

# Mixed Reality Technologies

## Module Information

2022.01, Approved

### Summary Information

Module Code	6206COMP
Formal Module Title	Mixed Reality Technologies
Owning School	Computer Science and Mathematics
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

### Learning Methods

Learning Method Type	Hours
Lecture	22
Workshop	22

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

### Aims and Outcomes

Aims	To describe the concepts and technologies for mixed reality. To explain the principles and techniques of modelling and rendering virtual reality using appropriate tools and technology. To provide opportunity for students to design, develop and evaluate mixed reality solution.
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**After completing the module the student should be able to:**

**Learning Outcomes**

Code	Number	Description
MLO1	1	Elaborate on the concepts, technologies and application in Mixed Reality.
MLO2	2	Critically evaluate the issues associated with developing Mixed Reality applications and the technical issues involved.
MLO3	3	Apply principles and techniques to design a Mixed Reality Application.
MLO4	4	Evaluate the use of appropriate tools and technology to develop a Mixed Reality Application.

**Module Content**

Outline Syllabus	Mixed Reality: Definition, Augmented Tele-existence, Taxonomy, Issues associated to Mixed Reality, Applications of Mixed Reality Technology.Sensory Augmentation: Sound, Stereoscopic display, haptic devices.Mixed Reality Challenges: cyber-sickness, accommodation-convergence conflicts, latency and rendering considerations, user interfaces.Interaction patterns: Selection, viewport manipulation, locomotion techniques.Developing for AR: marker, markerless and location based augmented reality.
Module Overview	This module will focus on the novel input and output technologies that enables blended experience between the physical reality and virtual reality. It will also cover design of virtual worlds and the development of mixed reality applications, as well as the proposal of mixed reality solutions for a specific application. You will be working collaboratively during lab sessions to develop MR solutions.
Additional Information	The module will focus on the novel input and output technologies that enables blended experience between the physical reality and virtual reality. It will also cover design of virtual world and development of mixed reality applications as well as the proposal of mixed reality solutions for a specific application. Students will be working in collaboratively during lab sessions to develop MR solutions.

**Assessments**

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Technology	MR Application	50	0	MLO3, MLO4
Centralised Exam	Examination	50	2	MLO1, MLO2

**Module Contacts**

**Module Leader**

Contact Name	Applies to all offerings	Offerings
Liang Men	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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