Course Name: Certificate Course in Augmented & Virtual Reality

Course Objective: This course will present, comprehensive introduction and an exhaustive view of the Virtual and Augmented Reality domain, including a global view, a panorama of example, and a projection to the future with case study, project work.

Pre – Requisite: No prior programming skills are required. Access to certain combinations of hardware is required

Course Outcome: Students will gain the skills to design and develop immersive AR/VR applications, create lifelike simulations, and solve real-world problems in industries like gaming, education, healthcare, and tourism.

Course Duration: 80 Hrs (8 hours/ day for 2 Weeks)

Teaching Schema:

S. No.	Modules	Hours
1	Overview and Introduction to Immersive Technologies (AR/VR/MR)	8
2	C# Programming concepts:	18
3	Unity Game Engine concepts	20
4	VR Development:	16
5	Introduction to Marker Based AR (VUFORIA) and Marker less AR (ARCORE/ARKIT)	10
6	VR / AR Project	8
	Total	**80**

Detailed Course Content:

Overview and Introduction to Immersive Technologies (AR/VR/MR)

- Course Mechanics, History, Terminologies, Trends, Understand and Experience various VR and AR demonstration.

C# Programming concepts:

- Starting with the basic programming concept like Arrays, Variables, Conditional Statements, OOPS Features introduce Unity Game Engine. C# Programming will explain how the technology is used in cases of creating scripts for game objects in Unity.

Unity Game Engine concepts

- Fundamentals of Video Games, this module serves as an introduction to video games and Unity Editor, providing a solid foundation in game development fundamentals. Students will learn about game objects, models, materials, textures, 3D terrain, lights, cameras, collision detection, prefabs, 3D game tools, and user interfaces.

VR Development:

- Getting started with Virtual Reality, Introduction to Virtual Reality (VR), exploring its applications and various VR platforms such as Meta Quest (Oculus) and HTC Vive. Students will learn about VR optimization techniques, VR concepts, design

in VR applications, interaction methods in VR, user interfaces specific to VR, and creating a VR architecture walkthrough.

Introduction to Marker Based AR (VUFORIA) and Marker less AR (ARCORE/ARKIT)

- AR evolution and types of AR (marker, marker less), AR Application using Image Target, Ground Plane.

VR / AR Project: