### Module Code
EEMT21

### Module Name
INTRODUCTION TO XR: APPLICATIONS and TECHNOLOGIES

### ECTS Weighting
5 ECTS

### Semester taught
Semester 2

### Module Coordinator/s
Dr Fionnuala Conway

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#### Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline

On successful completion of this module, students will be able to:

- **LO1:** Design and implement interactive environments in Unity and be able to develop these skills in an independent manner.
- **LO2:** Create, design and produce an interactive 3D environment in Unity that may be implemented on as Web-based VR or on a Virtual Reality headset.
- **LO3:** Create, design and produce an Augmented Reality environment using Unity.
- **LO4:** Produce demonstration film/presentation to showcase the environments.
- **LO5:** Create and develop environments that can be used in a variety of applications such as art, music and performance, health, gaming, training, and others.

#### Graduate Attributes: levels of attainment

- To act responsibly - Enhanced
- To think independently - Enhanced
- To develop continuously - Enhanced
- To communicate effectively - Enhanced

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#### Module Content

Extended reality (XR) is an umbrella term used to describe the different technologies that create a virtual experience or merge the virtual and physical worlds to varying degrees. Commonly discussed under the ‘XR umbrella’ are terms such as Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR). The module introduces this related set of XR (eXtended realities) applications and technologies through the Unity software and VR hardware. A module focuses on the development of aesthetic and technological skills required to produce XR applications. This skillset ranges from content-creation to thinking about and designing user experience to the production of original interactive environments. The module provides an overview of applications in areas such as art, music, gaming, health, and training and encourages learners to develop with these areas in mind. This practice-based module requires the learner to produce 2 applications: 1 interactive environment (can be a VR application) and 1 Augmented Reality experience. At the end of the module, learners should be proficient in the

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1 TEP Glossary
Unity software and associated VR hardware such as the Oculus Quest.

Topics addressed will include: Broad overview of applications in Virtual Reality, Augmented reality, Mixed Reality
Unity software
Oculus Quest
Web-based VR
Introduction to programming in Unity

Teaching and Learning Methods
The teaching strategy comprises lectures, software and hardware tutorials, and critique classes on assignments. Lectures encourage participation through class discussion.

Assessment Details
Please include the following:
• Assessment Component
• Assessment description
• Learning Outcome(s) addressed
• % of total
• Assessment due date

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Assessment Description</th>
<th>LO Addressed</th>
<th>% of total</th>
<th>Week due</th>
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<tbody>
<tr>
<td>Assignment 1</td>
<td>Project + report</td>
<td>1,2,5</td>
<td>40%</td>
<td>During Semester</td>
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<tr>
<td>Assignment 2</td>
<td>Project + report</td>
<td>1,3,4,5</td>
<td>60%</td>
<td>During Semester</td>
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Reassessment Requirements

Contact Hours and Indicative Student Workload

<table>
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<th>Contact hours:</th>
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<tbody>
<tr>
<td>32 hours</td>
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</table>

Independent Study (preparation for course and review of materials):
44

Independent Study (preparation for assessment, incl. completion of assessment):
40

Recommended Reading List

Oliver Grau: Virtual Art: From Illusion to Immersion
Jason Jerald: The VR Book: Human-Centered Design for Virtual Reality

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2 [TEP Guidelines on Workload and Assessment](#)
Website: Unity Learn tutorials, LinkedIn Learning – Unity tutorials.

<table>
<thead>
<tr>
<th>Module Pre-requisite</th>
<th>n/a</th>
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<tbody>
<tr>
<td>Module Co-requisite</td>
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</tr>
<tr>
<td>Module Website</td>
<td>See Blackboard</td>
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<tr>
<td>Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.</td>
<td>No</td>
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<tr>
<td>Module Approval Date</td>
<td>January 2020</td>
</tr>
<tr>
<td>Approved by</td>
<td>Curriculum Committee</td>
</tr>
<tr>
<td>Academic Start Year</td>
<td>2023</td>
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<tr>
<td>Academic Year of Date</td>
<td>2023/2024</td>
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