VIRTUAL REALITY WITH UNITY 5 (Oculus Rift and Google Cardboard)

1. INTRODUCTION TO VR

- What is virtual reality
- Modern VR experiences
- History

2. OVERVIEW

- Hardware
- Software
- Human physiology and perception

3. VISUAL PERCEPTION

- Perception of depth
- Perception of motion
- Perception of colour
- Combining sources of information

4. Introduction to Unity

- 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
- Navigating the Unity Scene View
    - The Hand Tool
    - Flythrough Mode

5. Game Objects
- Dimensions and Coordinate Systems
    - Putting the D in 3D
    - Using Coordinate Systems
    - World Versus Local Coordinates
- Game Objects
- Transforms

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

10. Game 1: Amazing Racer
- Design
  - o The Concept
  - o The Rules
  - o The Requirements
- Creating the Game World
  - o Sculpting the World
  - o Adding the Environment
  - o The Character Controller
- Gamification
  - o Adding Game Control Objects
  - o Adding Scripts
  - o Connecting the Scripts Together
- Playtesting

11. Collision
- Rigidbodies
- Collision
  - o Colliders
  - o Physics Materials
- Triggers
- Raycasting

12. Prefabs
- Prefab Basics
  - o Prefab Terminology
  - o Prefab Structure
- Working with Prefabs
  - o Adding a Prefab Instance to a Scene
  - o Inheritance
  - o Instantiating Prefabs Through Code

13. User Interfaces

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

14. Particle Systems
- Particles
  - Unity Particle Systems
  - Particle System Controls
- Particle System Modules
  - Default Module
  - Emission Module
  - Shape Module
  - Velocity over Lifetime Module
  - Limit Velocity over Lifetime Module
  - Force over Lifetime Module
  - Color over Lifetime Module
  - Color by Speed Module
  - Size over Lifetime Module
  - Size by Speed Module
  - Rotation over Lifetime Module
  - Rotation by Speed Module
  - External Forces Module
  - Collision Module
  - Sub Emitter Module
  - Texture Sheet Module
  - Renderer Module
- The Curve Editor

15. Animations
- Animation Basics
  - The Rig
  - The Animation
- Animation Types
  - Creating the Animation
- Animation Tools
  - Animation Window

- o Creating a New Animation
- o Record Mode
- o The Curves Editor

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

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

18. Game Coin Collection
- Design
  - o The Concept
  - o The Rules
  - o The Requirements
- The Arena
  - o Creating the Arena
  - o Texturing
  - o Finish the Arena
- Game Entities
  - o The Player
  - o Coins
  - o The Colored Coins
- The Control Objects

- o The Goals
- o The Game Controller
- Improving the Game

19. Publish and Deploy
- Managing Scenes
  - o Establishing Scene Order
  - o Switching Scenes
- Persisting Data and Objects
  - o Keeping Objects
  - o Saving Data
- Unity Player Settings
  - o Cross-Platform Settings
  - o Per-Platform Settings
- Building Your Game
  - o Build Settings
  - o

20. VR Projects Examples

- Ray cast and Gaze control
- Using AI Third Person Controller
- Working with UI
- Working with VR Sample Assets

21. Unity Integration with VR (OCULUS RIFT)

- Introduction to oculus rift
- Rendering the field of view
- The oculus sdk and rift interaction
- Integrating oculus unity integration package

Note – This course does not cover Scripting in unity with C# or JavaScript's – This course uses pre built Scripts for additional functionalities.