MODULE SPECIFICATION PROFORMA

Module Code:	ARD546

Module Title:	VFX for Video Games

Level:	5	**Credit Value:**	20

Cost Centre(s):	GADC	JACS3 **code**: HECoS code:	I700 100363

Faculty:	Arts, Science and Technology	**Module Leader:**	Steve Jarvis

Scheduled learning and teaching hours	40 hrs
Guided independent study	160 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
BA (hons) / MDes Game Art	✓	☐
BA (hons) / MDes Visual Effects	✓	☐

Pre-requisites
None

Office use only
Initial approval: 01/05/2018 Version no:1
With effect from: 01/09/2019
Date and details of revision: Version no:

Module Aims

This module provides an introduction to 3D particle systems, virtual fields and forces. Students will be introduced to scripting techniques in order to manage sudo random attributes of particles and virtual fields. Students will need to understand the uses and limitations of VR modelling in order to produce an immersive user experience. Students will also develop an appreciation of effective working methods with regard to hardware limitations.

Intended Learning Outcomes

Key skills for employability

KS1	Written, oral and media communication skills
KS2	Leadership, team working and networking skills
KS3	Opportunity, creativity and problem-solving skills
KS4	Information technology skills and digital literacy
KS5	Information management skills
KS6	Research skills
KS7	Intercultural and sustainability skills
KS8	Career management skills
KS9	Learning to learn (managing personal and professional development, self-management)
KS10	Numeracy

At the end of this module, students will be able to		Key Skills	
1	Utilise particle systems to create naturalistic and fantastical effects.	KS3	KS6
		KS4	KS10
		KS5	
2	Use expressions to simulate recurring motion or sudo random effects.	KS1	KS4
		KS2	KS5
		KS3	KS6
3	Use simulated fields to affect geometry and particles.	KS4	KS8
		KS6	KS2
		KS7	
4	Demonstrate an understanding of arbitrary output variable render passes and how to combine and manipulate them.	KS4	KS8
		KS5	KS9
		KS7	KS10

Transferable skills and other attributes

- ability manage an independent workload
- contribute proactively to group critique
- communication skills
- understanding the requirements and limitations of the Game Engine
- note-taking; recording, referring and responding to information

Derogations

None.

Assessment:

Indicative Assessment Tasks:

Students will be required to produce coursework in response to 2D and 3D particle systems, in an effort to produce realistic or fantastical effects. Students will gain a knowledge of different kinds of particles their emitters and the forces that can act upon them. Recreating phenomena such as Fire, smoke, dust and liquids.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1-4	Coursework	100%		

Learning and Teaching Strategies:

- Contextual information for this module will be delivered as keynote lectures.
- Assignments presented to students will be designed to enable students to produce a body of work that demonstrates their ability in the production of 'Virtual Reality levels' for the video game industry.
- Lectures, workshops and critiques will enable the student to appreciate the similarities, divergences and application of creating custom geometry, terrain etc. with in-engine tools for different purposes.
- Tutorial guidance, group critique and student seminars will underpin of the skill development and understanding of the student.

Syllabus outline:

Key lectures will examine visual effects and best practices, within the Game engine and Game industry. Students will be introduced to the methods used in the development of particle effects, scripting techniques, virtual fields and forces for the video game industry.

During the practical based sessions, students will focus on project planning and process of project discussion. Underpinning theory and concepts will be introduced in lectures and further reinforced through peer review and group critiques. Projects will be set to challenge the students to make use of technical equipment and produce work relevant to their chosen theme and style.

Throughout the module, students will share work and will contribute constructively to feedback upon the work of their peers to form a community of practice. To complete this module, students will submit a portfolio of work which demonstrates the culmination of their project in response to set assignments. In addition to the body of work submitted for assessment, students will be expected to design, develop, and present (working) visual effects within a game level for their portfolio websites, or other industry related websites.

Indicative Bibliography:

Essential reading

McCaffrey, M. (2017). Unreal engine VR cookbook. Boston: Addison-Wesley.
£32

Ramirez, M. (n.d.). Virtual reality for beginners!. CreateSpace Independent Publishing Platform (26 Nov. 2016).
Ramirez, M. (2016), *Virtual reality for beginners!.* CreateSpace Independent Publishing Platform. Approx £8

Other indicative reading

Galuzin, A. (n.d.). Preproduction blueprint. 2nd ed. CreateSpace Independent Publishing Platform; (9 Nov. 2016).
Galuzin, A. (2016), *Preproduction blueprint.* 2nd ed. CreateSpace Independent Publishing Platform. £38

Kremers, R. (2010). Level design. Natick, MA: A.K. Peters.
Kremers, R. (2010), *Level design*. Natick, MA: A.K. Peters. £47

Pv, S. (n.d.). Unreal Engine 4 game development essentials. Packt Publishing (25 Feb. 2016).
Satheesh, P. V. (2016), *Unreal Engine 4 game development essentials*. Packt Publishing. £29

Shannon, T. (2017). UNREAL ENGINE 4 FOR DESIGN VISUALIZATION. ADDISON-WESLEY (14 Aug. 2017).
Shannon, T, (2017), Unreal Engine 4 for design visualization. Addison-Wesley/Pearson Education. £31

Periodicals and Websites

Creative Review, Centaur Communications - available via Resource Finder
Computer Arts, Future Publishing – available in print only at Glyndwr
Develop, Intent Media
EDGE, Future Publishing – not available via Resource Finder
http://creativecrash.com
http://www.cgsociety.org
http://www.digitaltutors.com
https://www.unrealengine.com/en-US/what-is-unreal-engine-4
http://www.simplymaya.com – check URL