University of the West of Scotland

Module Descriptor

Session: 2024/25

Title of Module: Immersive Experiences Implementation			
Code: COMP10083	**SCQF Level: 10** (Scottish Credit and Qualifications Framework)	**Credit Points: 20**	**ECTS: 10** (European Credit Transfer Scheme)
School:	School of Computing Engineering and Physical Sciences		
Module Co-ordinator:	Marco Gilardi		

Summary of Module

The emergence of extended realities (XR) technologies, such as virtual reality (VR), augmented reality (AR), and mixed reality (MR) , is opening new job opportunities for games developers in areas that are traditionally not related with computer games, such as manufacturing, architecture, engineering, film making, concerts, exhibitions, etc. As such individuals that are able to implement a design for an immersive experience are currently highly valuable in the job market.

This module will teach students how to implement the design of immersive XR experiences using commercial game engines.

After this module students will be able to:
- Setup a XR development pipeline
- Implement diegetic interactions and 3D user interfaces
- Optimise the scene for XR hardware
- Generate High-Fidelity implementations of a given design for an immersive experience

- Introduce students to how to implement immersive experiences through emerging immersive technologies that are influencing computer games development, visualization of data, cultural and social experiences, and communication of information in general

- Give students experience in how to transform a design for an immersive experience into working software

- Give students experience in implementing diegetic 3D interfaces and interactions, and optimize software to run on XR hardware

- This module embeds the key “I am UWS” graduate attributes and in particular: Universal, Work Ready and Successful. Attributes covered in this module are: Academic Universal (Critical Thinker, Analytical, Inquiring) Work Ready (Knowledgeable, Digitally Literate, Problem-solver) Successful (Autonomous, Innovative) Personal Universal (Ethically-minded, Culturally aware) Work Ready (Effective communicator, Motivated) Successful (Creative, Imaginative, Resilient) Professional Universal (Collaborative, Research-minded) Work Ready (Enterprising, Ambitious) Successful (Driven, Daring, Transformational)

Module Delivery Method					
Face-To-Face	**Blended**	**Fully Online**	**HybridC**	**Hybrid 0**	**Work-Based Learning**
☒	☐	☐	☐	☐	☐
See Guidance Note for details.					

Campus(es) for Module Delivery						
The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit) (tick as appropriate)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
☒	☐	☐	☐	☐	☐	Add name

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1	☐	Term 2	☒	Term 3	☐

Learning Outcomes: (maximum of 5 statements) **These should take cognisance of the SCQF level descriptors and be at the appropriate level for the module.** At the end of this module the student will be able to:	
L1	Implement the principles of HCI to immersive experiences.
L2	Be able to implement an immersive experience given a design
L3	Be able to implement 3D interactions and interfaces for XR.
L4	Be able to optimize a scene for XR devices

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	During completion of this module, there will be an opportunity to achieve core skills in:
Knowledge and Understanding (K and U)	SCQF Level **10** Demonstrate and/or work with: Knowledge in the issues pertaining the implementation of immersive experiences for entertainment, visualisation and communication.

	A critical understanding of the principal theories, concepts and principles that regulate the implementation of immersive experiences on XR hardware. Detailed knowledge and understanding in immersive experience implementation.
Practice: Applied Knowledge and Understanding	SCQF Level **10** Use a wide range of practical professional skills, techniques, and materials associated with immersive experiences. Use skills, techniques, practices and materials that are specialised and at the forefront of a immersive experiences implementation. Executing a defined project of research and design identifying and prototyping relevant outcomes. To practise in a range of professional level contexts that include a degree of unpredictability and specialism.
Generic Cognitive skills	SCQF Level **10** Critically identify, define, conceptualise and analyse complex professional problems and issues. Offer professional insights, interpretations and solutions to problems and issues. Demonstrate some originality and creativity in dealing with professional issues. Critically review and consolidate knowledge, skills, practices and thinking in immersive experiences design. Make judgements where data and information is limited or comes from a range of sources
Communication, ICT and Numeracy Skills	SCQF Level **10** Present or convey, formally and informally, information about specialised topics to informed audiences. Communicate with peers, senior colleagues and specialists on a professional level
Autonomy, Accountability and Working with others	SCQF Level **10** Exercise autonomy and initiative in professional/equivalent activities. Exercise significant managerial responsibility for a range of resources. Practise in ways that show awareness of own and others' roles and responsibilities.

	Work with others to bring about change, development and/or new thinking. Manage complex ethical and professional issues in accordance with current professional and/or ethical codes or practices. Recognise the limits of these codes and seek guidance where appropriate	
Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	**Module Title:**
	Other:	
Co-requisites	**Module Code:** COMP10080	**Module Title:** Immersive Experiences Design

*Indicates that module descriptor is not published.

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	7
Laboratory/Practical Demonstration/Workshop	14
Tutorial/Synchronous Support Activity	27
Independent Study	152
	Hours Total 200

****Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Steve Aukstakalnis (2016) Practical Augmented Reality: A Guide to the Technologies, Applications and Human Factors for AR and VR (Usability). Addison-Wesley Professional

Jason Jerald (2015) The VR Book: Human-Centered Design for Virtual Reality. ACM Books

LaViola J. J. Jr, Kruijff E., McMahan R. P., Bowman, D. A., Poupyrev I. (2017) 3D User Interfaces. Addison-Wesley

Meta Documentation (2020) ONLINE URL: https://developer.oculus.com/learn/learn/

VIVE Open XR Documentation (2020) ONLINE URL: https://developer.vive.com/resources/openxr/

Please ensure the list is kept short and current. Essential resources should be included, broader resources should be kept for module handbooks / Aula VLE.

Resources should be listed in Right Harvard referencing style or agreed professional body deviation and in alphabetical order.

(**N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure: Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. For the purposes of this module, academic engagement equates to the following: • Attend the in-person lectures and laboratories regularly • Complete the required activities during the lectures and laboratories • Submitting the required coursework on time

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	Computing
Assessment Results (Pass/Fail)	Yes ☐ No ☒
School Assessment Board	Creative Computing
Moderator	Soheeb Khan
External Examiner	Nicola Witton
Accreditation Details	TIGA
Changes/Version Number	1.08

Assessment: (also refer to Assessment Outcomes Grids below)
This section should make transparent what assessment categories form part of this module (stating what % contributes to the final mark). Maximum of 3 main assessment categories can be identified (which may comprise smaller elements of assessment). **NB: The 30% aggregate regulation (Reg. 3.9) (40% for PG) for each main category must be taken into account. When using PSMD, if all assessments are recorded in the one box, only one assessment grid will show and the 30% (40% at PG) aggregate regulation will not stand. For the aggregate regulation to stand, each component of assessment must be captured in a separate box.** Please provide brief information about the overall approach to assessment that is taken within the module. In order to be flexible with assessment delivery, be brief, but do state assessment type (e.g. written assignment rather than "essay" / presentation, etc) and keep the detail for the module handbook. Click or tap here to enter text. The assessment for this module is based on authentic assessment and will be group work. The assessment has one component: Implementation of an Immersive Experience (100% of the mark)
Assessment 1 – Creative output/ Audiotapes/ Videotapes/ Games/ Simulations – Implementation of an Immersive Experience 100%
(N.B. (i) **Assessment Outcomes Grids** for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An **indicative schedule** listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Assessment Outcome Grids (See Guidance Note)

Component 1							
Assessment Type (Footnote B.)	**Learning Outcome (1)**	**Learning Outcome (2)**	**Learning Outcome (3)**	**Learning Outcome (4)**	**Learning Outcome (5)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Creative output/ Audiotapes/ Videotapes/ Games/ Simulations	X	X	X	X		100	0

Component 3							
Assessment Type (Footnote B.)	**Learning Outcome (1)**	**Learning Outcome (2)**	**Learning Outcome (3)**	**Learning Outcome (4)**	**Learning Outcome (5)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Combined Total for All Components						**100%**	**0 hours**