

SM3612: MIXED REALITY

Effective Term

Summer Term 2025

Part I Course Overview

Course Title

Mixed Reality

Subject Code

SM - School of Creative Media

Course Number

3612

Academic Unit

School of Creative Media (SM)

College/School

School of Creative Media (SM)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

SM2715 Creative Coding (Waiver to be granted to BScCM students)

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course introduces students to the dynamic field of Mixed Reality (MR), encompassing Augmented Reality (AR), Virtual Reality (VR), and their integration. By fostering creativity, critical thinking, and collaboration, students will be well-prepared to contribute innovatively to the evolving field of Mixed Reality.

Course Objectives:

- Understand the fundamental concepts and differences between AR, VR, and MR.
- Design and develop MR experiences using industry-standard tools such as Unity and Unreal Engine.
- Apply MR technologies in diverse applications, including gaming, education, healthcare, and industrial training.....etc
- Evaluate and critique MR projects, providing constructive feedback to peers

Key Components:

- History of MR:** Overview of AR, VR, and MR evolution. Applications across industries.
- Software Tools:** Utilize Unity/Unreal Engine for interactive content creation. Development for different platforms (mobile AR, head-worn displays)
- Interaction Design:** Explore techniques specific to AR, VR, and MR environments. User experience (UX) design in MR.
- Project Development:** Conceptualization and planning; Prototyping and iteration; Final project development and presentation

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Demonstrate the capacity for self-directed learning to understand the design principles of MR.		x	x	
2	Demonstrate the use of software tool			x	x
3	Demonstrate critical thinking skills in analyzing, designing, and developing AR/VR content		x	x	
4	Design AR/VR content that address cultural and societal issues		x	x	
5	Demonstrating differentiated argumentation skills by contributing to discussions in class		x		

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Exercises in Lecture	Design AR/VR Experiences	1, 2, 3, 4	

2	Previsualization Development	Learn state-of-the-art software to be able to create an illustrative movie of an envisioned AR/VR experience	1, 2, 3, 4	
3	Application Development	Learn how to develop an AR/VR application for a head-mounted display. E.g Meta Quest	1, 2, 3, 4	
4	Presentation in Lecture	Students present their proposal and final project	3, 4	
5	Discussion in Lecture	Students practice argumentation	1, 2, 3	

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Weekly Exercises & Class Participation	1, 2, 3, 4, 5	25	-	No
2	Initial Prototype (AR/VR application) & UXUI Design	1, 2, 3, 4	35	-	No
3	Final Project Development (AR/VR application) & Presentation	1, 2, 3, 4	40	-	No

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)**Assessment Task**

Weekly Exercises & Class Participation, Initial Prototype & UXUI Design, Final Project UXUI Development & Presentation

Criterion

Ability to plan, execute and evaluate a project. Reflection of Innovation / Originality / Imagination / Lateral Thinking / Production Management / Team Spirit / Learning Attitude / Ethics / Presentation Skills

Excellent (A+, A, A-)

All exercises completed accurately with no errors; UXUI Prototype demonstrates all key features and functionalities effectively; Clean, well-organized, and readable code with proper documentation; Comprehensive, well-organized presentation with clear explanations.

Good (B+, B, B-)

Most exercises completed accurately, with minor errors; Most features are functional but may lack refinement; Code is mostly clean but could be better organized or documented; Good content but could be more detailed or better organized.

Fair (C+, C, C-)

Some exercises incomplete or contain significant errors; Some features missing or not fully functional in UXUI Prototype; Code is somewhat disorganized or lacks comments; Basic content; some areas lack clarity or detail.

Marginal (D)

Many exercises incomplete or contain major errors; Many features missing or non-functional in UXUI Prototype; Poorly written code; difficult to read or understand; Minimal content; unclear or disorganized.

Failure (F)

Exercises not submitted or nearly all incorrect; UXUI Prototype is incomplete or non-functional; Unreadable or incomplete code; Presentation lacks essential information or is incoherent.

Additional Information for AR

All A+/A/A- grade assignment should comply with the highest performance of Discovery-oriented learning.

Part III Other Information

Keyword Syllabus

Augmented Reality, Virtual Reality, Mixed Reality Design, VFX, Special Visual Effect, Software Development, Programming

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	Nil