THE GLASGOW SCHOOL OF ART

Glasgow School of Art Course Specification
Course Title: Immersive Systems 3 Study Abroad and Exchanges (Semester 1)

Please note that this course specification is correct on the date of publication but may be subject to amendment prior to the start of the 2023-24 Academic Year.

Course Code:	HECOS Code:	Academic Session:
		2023-24

1. Course Title:
Immersive Systems 3 Study Abroad and Exchanges (Semester 1)

2. Date of Approval:	3. Lead School:	4. Other Schools:
PACAAG April 2020	School of Innovation and Technology	N/A

5. Credits:	6. SCQF Level:	7. Course Leader:
20	9	Sandy Louchart

8. Associated Programmes:
BSc Immersive Systems Design

9. When Taught:
Semester 1

10. Course Aims:

Students will learn a range of advanced topics in Immersive Systems development, with increased emphasis on chosen pathways.
This will include:
• The development of networked multi-user and online immersive systems and related architectures
• Augmented reality, mobile VR and physical computing
• Advanced topics in 3D modelling and animation
• Narrative in Immersive Systems
   o Understanding the context of an immersive experience
   o Developing meaning through interaction

11. Intended Learning Outcomes of Course:
By the end of this course students will be able to: • Create immersive systems using advanced features of 3D game engines involving a wider set of technologies • Apply a range of techniques for the development of animated content

- Present and convey, formally and informally, an immersive system project to a range of audiences
- Demonstrate knowledge of software architectures related to immersive systems
- Demonstrate an ability to develop online solutions for immersive systems
- Demonstrate knowledge of appropriate methods and metrics to validate the user experience in the context of immersive systems development

12. Indicative Content:

The Immersive Systems 3 class provides a taught introduction to a range of hardware and software tools, concepts and techniques that students can then apply further in their studio work.

- Online and networked Immersive Systems
  - JavaScript and HTML5
  - Networking with middleware
  - Overview of client/server architectures and database systems
- Immersive systems and Virtual Reality
  - Introduction to motion capture and interaction with HMD and haptic devices
  - User experience in immersive systems
  - Introduction to AI (e.g. State machines for AI, pathfinding, overview of AI for interactive 3D environments)
  - Interacting with smart technologies in context
- Quality assurance and testing
  - Testing in the design process
  - Software testing, User testing, metrics and analytics
- Introduction to shaders for modelling and run-time systems
- Narrative for Immersive Systems and Animations
  - Storyboarding
  - Interactive Narratives
- 3D Modelling and animation:
  - Character development and rigging
  - Motion Capture Principles
  - Special Effects

13. Description of Summative Assessment Methods:

Assessment Method	Description of Assessment Method	Weight %	Submission week (assignments)
Portfolio of work	Immersive Systems Portfolio (1 x 12 week projects)	100	Portfolio of work developed over duration of Immersive Systems submitted in week 12

13.1 Please describe the Summative Assessment arrangements:

The individual projects will focus to develop certain technical skills on Immersive systems.
The group project will aim to demonstrate ability on the student's speciality (students from different branches may collaborate on the same project) and their work group skills.

14. Description of Formative Assessment Methods:

Engagement with formative assessment is a mandatory requirement.

A combination of supervised reviews and peer review assessment will be conducted during all the individual and group 3D projects.
14.1 Please describe the Formative Assessment arrangements:
Formative assessment will be conducted though submission of constructive feedback, and shared peer review feedback for all projects.

15. Learning and Teaching Methods:	
Formal Contact Hours	Notional Learning Hours
48	200
15.1 Description of Teaching and Learning Methods:	
Timetable: Immersive systems will be taught over both semesters, based around two two-hour sessions each week.	

16. Pre-requisites:
Successful completion of Stage 2 (or equivalent)

17. Can this course be taken by Exchange/Study Abroad students?	Yes
18. Are all the students on the course taught wholly by distance learning?	No
19. Does this course represent a work placement or a year of study abroad?	No
20. Is this course collaborative with any other institutions?	No
20.1 If yes, then please enter the names of the other teaching institutions:	
N/A	

21. Additional Relevant Information:
N/A

22. Indicative Bibliography:

Barrera, R., Kyaw, A.S., Peters, C. and Swe, T.N., 2015. *Unity AI Game Programming*. 2nd Revised Ed. Packt Publishing.

Cameron, D., 2013. *A Software Engineer Learns HTML5, JavaScript and jQuery*. U.S.: CreateSpace Independent Publishing Platform.

Crockford, D., 2008. *JavaScript: The Good Parts*. Farnham: Yahoo Press.

Glazer, J. and Madhav, S., 2015. *Multiplayer Game Programming: Architecting Networked Games*. Indianapolis, IN: Addison Wesley.

Millington, I. and Funge, J., 2009. *Artificial Intelligence for Games*. 2nd ed. Burlington, MA: CRC Press.

Rowland, C., Goodman, E., Charlier, M., Light, A. and Lui, A., 2015. *Designing Connected Products: UX for the Consumer Internet of Things*. Sebastopol: O'Reilly Media.

Bjork, S., Holopainen, J. 2004. *Patterns in Game Design (Game Development Series)*. Rockland, MA: Charles River Media, Inc.

Co. P, 2006. *Level Design for Games: Creating Compelling Game Experiences.* New Riders Games.

Additional online resources, e.g.:
Gamasutra.com
Gamedev.net
Gdcvault.com