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Refer to guidance notes for completion of each section of the specification.

Module Code:	ARD554

Module Title:	Particles for VFX

Level:	5	Credit Value:	20

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

Faculty	FAST	Module Leader:	Steve Jarvis

Scheduled learning and teaching hours	25 hrs
Placement tutor support	0hrs
Supervised learning eg practical classes, workshops	25hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total contact hours	**50** hrs
Placement / work based learning	
Guided independent study	150 hrs
Module duration (total hours)	200 hrs

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

Pre-requisites
None

Office use only	
Initial approval: 22/01/2020	Version no:1
With effect from: 01/09/2020	
Date and details of revision:	Version no:

Template updated: September 2019

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.

Module Learning Outcomes - at the end of this module, students will be able to	
1	Utilise particle systems to create naturalistic and fantastical effects.
2	Use expressions to simulate recurring motion or sudo random effects.
3	Use simulated fields to affect geometry and particles.
4	Demonstrate an understanding of arbitrary output variable render passes and how to combine and manipulate them.

Employability Skills The Wrexham Glyndŵr Graduate	I = included in module content A = included in module assessment N/A = not applicable
Guidance: complete the matrix to indicate which of the following are included in the module content and/or assessment in alignment with the matrix provided in the programme specification.	
CORE ATTRIBUTES	
Engaged	I
Creative	I
Enterprising	N/A
Ethical	N/A
KEY ATTITUDES	
Commitment	I
Curiosity	I
Resilient	I
Confidence	I
Adaptability	I
PRACTICAL SKILLSETS	
Digital fluency	I
Organisation	A
Leadership and team working	N/A
Critical thinking	A
Emotional intelligence	I
Communication	I
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 (%)
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. Ramirez, M. (n.d.). Virtual reality for beginners!. CreateSpace Independent Publishing Platform (26 Nov. 2016).

Other indicative reading

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

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

Pv, S. (n.d.). Unreal Engine 4 game development essentials. Packt Publishing (25 Feb. 2016).

Shannon, T. (2017). UNREAL ENGINE 4 FOR DESIGN VISUALIZATION. ADDISON-WESLEY (14 Aug. 2017).

Periodicals and Websites

Creative Review, Centaur Communications.
Computer Arts, Future Publishing
Develop, Intent Media
EDGE, Future Publishing
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