

In 3D Game Development, students learn the fundamentals of Coding in C# and game development skills by using Unity®, an industry-standard tool. Students will design their own custom video game just like the pros.

This is a project-based course where students take on the role of creator. In addition to technical skills, students develop the creative, critical thinking, and problem-solving skills necessary to build amazing projects from start to finish. Throughout the course, students work with industry-standard tools used by professionals. If they need any help along the way with their coursework or projects, students can reach out to experts for support by e-mail, chat, or phone.

By the end of this course, students will have built an original, professional-grade project and developed the knowledge, skills, and confidence to become creators on their own, in further study, or professionally.

### Course Materials

All required materials are included with this course.

Length: One semester

## UNIT 1: WELCOME TO 3D GAME DEVELOPMENT

### LESSON 1: CHOOSE YOUR CHARACTER

#### Study: Choose Your Character

Choose a fully playable character in your game that you can control.

Duration: 1 hr Scoring: 0 points

#### Review: Choose Your Character Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 2: PLAYER MATERIALS

#### Study: Player Materials

Create a custom character with new materials and armor.

Duration: 1 hr Scoring: 0 points

#### Review: Player Materials Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 3: WRAP UP

#### Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

#### Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

## UNIT 2: WORLD DESIGN

### LESSON 1: GROUND AND SKY

#### Study: Ground and Sky

Choose the setting for your game by designing the ground and the sky.

Duration: 1 hr Scoring: 0 points

### **Review: Ground and Sky Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## **LESSON 2: MODEL MULTIPLICATION**

### **Study: Model Multiplication**

Fill the world to the brim with manmade and natural objects.

Duration: 1 hr Scoring: 0 points

### **Review: Model Multiplication Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## **LESSON 3: FAST GRASS**

### **Study: Fast Grass**

Cover the ground with grass and make it sway gently in the breeze.

Duration: 1 hr Scoring: 0 points

### **Review: Fast Grass Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## **LESSON 4: WRAP UP**

### **Practice: Troubleshooting**

Fix a broken file.

Duration: 1 hr Scoring: 15 points

### **Quiz: Quiz**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

### **Explore: Bonus Content**

Explore extra content from the unit.

Duration: 0 hrs 30 mins Scoring: 0 points

## **UNIT 3: COIN COLLECTOR**

### **LESSON 1: VARIABLE COINS**

#### **Study: Variable Coins**

Write your first few lines of code to add some coins and track how many the player's collected.

Duration: 1 hr Scoring: 0 points

#### **Review: Variable Coins Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 2: CONDITIONAL CASH**

#### **Study: Conditional Cash**

Display a message in the HUD when the player picks up their first coin.

Duration: 1 hr Scoring: 0 points

#### **Review: Conditional Cash Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 3: WRAP UP**

#### **Practice: Troubleshooting**

Fix a broken file.  
Duration: 1 hr Scoring: 15 points

### Quiz: Quiz

Take a quiz to assess your understanding of the material.  
Duration: 0 hrs 20 mins Scoring: 10 points

### Explore: Bonus Content

Explore extra content from the unit.  
Duration: 0 hrs 30 mins Scoring: 0 points

### Project: Checkpoint

Present your course project for review.  
Duration: 0 hrs 15 mins Scoring: 30 points

## UNIT 4: A REAL CHARACTER

### LESSON 1: METHOD OF DIALOG

#### Study: Method of Dialog

Use methods and parameters to make the NPC say a few words to the player.  
Duration: 1 hr Scoring: 0 points

#### Review: Method of Dialog Review

Review key concepts and skills from the lesson.  
Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 2: TRUE POWER-UP

#### Study: True Power-Up

Add a double-jump powerup to your game.  
Duration: 1 hr Scoring: 0 points

#### Review: True Power-Up Review

Review key concepts and skills from the lesson.  
Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 3: IF-ELSE INTELLIGENCE

#### Study: If-Else Intelligence

Use logic to make the NPC more intelligent.  
Duration: 1 hr Scoring: 0 points

#### Review: If-Else Intelligence Review

Review key concepts and skills from the lesson.  
Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 4: WRAP UP

#### Practice: Troubleshooting

Fix a broken file.  
Duration: 1 hr Scoring: 15 points

### Quiz: Quiz

Take a quiz to assess your understanding of the material.  
Duration: 0 hrs 20 mins Scoring: 10 points

## UNIT 5: ENEMY TERRITORY

### LESSON 1: NEW VIEW OF AREA TWO

#### Study: New View of Area Two

Double the size of your world as you design a completely new area.  
Duration: 1 hr Scoring: 0 points

### **Review: New View of Area Two Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## **LESSON 2: ENEMIES COLLIDE**

### **Study: Enemies Collide**

Add a hostile enemy to your game and customize its behavior.

Duration: 1 hr Scoring: 0 points

### **Review: Enemies Collide Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## **LESSON 3: RANGE ATTACK**

### **Study: Range Attack**

Add an enemy with a range attack that will launch projectiles at the player.

Duration: 1 hr Scoring: 0 points

### **Review: Range Attack Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## **LESSON 4: WRAP UP**

### **Practice: Troubleshooting**

Fix a broken file.

Duration: 1 hr Scoring: 15 points

### **Quiz: Quiz**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

### **Explore: Bonus Content**

Explore extra content from the unit.

Duration: 0 hrs 30 mins Scoring: 0 points

## **UNIT 6: LIGHT AND PARTICLES**

### **LESSON 1: PARTICULAR PARTICLES**

#### **Study: Particular Particles**

Customize some particle systems in your game.

Duration: 1 hr Scoring: 0 points

#### **Review: Particular Particles Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 2: LIGHTING THE WAY**

#### **Study: Lighting the Way**

Modify the look and feel of your game as you cast some light on the world.

Duration: 1 hr Scoring: 0 points

#### **Review: Lighting the Way Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 3: WRAP UP**

#### **Practice: Troubleshooting**

Fix a broken file.

Duration: 1 hr Scoring: 15 points

### **Quiz: Quiz**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

### **Project: Checkpoint**

Present your project for review.

Duration: 0 hrs 15 mins Scoring: 30 points

## **UNIT 7: QUEST FOR POWER**

### **LESSON 1: QUEST: COMPLETE**

#### **Study: Quest: Complete**

Keep track of the number of enemies remaining and only let the player move on when they've defeated them all.

Duration: 1 hr Scoring: 0 points

#### **Review: Quest: Complete Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 2: ACTIVATE POWER-UP**

#### **Study: Activate Power-Up**

Reward the player with a new spin attack, but only if they've earned it.

Duration: 1 hr Scoring: 0 points

#### **Review: Activate Power-Up Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 3: A CINEMATIC CUTSCENE**

#### **Study: A Cinematic Cutscene**

Create a special cutscene to reveal to the player their brand new powerup.

Duration: 1 hr Scoring: 0 points

#### **Review: A Cinematic Cutscene Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### **LESSON 4: WRAP UP**

#### **Practice: Troubleshooting**

Fix a broken file.

Duration: 1 hr Scoring: 15 points

#### **Quiz: Quiz**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

#### **Explore: Bonus Content**

Explore extra content from the unit.

Duration: 0 hrs 30 mins Scoring: 0 points

## **UNIT 8: PLATFORMING PLAYGROUND**

### **LESSON 1: WIDE OPEN WORLD**

#### **Study: Wide Open World**

Gather all your skills together to design a brand new area of your game.

Duration: 1 hr Scoring: 0 points

#### **Review: Wide Open World Review**

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## LESSON 2: HAZARDOUS MATERIALS

### Study: Hazardous Materials

Add new volumes and hazards to slow down the player.

Duration: 1 hr Scoring: 0 points

### Review: Hazardous Materials Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## LESSON 3: PREFAB MATERIALS

### Study: Prefab Materials

Add three brand new prefabs for level three.

Duration: 1 hr Scoring: 0 points

### Review: Prefab Materials Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

## LESSON 4: WRAP UP

### Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

### Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

## UNIT 9: THE FINAL ASCENT

### LESSON 1: MOVING PLATFORMS

#### Study: Moving Platforms

Design a terrifying moving platform challenge up the side of an epic final tower.

Duration: 1 hr Scoring: 0 points

#### Review: Moving Platforms Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 2: PREPARE FOR LAUNCH

#### Study: Prepare for Launch

Throw the player around a bit to make their ascent up the tower a little more exhilarating.

Duration: 1 hr Scoring: 0 points

#### Review: Prepare for Launch Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 3: WRAP UP

#### Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

#### Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

## UNIT 10: ENEMY WAVES

### LESSON 1: WAVE TO THE LOOP

#### Study: Wave to the Loop

Create a new SpawnWave method that will summon a horde of enemies when it's called.

Duration: 1 hr Scoring: 0 points

#### Review: Wave to the Loop Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 2: VARIABLE DIFFICULTY

#### Study: Variable Difficulty

Call a series of increasingly difficult waves of enemies.

Duration: 1 hr Scoring: 0 points

#### Review: Variable Difficulty Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 3: ENDING SEQUENCE

#### Study: Ending Sequence

Trigger the game's ending sequence after a certain number of waves.

Duration: 1 hr Scoring: 0 points

#### Review: Ending Sequence Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 4: WRAP UP

#### Practice: Troubleshooting

Fix a broken file.

Duration: 1 hr Scoring: 15 points

#### Quiz: Quiz

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

## UNIT 11: TITLE AND SOUNDTRACK

### LESSON 1: LISTEN TO THE MUSIC

#### Study: Listen to the Music

Add ambient sounds and background music to really set the mood of your game.

Duration: 1 hr Scoring: 0 points

#### Review: Listen to the Music Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 2: NAME OF THE GAME

#### Study: Name of the Game

Give your game a name and add it to a beautiful new title screen.

Duration: 1 hr Scoring: 0 points

#### Review: Name of the Game Review

Review key concepts and skills from the lesson.

Duration: 0 hrs 20 mins Scoring: 0 points

### LESSON 3: WRAP UP

**Practice: Troubleshooting**

Fix a broken file.

Duration: 1 hr Scoring: 15 points

**Quiz: Quiz**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 10 points

**UNIT 12: GAME OVER****LESSON 1: STANDARDS OF EXCELLENCE****Study: Standards of Excellence**

Assure your game is up to the standards of excellence.

Duration: 1 hr Scoring: 0 points

**LESSON 2: UPLOAD AND BUILD****Project: Upload and Build**

Upload your course project for review.

Duration: 1 hr Scoring: 200 points

**UNIT 13: ADVANCED TOPICS****LESSON 1: MAKING A SCENE TWO****Study: Making a Scene Two**

Set up an additional scene.

Duration: 1 hr Scoring: 0 points

**LESSON 2: ADD YOUR MODELS TO UNITY****Study: Add Your Models to Unity**

Integrate 3D models into the Unity game engine.

Duration: 1 hr Scoring: 0 points

**LESSON 3: CUSTOMIZE A CHARACTER****Study: Customize a Character**

Customize a 3D character model.

Duration: 1 hr Scoring: 0 points