

UNITY 3D with Metaverse

1. INTRODUCTION TO Mixed Reality (AR & VR)

- What is Virtual Reality (VR)
- What is Augmented reality (AR)
- What is Mixed Reality
- Modern VR/AR experiences
- History

2. OVERVIEW

- Hardware
- Software
- Interaction fundamental

3. Types of Holographic Apps

- Enhanced environment apps
- Virtual environment apps
- Blended environment apps

4. Introduction to Unity 3D

- ï Getting to Know the Unity Editor
 - The Project Dialog
 - The Unity Interface
 - The Project View
 - The Hierarchy View
 - The Inspector View
 - The Scene View
 - The Game View
 - Honorable Mention: The Toolbar
- ï Navigating the Unity Scene View
 - The Hand Tool
 - Flythrough Mode

5. Game Objects

- ï Dimensions and Coordinate Systems
 - Putting the D in 3D
 - Using Coordinate Systems
 - World Versus Local Coordinates

- ï Game Objects
- ï Transforms
 - Translation
 - Rotation
 - Scaling
 - Hazards of Transformations
 - Transforms and Nested Objects

6. Models, Materials, and Textures

- ï The Basics of Models
 - Built-In 3D Objects
 - Importing Models
 - Models and the Asset Store
- ï Textures, Shaders, and Materials
 - Textures
 - Shaders
 - Materials
 - Shaders Revisited

7. 3D Terrain

- ï Terrain Generation
 - Adding Terrain to Your Project
 - Heightmap Sculpting
 - Unity Terrain Sculpting Tools
- ï Terrain Textures
 - Importing Terrain Assets
 - Texturing Terrain

8. Environments

- ï Generating Trees and Grass
 - Painting Trees
 - Painting Grass
 - Terrain Settings
- ï Environment Effects
 - Skyboxes
 - Fog
 - Lens Flares
 - Water
- ï Character Controllers
 - Adding a Character Controller
 - Fixing Your World

9. Lights and Cameras

- ï Lights
 - Point Lights
 - Spotlights
 - Directional Lights
 - Creating Lights Out of Objects
 - Halos
 - Cookies
- ï Cameras
 - Anatomy of a Camera
 - Multiple Cameras
 - Split Screen and Picture in Picture
- ï Layers
 - Working with Layers
 - Using Layers

Day 4 4 hours

10. Interactive World creation with Interaction 1:

- ī Design
 - The Concept
 - The Rules
 - The Requirements
- ī Creating the Game World
 - Sculpting the World
 - Adding the Environment
 - The Character Controller
- ī Gamification
 - Adding Game Control Objects
 - Adding Scripts
 - Connecting the Scripts Together
- ī Playtesting

- ī Arithmetic Operator

11. Collision

- ī Rigidbodies
- ī Collision
 - Colliders
 - Physics Materials
- ī Triggers
- ī Raycasting

12. Prefabs

- ī Prefab Basics
 - Prefab Terminology
 - Prefab Structure
- ī Working with Prefabs
 - Adding a Prefab Instance to a Scene

- Inheritance
- Instantiating Prefabs Through Code

Day 5- 4rs

13. User Interfaces

- ī Basic UI Principles
- ī The Canvas
 - The Rect Transform
 - Anchors
 - Additional Canvas Components
- ī UI Elements
 - Images
 - Text
 - Buttons
- ī Canvas Render Modes
 - Screen-Space Overlay
 - Screen-Space Camera
 - World Space

14. Particle Systems

- ī Particles
 - Unity Particle Systems
 - Particle System Controls
- ī Particle System Modules
 - Default Module
 - Emission Module
 - Shape Module
 - Velocity over Lifetime Module
 - Limit Velocity over Lifetime Module
 - Collision Module
 - Sub Emitter Module
 - Texture Sheet Module
 - Renderer Module
- ī The Curve Editor

Day 6 3 hours

15. Animations

- ī Animation Basics
 - The Rig
 - The Animation
- ī Animation Types
 - Creating the Animation
- ī Animation Tools
 - Animation Window
 - Creating a New Animation
 - Record Mode
 - The Curves Editor

16. Animators

- ï Animator Basics
 - Rigging Revisited
 - Importing a Model
- ï Configuring Your Assets
 - Rig Preparation
 - Animation Preparation
- ï Creating an Animator
 - The Animator View
 - The Idle Animation
 - Parameters
 - States and Blend Trees
 - Transitions
- ï Scripting Animators

Day 7 3 hours

17. Audio

- ï Audio Basics
 - Parts of Audio
 - 2D and 3D Audio
- ï Audio Sources
 - Importing Audio Clips
 - Testing Audio in the Scene View
 - 3D Audio
 - 2D Audio
- ï Audio Scripting
 - Starting and Stopping Audio
 - Changing Audio Clips

Day 8-3 hrs

18. Publish and Deploy

- ï Managing Scenes
 - Establishing Scene Order
 - Switching Scenes
- ï Persisting Data and Objects
 - Keeping Objects
 - Saving Data
- ï Unity Player Settings
 - Cross-Platform Settings
 - Per-Platform Settings
- ï Building Your Game
 - Build Settings

Day 9 3 hours

19. VR Projects Examples

- Ray cast and Gaze control
 - Using AI Third Person Controller
 - Working with UI
 - Working with VR Sample Assets
 - Unity Integration with VR (OCULUS RIFT)
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- Introduction to oculus rift
 - Rendering the field of view
 - The oculus sdk and rift interaction

20. Unity Integration with Alt space

Day 10 and 11 6 hrs

21. Standalone Unity METAVERSE Experience development from scratch

- ï Introduction to Metaverse
- ï Working with SDK
- ï Understanding trigger
- ï Creating Room
- ï Implement a user interface
- ï Multiplayer
- ï Vr player movement
- ï Oculus quest development
- ï Vr keyboard
- ï Vr avatar selection system
- ï Build and Share Projects from Unity3D

uses pre built Scripts / Examples for additional functionalities.

Specifications /Requirements /Perquisite :-

- ❖ We will be training on unity 20
- ❖ Needed Basic knowledge of 3d ITSoftware
- ❖ Basic knowledge /understanding on c# will be plus point
- ❖ Familiar with design ,user interface and user behaviours will help.