CCS4361 - Immersive Technology Development – Final Project (*Individual*) **(Deadline: 29/10/2025 Midnight)**

Assignment Description

You are required to design and develop a basic Immersive Technology application that solves a real-world problem or enhances an existing experience. The project should showcase your ability to apply AR/VR technology creatively, and you are free to choose your domain (E.g. education, gaming, entertainment, retail, healthcare, tourism, or any other industry).

Some Example Project Themes (*You are* free to select your own project *matching the requirement*)

1. **Virtual Museum Tour**
   Create a VR environment where users can explore exhibits, interact with objects, and view multimedia content.

2. **AR Educational App**
   Develop a mobile AR app that overlays scientific information (e.g., human anatomy, solar system) on real-world images.

3. **VR Training Simulator**
   Build a VR application for industrial or safety training, emphasizing realistic interactions with 3D tools and environments.

4. **AR Navigation System**
   Develop an AR app that provides indoor navigation using spatial mapping and object recognition.

5. **Virtual Art Gallery**
   Create an interactive 3D gallery for artists to exhibit digital sculptures or paintings in an immersive space.

Tasks and Expected Deliverables of project

Following table outlines the Tasks and Expected Deliverables of project.

Table 1: Tasks and Expected Deliverables

Stage	Tasks	Expected Deliverables	Hourly Breakdown Of Tasks Completion
1. Planning & Research	Identify project theme, choose technology/platform, analyze user needs, and define use case.	Project proposal (2 pages) with rationale and chosen platform.	4 hours
2. System Design	Design 3D environment layout, object interaction patterns, and data structures.	Design document (sketches, flow diagrams, architecture).	5 hours
3. Development	Implement core functionalities using selected game engine (e.g., Unity, Unreal). Apply programming concepts and object manipulation.	Prototype demonstrating interactive elements and object behavior.	12 hours
4. Testing & Optimization	Test user interactions, fix bugs, and optimize performance. Evaluate usability and responsiveness.	Test report and performance summary.	5 hours
5. Presentation & Reflection	Present final project, demonstrate working prototype, and reflect on challenges and outcomes	Presentation (10 min) + reflection report	4 hours

Useful Points To Consider

1) Choose an AR Platform: Select an AR platform for development (e.g., ARKit, ARCore, Unity with Vuforia, Spark AR). Your choice should be based on the features, ease of use, and the nature of your project.

2) Define Your Use Case: Identify a specific problem or experience that AR can enhance. Briefly describe the problem you aim to solve or the experience you intend to improve. Examples include:
   - An AR guide for museum visitors.
   - A virtual try-on app for fashion items.
   - An AR-based educational tool to teach a subject.

3) User Interaction Design: Design how users will interact with the AR application. Describe the following:
   - How AR elements will be integrated into the real world.
   - The interactions users will perform (e.g., gestures, touch, voice commands).
   - The user interface (UI) elements that help users navigate the experience.

4) Develop Key Features: Your AR project should include at least 3 key features, such as:
   - Object recognition and tracking (e.g., recognizing a real-world object and overlaying information).
   - Marker-based or marker less AR to trigger AR content.
   - 3D models that interact with real-world environments.
   - Dynamic content based on user inputs or environmental factors.

5) Prototype and Test: Develop a working prototype of your AR application. Ensure that it functions as expected on the selected platform and test it under different conditions (lighting, environment, etc.).

Deliverables

1) **AR Application:** - A functional prototype demonstrating the immersive experience.
2) **Project Documentation: -** A written report covering the tasks 1-4 of the *table 1* (4-8 pages). Should incorporate an academic report format.
3) **Presentation: -** A 10-minute presentation including a demonstration of your project, explaining the stages of the *table 1*.

Submission (Deadline: 29/10/2025 Midnight)

- Upload project report and presentation (Zip or WinRAR file) to the LMS before deadline.
- Presentation schedule will be announce via LMS. *(Tentative dates would be 30th & 31st of October 2025)*

Assessment Criteria

Table 2: Assessment Criteria

Criteria	Weight	Description
Concept & Creativity	15%	Innovation and originality of the immersive experience.
Technical Implementation	30%	Effective use of programming, 3D modeling, and engine capabilities.
Design & Usability	20%	User experience, interactivity, and aesthetic quality.
Documentation	20%	Clarity and completeness of design report, code comments, and reflection.
Presentation & Demonstration	15%	Professionalism and effectiveness of demonstration and discussion.