❖ Unity®

UCA: Game Developer Certification Prep Course Scope & Sequence

Course Description

In this Unity Learn course you will create a game in Unity in just 10 course units. Each unit covers a different aspect of game design and development, including topics such as visual effects, animation, audio, and lighting. Units include **tutorials**, **challenges**, and **quizzes**. The course culminates in a final project in which you will synthesize each aspect of the game development process into a final, published game. This course is also designed to prepare you for Unity's Associate Game Developer certification, one of the leading certifications in the Real-Time 3D (RT3D) industry.

Watch the course overview video.

Course Overview

UNITS			
1. Get started in Unity	2 hrs	6. Animation	5 hrs
2. Program a basic game	3 hrs	7. Shaders and Materials	5 hrs
3. Audio	2 hrs	8. Lighting	5 hrs
4. Visual Effects (VFX)	2 hrs	9. Iterate on your game	4 hrs
5. User Interface (UI)	4 hrs	10. Prepare for Exam and Publishing	3 hrs
		Total length:	**35 hrs**

TOPICS COVERED	
● Animation	● Lighting
● Asset Management	● Materials and Effects
● Audio	● Navigation and Pathfinding
● Editor Interface	● Physics
● Employment Preparedness	● Programming
● Game Art Principles	● Project Management
● Game Design Principles	● Services
● Industry Awareness	● User Interface

Full Scope and Sequence

Unit 1 - Get started in Unity - *2 hours*

| ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Welcome to the course 2. Install the Unity Hub and Editor 3. Get started with the Unity Editor 4. **Challenge**: Create a balanced primitive structure 5. **Quiz**: Unity fundamentals	- Create and manage GameObjects, including parent and empty GameObjects - Create and save Scenes - Differentiate Unity editor versions - Explain the purpose of, and utilize, the Hierarchy Window, Inspector Window, and Project Window - Manipulate the Scene View Camera, Zoom Tool, and Gizmo - Identify and utilize colliders - Recognize, and explain the function of, GameObject components, including the Rigidbody component	
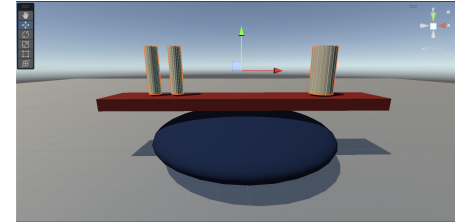
Unit 2 - Program a basic game - *3 hours*

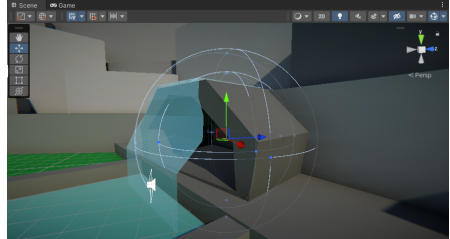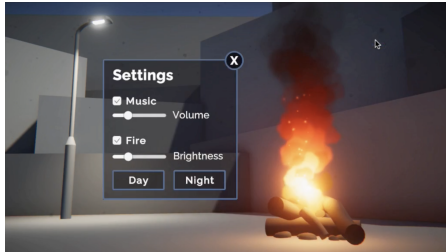| ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 2 2. Setting up the game 3. Moving the player 4. Moving the camera 5. Setting up the play area 6. Creating collectibles 7. Detecting Collisions with Collectibles 8. Displaying Score and Text 9. Adding AI Navigation 10. Building the Game 11. **Challenge:** Fill out a Game Design Document 12. **Quiz:** Program a basic game	- Asset management: Work with Prefabs - Explain game art principles - Explain game design principles - Implement navigation and pathfinding - Programming: work with Methods and Classes, Variables and write scripts	
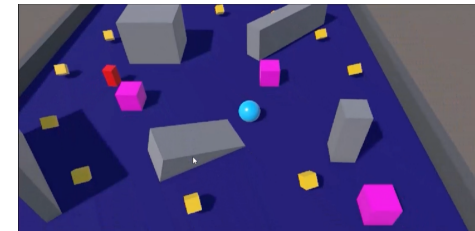
Unit 3 - Audio - *2 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 3 2. Get started with Audio 3. Create 3D sound effects 4. Add special effects to existing audio 5. **Challenge**: your own soundscape 6. Add audio to your game 7. **Quiz**: Audio	- List audio compression formats - Describe various Audio Effects - Differentiate audio properties - Explain audio options - Explain the doppler effect - Activate audio source looping - Modify the volume of an audio source - Locate Audio Clips	
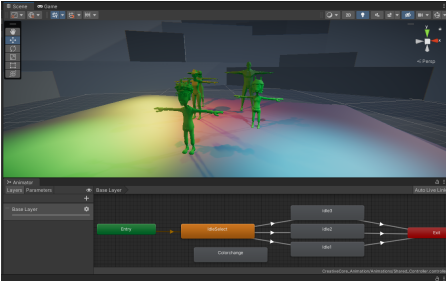
Unit 4 - Visual Effects (VFX) - *2 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 4 2. Get started with VFX 3. Play around with a Particle System 4. Create an environmental Particle System 5. Create a burst particle 6. **Challenge:** Add some magic to your scene 7. Add VFX to your game 8. **Quiz:** VFX	- Predict particle option results - Explain particle system settings - Differentiate particle options by their result - Predict particle option results - Explain Quaternions	

Unit 5 - User Interface (UI) - *4 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 5 2. Get started with user interfaces 3. Add a title to your scene 4. Manage screen size and anchors 5. Create a menu background with images 6. Add basic button functionality 7. Add toggles and sliders 8. **Challenge:** Make a worldspace UI 9. Add UI to your game 10. **Quiz:** UI	- Modify sprites - Differentiate and explain button properties - Predict methods called by action - Differentiate render modes - Differentiate UI components - Identify anchor points - Utilize pivots and anchors - Differentiate UI components - Assess Rect Transform features - Utilize text properties - Describe the function of UI components	
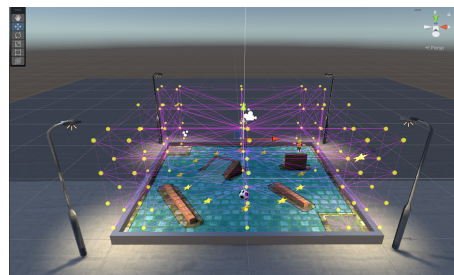
Unit 6 - Animation - *5 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 6 2. Get started with animation 3. Create your first 3D animations 4. Refine your animation 5. Control animation with an Animator 6. Import animation 7. **Challenge:** Bring the scene to life 8. Add animation to your game 9. **Quiz:** Animation	- Examine the Animator Controller - Apply an Animator Controller to a GameObject - Create an Animator Controller - Locate the Animator Window - Define parameter types - Differentiate animation states - Create a new animation state - Implement the Any State - Explain transition conditions - Differentiate transition properties - Create transitions - Differentiate rig types	

Unit 7 - Shaders and Materials - *5 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 7 2. Get started with shaders and materials 3. Explore meshes and rendering 4. Explore shaders 5. Simulate solid surfaces 6. Map materials with textures 7. Create translucent and transparent effects 8. Add physical texture with bump mapping 9. **Challenge:** Create your still life composition 10. Add materials to your game 11. **Quiz:** Materials	- Differentiate Image Effects by their result - Assess Rendering Modes - Match Standard Shader properties by their description - Define the Albedo of a material	

Unit 8 - Lighting - *5 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 8 2. Get started with lighting 3. Get started with lighting in Unity 4. Configure Directional Light and skybox 5. Add light sources to your scene 6. Configure shadows in your scene 7. Bake a lightmap for your scene 8. Improve your lighting with Light Probes 9. Examine and complete the indoor scene 10. Refine & troubleshoot the indoor scene 11. Showcase your work with lighting 12. **Challenge:** Add lighting to your game 13. **Quiz:** Lighting	- Explain lighting settings - Explain Light Baking - Explain Lightmaps - Explain Generate Lightmap UV settings - Assess shadow types - Explain light intensity - Differentiate light types by feature - Infer lighting settings by visual indicators - Explain the function of Light Probes	

Unit 9 - Iterate on your Game - *4 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Introduction to Unit 9 2. Explore the production cycle 3. Reimagine your game on multiple platforms 4. Iterate on the player controller 5. Source new assets 6. Unity pro tips 7. **Quiz:** Iterate on your game	- Reflect on your game's production cycle - Explore the potential of multiple platform adaptability - Refine your player controls - Explore Unity Gaming Services - Update game assets for improved visuals - Explore Unity techniques to elevate your development skills	

Unit 10 - Prepare for Certification and Publishing - *3 hours*

ACTIVITIES	LEARNING OBJECTIVES	EXAMPLE
1. Prepare for the certification exam 2. Finalize your project	- Review all course learning objectives	