AR VR DEVELOPMENT COURSE
Duration of course: 50 hours
Classes: Saturday / Sunday 3 hours per day

Preamble

Would you like to see the real-life environment right in front of you using Digital world (AR), such as trees swaying in the park, dogs chasing balls, kids playing soccer—with a digital augmentation overlaid on it.

With the AR technology you may designed, a big bird might be seen landing in the trees, a dog could be mingling with their cartoon counterparts, and the kids could be seen kicking past an alien spacecraft on their way to score a goal. Join our Augmented Reality & Virtual Reality hands-on course Online or at campus driven by Centre for software Research & Development, NED University of engineering & Technology Karachi.

Augmented Reality is a system that combines your real world, real-time interaction with the virtual worlds. You may place accurate 3D virtual models in real world - registration of virtual and real objects.

Augmented reality (AR) is one of the biggest technology trends right now, and it's only going to get bigger as AR ready smartphones and other devices become more accessible around the world.

In this course, you will learn from the basic concepts in AR VR, the trending AR VR market and get hands-on by creating simple Android AR & VR applications using Unity – popular industry standard game engine.

Who should attend?

Anyone who passionately curious about AR technology. Researchers, Lecturers, Scientists, Engineers, Developers and Students that would want to use or plan to use Augmented Reality (AR) & Virtual Reality (VR) technology, and to learn the fundamental knowledge in mobile AR & VR application development.

Hardware requirement for the course to be studied:

Android Phone:

- **AR Core supported device:**

  Check is your device is supported by AR Core

  https://developers.google.com/ar/discover/supported-devices

- **Android mobile with minimum Api level 6:**

  Download app to check Api level
  OR
  Google how to check Api level
  https://play.google.com/store/apps/details?id=com.gh.apiversioncheck&hl=en&gl=US

Laptop or Computer:

1. processor i3 4th Gen (min)
2. Ram 4 GB
3. OS window 10, 8 any but prefer window 10 64-bit version.
4. macOS 10.10+ (Windows machine is preferred)

Course Contents:

UNITY BASIC

SETTING UP SOFTWARE AND TOOLS:

- ⬚ Install Unity.
- ⬚ Install Android SDK Tools.
- ⬚ Installation of Java JDK.
- ⬚ Build A Basic Project to Test.

Module 1 – How to use the Unity
- How does Unity work?
- Layouts, Panels And Tabs
- Scene, Hierarchy, Project, Inspector

Module 2 – Manipulating Objects
- Demonstration of various types of object manipulation
- Adding 2D objects
- Essential 3D objects

Module 3 – Setting up the Environment
- Adding menus with Graphic User Interfaces (GUI)
- Introduction to scripting and programming
- Unity Lighting

Module 4 – Importing And Exporting Assets
- Types Of Assets
- Importing 3D Models
- Importing Audio
- Importing Scripts
- Asset Packages

Module 5 – Developing a Game
- Adding Components To A Game Object
- Combining Assets
- Animation
- Setting up the lighting
- GUI
- Final Touches

Module 6 – Colors
- Apply colors and materials on game objects
- Insert more game element – Point / Rewards
- Add Physic and Particle Effects to game object

AUGMENTED REALITY

Module 1 – Introduction to AR
- What is AR?
- How does AR work?
- AR and VR
- AR Hardware – state of development
- Current and potential applications an use cases
- Future of AR and potential market

Module 2 – Experiencing AR
- Demonstration of various types of AR implementations
- AR Terminology
- Types of AR

Module 3 – Development environment and toolset
- Types of IDE for AR development
- AR SDKs tools
- Content creation tools

Module 4 – Setting up the Development environment
- Introduction to Unity and AR
- Downloading required packages
- Setting up Unity
- Integrating AR into Unity

Module 5 – Developing AR applications
- 1st AR exercise – develop simple image based AR application
- 2nd AR exercise – create an AR application from basic components
- 3rd AR exercise –create a more complex AR application for a bottle or Cube label
- 4th AR exercise – create a Model Target Application
- 5th AR exercise – create a Marker Less Application
- 6th AR exercise – create a facebook & Instagram AR filter

Module 6 – Implementing Mobile AR for Android
- Downloading and installing packages for Android development
- Preparing your Android device
- Setting up the build environment for Unity to Android
- Add interactivity to 3D object
- Build scene to Android and test