown

%

Course Work

100.00%

Course Work

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Essay	An essay on a game studies topic or deep analysis of a game, with a brief in-class presentation.	1,2,3	40.0	Week 7
Project	A computer game design and implementation using a leading game development engine. Can be individual or group-based (with significant self and peer assessment).	4,5	60.0	Sem End

No End of Module Formal Examination

Reassessment Requirement

Coursework Only

This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

The institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Lectures on theory related to game studies and game design and development	2.0	Every Week	2.00
Lab	Tutorials and supervised project work using a game development engine	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent research plus reading assigned book chapters / articles, viewing recommended videos, playing assigned video games	3.0	Every Week	3.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

Workload: Part Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Lectures on theory related to game studies and game design and development	2.0	Every Week	2.00
Lab	Tutorials and supervised project work using a game development engine	2.0	Every Week	2.00
Independent & Directed Learning (Non-contact)	Independent research plus reading assigned book chapters / articles, viewing recommended videos, playing assigned video games	3.0	Every Week	3.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

Module Resources

Recommended Book Resources

- Egenfeldt-Nielsen et al 2016, *Understanding Video Games : The Essential Introduction*, 3rd Ed., Routledge [ISBN: 9781138849822]
- Rogers, S. 2014, *Level Up! The Guide to Great Video Game Design*, 2nd Ed., Wiley [ISBN: 978111887716]

Supplementary Book Resources

- Gregory, J. 2014, *Game Engine Architecture*, 2nd Ed., A K Peters/CRC Press [ISBN: 978146656001]
- Ian Bogost 2010, *Persuasive Games : The Expressive Power of Videogames*, MIT Press Cambridge, Mass. [ISBN: 9780262514880]
- Angelides, M.C. and Agius H. 2014, *Handbook of Digital Games*, John Wiley & Sons, Incorporated [ISBN: 9781118328033]

This module does not have any article/paper resources

Other Resources

- Website: *Unreal Engine Documentation*, Epic Games
<http://docs.unrealengine.com>

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_KSDEV_8	<u>Bachelor of Science (Honours) in Software Development</u>	7	Elective
CR_KDNET_8	<u>Bachelor of Science (Honours) in Computer Systems</u>	7	Elective