XRTERRA

PROGRAM SYLLABUS

XR Industry Bootcamp Developer

16-Week Live Online Course

THE GLIMPSE GROUP
Nasdaq: VRAR

Program Overview

XR Terra is proud of the live instruction it provides to students.

Where larger concepts can be learned in a self-paced format such as video tutorials, the hardest parts of development are understanding why things aren't working, which is faster with an experienced eye.

That's why XR Terra offers live troubleshooting support during class and after it.

XR Industry Bootcamp Developer

16-WEEK PROGRAM

This 16 week Industry Bootcamp with live instruction and support will kick off with a short 4-week project that will teach students how to work in teams using Unity and version control.

After completing the first project, the 12-week team project begins. Students will be prototype, design, and develop a multi-user VR training simulation of a digital twin that they will create with their team.

In addition, students will be asked to work on a personal project that focuses more closely on an industry they would like to work in. XR Terra will support them with schedulable office hours.

This course covers C# coding, physics based VR interactions, AI navigation, multiplayer implementation, environmental design, optimization, audio implementation, and much more.

By the end of this course you will have three XR portfolio pieces.

Program Structure

This 16-week course includes live instruction, group exercises, team projects and co-working sessions.

COURSE EXPECTATIONS

- 3 hours of live instruction once a week, with optional weekly 2-hour workshop
- 6 hours of self-study per week, including schedulable office hours

Office hours are held each week and posted by the course facilitator

Career support and networking opportunities

Discussion forums for questions to instructors and student services advisors

Grading

This is a Pass / Fail program. In order to pass this program you must complete the following:

- Attend live sessions; maximum of 2 excused absences during the program
- Complete all assignments and group exercises
- Complete all projects in a timely manner following the guidelines

Student Learning Outcomes

- Experience creating designing and prototyping XR projects with a team
- Knowledge of techniques for troubleshooting C# scripts
- A digital twin of a complex machine to simulate in virtual reality
- Physics based interactions such as dials, sliders, and levers
- A synced multiplayer XR environment
- An interactive XR scene with models, animations, lighting, audio, and haptics
- Confidence with using version control systems as part of a software development team

A Career in XR

XR Terra's Industry Bootcamps prepare you with the portfolio and skills needed to join the competitive XR Industry and job market.

Graduates of this program will receive an XR Terra XR Developer Certificate and a digital badge to share on LinkedIn. Graduates are also eligible to join XR Terra's Industry Hackathons and other XR Terra Industry Bootcamps.

Program Prerequisites

This course assumes some previous programming experience and requires a base coding knowledge.

REQUIRED EXPERIENCE

- Unity: Basic Editor Knowledge
- Coding : Familiarity with Coding (ex. Javascript, C#, C++, or Python)

Wondering about your experience?

Talk to one of our XR Terra team members about your specific experience level. We also offer an array of foundational material to introduce students with limited or no experience to the Unity platform, including a Developer Foundations course that introduces you to Unity and C#.

CONTACT US →

Materials and Supplies

This course is lightweight but does require some equipment investment

REQUIRED HARDWARE

- Mac or PC
- Oculus Quest (Suggested)
- Scroll wheel mouse (Suggested)
- Webcam

Wondering about hardware?

Most PC and Mac computers will be compatible with the software used in this course. If you have an older machine or need help confirming your machine's compatibility, we will be happy to assess your hardware.

Program Schedule

16-WEEK PROGRAM

These 16 weeks will cover a formal instruction of Virtual and Augmented Reality Development, with group activities and projects designed to engage your learning experience.

XR Start

WEEK 1 Welcome to XR Terra. In our first week we will put students into teams and ask them to start designing a short project to work on together in Unity. We will cover prototyping and storyboarding and ask students to start researching their personal project.

WEEK 2 Version control is a critical component of working in software teams. We will ensure your team projects have a repository, demonstrate merge conflict resolution, and reset projects to previous commits.

WEEK 3 We will implement the XR Interaction Toolkit into Unity, and demonstrate how to add locomotion such as teleportation or thumbstick controls, and demonstrate how to use Interactable UnityEvents to make changes to the scene.

WEEK 4 External sources for assets are an important part of creating a VR environment. We will import packages from the Unity Asset Store, and show how to use texture packs to make realistic materials.

WEEK 5 Recording video lets you show off your project without the necessary hardware. In this class we wrap up the first team project and present the end result. We then being planning our 12-week Time Machine team project, a multi-user training simulation of a digital twin.

Time Machine Training

WEEK 6 2D assets perform an important function in 3D spaces. In this class we cover sprites, user interface, text and fonts.

WEEK 7 Physics simulations allow us to let objects move realistically in the space. This week we add collision to our grabbable objects, detect collisions and triggers, and show how physics joints components can limit the movement of physics-based objects

WEEK 8 Many machines use physical interactions such as sliders, levers, and dials. To make a digital twin of a machine we show how to combine grabbable objects with joint components and C# scripts to control parameters in our scene.

Program Schedule

14-WEEK PROGRAM

Time Machine

WEEK 9	Prefab assets allow us to save copies of Game Objects in the project window and the instantiate them during runtime. In this class we save and edit a prefab asset, then use C# scripts to spawn copies of the prefab in our scene.
WEEK 10	Multiplayer functionality allows VR users to connect with each other in the same space. We learn to use the Normcore SDK for voice chat, transform syncing, and synced prefab instantiation. We also demonstrate how to sync custom properties.
WEEK 11	Animation clips allow us to plan the movement of objects and people. The animator window allows us to control which animation clip plays based on parameters and triggers. This class also shows how to use coroutines to execute C# code over time.
WEEK 12	Playtesting allows us to catch errors before we invest too much time going down the wrong path. In this class we cover how to give and receive feedback, as well as how to be inspired by the work being done on other projects related to your own. We also check in on personal projects.
WEEK 13	We cover the process of uploading to a store, and techniques we can use to optimize our applications so that they will qualify for publishing. In this class we cover how lighting, shadows, skyboxes and reflections work in Unity, to create more performant environments.
WEEK 14	Audio provides the illusion of a fully immersive space. In this class we cover the Audio Source component and how to implement audio spatialization. We cover haptic feedback and other ways to provide affordances to our XR interactions.
WEEK 15	Workshop day to prepare for the final presentations next class. We remind students how to record video of their projects again.
WEEK 16	Final Presentation day! We start by showing off the team projects, then let everyone share their personal projects.

XRTERRA

For questions, please email hello@xrterra.com