

When printed this becomes an uncontrolled document. Please access the Module Directory for the most up to date version by clicking [here](#).

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

<b>Module Code:</b>	COM547
---------------------	--------

<b>Module Title:</b>	Serious Games and Immersive Technology
----------------------	--

<b>Level:</b>	5	<b>Credit Value:</b>	20
---------------	---	----------------------	----

<b>Cost Centre(s):</b>	GACP	<b>JACS3 code:</b>	I600
		<b>HECoS code:</b>	101267

<b>Faculty</b>	FAST	<b>Module Leader:</b>	Nathan Roberts
----------------	------	-----------------------	----------------

Scheduled learning and teaching hours	30 hrs
Placement tutor support	0 hrs
Supervised learning eg practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
<b>Total contact hours</b>	<b>30 hrs</b>
Placement / work based learning	
Guided independent study	170 hrs
<b>Module duration (total hours)</b>	<b>200 hrs</b>

<b>Programme(s) in which to be offered (not including exit awards)</b>	Core	Option
BSc (Hons) Computer Game Development	✓	
BSc (Hons) Computer Game Design and Enterprise	✓	
BSc (Hons) Computer Game Development (with Industrial Placement)	✓	
BSc (Hons) Computer Game Design and Enterprise (with Industrial Placement)	✓	
BA (Hons) Game Art	✓	
BA (Hons) Game Art (with Industrial Placement)	✓	

<b>Pre-requisites</b>
None

**Office use only**

Initial approval: 28/11/2019

Version no:1

With effect from: 01/09/2019

Date and details of revision: Revalidated BA (Hons) Game Art approved

Version no:2

15/6/20 with effect from Sept 20

## Module Aims

Computer games have an inherent ability to motivate, engage and inspire. Whilst they have been extremely successful within the leisure industry, game technology now underpins a variety of systems in other industries. This module examines the field of serious games and immersive technology, building knowledge in the application and development of application and the key challenges involved in their deployment.

This module aims to:

- Demonstrate the versatility and sophistication of game engines to provide innovative solutions within a range of industries.
- Application of programming techniques to create dynamic content through coding or visual scripting.
- Provide students with the knowledge to integrate hardware and software solutions for bespoke interactive content within immersive environments.
- Introduction of flexible electronic prototyping applications.
- Familiarisation into the ethical considerations related to serious games

## Module Learning Outcomes - at the end of this module, students will be able to

1	Demonstrate knowledge of current and emerging developments in the application of serious games and immersive technology.
2	Examine current industry trends and identify new and innovative applications of technology for game environments.
3	Identify innovative methods for the deployment of enhanced interactive environments through the implementation of immersive technology.

<b>Employability Skills The Wrexham Glyndŵr Graduate</b>	<b>I = included in module content A = included in module assessment N/A = not applicable</b>
<b>CORE ATTRIBUTES</b>	
Engaged	I/A
Creative	I/A
Enterprising	I/A
Ethical	I/A
<b>KEY ATTITUDES</b>	
Commitment	I/A
Curiosity	I/A
Resilient	I/A
Confidence	I/A
Adaptability	I/A
<b>PRACTICAL SKILLSETS</b>	
Digital fluency	I/A
Organisation	I/A
Leadership and team working	I/A
Critical thinking	I/A
Emotional intelligence	I/A
Communication	I/A

## Derogations

N/A

## Assessment:

Indicative Assessment Tasks:

*Guidance: please ensure you add indicative word count and durations within the narrative body of this section*

The assessment for this module specifically looks at the application of serious games and innovative uses of immersive technology to provide unique interactive experiences. Progression is managed through the use of online resources, such as a reflective journal (blog) and development of physical/simulated prototypes supported through the completion of learning packs.

Students will be provided a series of small scale scenarios across a range of industries (for example, health, entertainment, military and business) and must identify the problem, constraints, and considerations, delivering a solution through the application of serious game technology. Scenarios provided may require tasks to be completed as an individual or team.

The use of immersive technology will be encouraged through the design and development of unique applications that offer alternative ways to engage gaming environments and provide an enriched gaming experience.

Work can be assessed concurrently with the progression of the module and opportunities provided for feedback as well as offering the potential for students to develop areas further.

To finalise the assessment, students will be asked to attend a meeting where they will be required to demonstrate work and discuss the processes adopted. This permits the opportunity to provide indicative grades and further feedback once the module has completed.

Indicative word count is 4000 words.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3	Coursework	100%

## Learning and Teaching Strategies:

The primary skill base of this module will be delivered through a series of lectures, demonstrations and studio workshops which will equip the students with the practical means to comprehend the principles guiding serious game design and associated technologies.

The module is delivered both by the tutor and through electronic learning packs; that provide coding examples, demonstrations and mini-projects that exhibit the versatility of dynamic environments and the application of hardware to provide unique interactive solutions.

The module is designed to introduce students to aspects of dynamic immersive environments (simulation) and provide experience through the completion of problematic scenarios which promote the investigation and application of innovative solutions. Development towards these is supported through class demonstrations and guided examples. Programming opportunities are inevitable in order to support dynamic scenarios and can be deployed through coding or those reluctant to this, visual scripting.

Progression through the module will dictate the formulation of the learning packs, allowing more complex solutions as the sessions advance, incorporating knowledge across all those completed. To promote the student's learning outside of the classroom each learning pack will provide scope to apply solutions provided from additional study, found in recommended reading and associated online resources.

### **Syllabus outline:**

- Game engine utilisation
- Flexible electronic prototype development (e.g. Arduino, Raspberry Pi)
- Immersive Technology: Virtual Reality and Augmented Reality
- Programming approaches: Coding (e.g. C, C++, C#, JavaScript) and/or Visual Scripting (e.g. Kismet, Blueprint)
- Simulation design
- Ethical considerations into serious game deployment
- Advanced development techniques for rapid deployment: 3D Scanning and Motion Capture

### **Indicative Bibliography:**

#### **Essential reading**

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

Cannon-Bowers, J. & Bowers, C. (2010). Serious Game Design and Development. Information Science Reference (Isr).

#### **Other indicative reading**

*None*