UNREAL ENGINE TRAINING

COURSE CATALOG

It Takes Two | Hazelight Studios
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Your Unreal Engine Training</td>
<td>3</td>
</tr>
<tr>
<td>Architecture Engineering and Construction Curriculum</td>
<td>5</td>
</tr>
<tr>
<td>Virtual Production Curriculum</td>
<td>8</td>
</tr>
<tr>
<td>Automotive Curriculum</td>
<td>11</td>
</tr>
<tr>
<td>General Curriculum</td>
<td>13</td>
</tr>
<tr>
<td><strong>Course Descriptions</strong></td>
<td>16</td>
</tr>
<tr>
<td>Foundations</td>
<td>16</td>
</tr>
<tr>
<td>Materials</td>
<td>23</td>
</tr>
<tr>
<td>Lighting</td>
<td>27</td>
</tr>
<tr>
<td>Data Pipeline</td>
<td>32</td>
</tr>
<tr>
<td>Sequencer</td>
<td>36</td>
</tr>
<tr>
<td>Optimization</td>
<td>42</td>
</tr>
<tr>
<td>Animation</td>
<td>46</td>
</tr>
<tr>
<td>Blueprints</td>
<td>51</td>
</tr>
<tr>
<td>Programming</td>
<td>58</td>
</tr>
<tr>
<td>Landscape</td>
<td>62</td>
</tr>
<tr>
<td>Various</td>
<td>66</td>
</tr>
</tbody>
</table>
Planning your Unreal Engine training

Epic’s training team will work with you to build a training outline that best meets your needs.

This catalog proposes four curriculums, each designed to meet the needs of different industries.

You can further refine your training by selecting only the tracks that align with your project goals.

If you prefer to build your curriculum from scratch, you can hand-pick your courses from the selection of 76 titles listed in this catalog.

Once you have selected your curriculum, we’ll work with you to schedule the courses following a cadence that is best for your team.
About the courses

Each course is two hours. For planning purposes, three courses make up a day of training; however, you do not need to complete three sessions in one day. You can space them out as scheduling permits.

You can select from two different learning formats: Live Training or Blended Learning.

Live training

With Live Training, Epic staff and authorized instructors present concepts, walk through techniques, and invite you to follow along using the provided exercise projects. You can ask questions during the training or plan additional live sessions reserved for Q&A with the instructor.

All courses and tracks are available as live instructor-led training via Zoom.

Blended learning

With Blended Learning, you have access to an instructor, while you learn at your own pace. You’ll use pre-recorded courses with their exercise projects, then attend live Q&A sessions with the instructor to further your understanding of the techniques presented in the videos. On average, our blended learning tracks propose one live Q&A session for every three self-paced learning videos.

All Essentials tracks and selected Deep Dive tracks are available as Blended Learning.
Architecture engineering and construction curriculum

This course selection is designed for AEC specialists and technicians who are just getting started with Unreal Engine.

After completing the curriculum, AEC professionals will have the fundamental knowledge required to achieve high-fidelity results and create interactive experiences.

Prerequisites

Participants should have working experience in the AEC industry. They should also be experienced with popular CAD software such as Rhino, Archicad, and Revit; packages such as SketchUp, Maya, or 3ds Max; or Blender or rendering packages such as V-Ray or Corona. Unreal Engine knowledge is not required; however, participants with prior Unreal Engine experience will also benefit from the training.

Unreal Essentials for AEC

Introduction to Unreal Engine
Quickstart: Your First Project in Unreal Engine for AEC
Lighting - Introduction for AEC
Materials - Introduction for AEC
Visualization for Architectural Exteriors
Quixel - Install, Pipeline, and Usage
Datasmith Ingestion
Sequencer for AEC
Cinematics for AEC

This Essentials Track is available as live training or blended learning
Architecture engineering and construction curriculum continued

Deep Dive for AEC
Datasmith Automation for AEC
Optimization for AEC - Profiling and Optimization Process
Optimization for AEC - Tools and Techniques
Introduction to VR for AEC
AEC Collaborative Reviews
Blueprint and UMG for AEC
Editor Utility Widgets for AEC
Variant Manager in AEC
MetaHumans in AEC

Also recommended for AEC clients:
Twinmotion Part 1 - The Basics
Twinmotion Part 2 - The Next Step
Virtual production curriculum

This course selection is designed for professionals in film and VFX who are making the leap from traditional pipelines to virtual production with Unreal Engine.

After completing the curriculum, participants will have the fundamental knowledge required to get started with Unreal Engine in their virtual production projects.

**Prerequisites**

Participants should have working experience in the film and VFX industry. Unreal Engine knowledge is not required; however, participants with prior Unreal Engine experience will also benefit from the training.

**Unreal Essentials for Virtual Production**

- Introduction to Unreal Engine
- Transitioning from Legacy Production to Unreal Engine
- Quickstart: Your First Project in Unreal Engine
- Quixel - Install, Pipeline, and Usage
- Quickstart: Sequencer Shot Creation for Virtual Production
- FBX Data Ingestion
- Materials - Introduction
- Lighting - Introduction
- World Building for Virtual Production
- Quickstart: Landscape
- Animation - Introduction
- Sequencer - Introduction
- Quickstart: Blueprint for Virtual Production
- Understanding Source Control and Perforce Setup

*This Essentials Track is available as live training or blended learning*
Virtual Production Deep Dive
Sequencer - Animation Production Workflows
Sequencer - CineCamera Tools and Techniques
Control Rig - Introduction
Sequencer - Live Link VCam - Shot Creation and Editing
Blueprint - Introduction
Blueprint - Tool Creation
Sequencer - Performance Capture with Take Recorder
Optimization - Examining Tools and Techniques

Also recommended:
The following building blocks from the General Track are recommended for Virtual Production teams:

Artist and Designer Deep Dive
Landscape Deep Dive
Animation Deep Dive
Automotive curriculum

This course selection is designed for professionals in Automotive who are learning Unreal Engine for automotive visualization and HMI design.

After completing the curriculum, participants will have the fundamental knowledge required to get started with Unreal Engine in their automotive visualization projects.

Prerequisites

Unreal Engine knowledge is not required; however, participants with prior Unreal Engine experience will also benefit from the training.

Unreal Essentials for Automotive

Introduction to Unreal Engine
Quickstart: Your First Project in Unreal Engine for Automotive
Introduction to Automotive Visualization in Unreal Engine
Materials - Introduction
Lighting - Introduction
Blueprint - Introduction
Datasmith Ingestion
Datasmith Automation for Automotive and Aerospace
Optimization - Examining Tools and Techniques
Animation - Introduction for Automotive
Control Rig - Introduction for Automotive

This Essentials Track is available as live training or blended learning

HMI Deep Dive

UMG Fundamentals for HMI - UMG Design
UMG Fundamentals for HMI - Materials
UMG Fundamentals for HMI - Lights and Cameras
Optimization for HMI

Also recommended

The following building blocks from the General Track are recommended for Automotive teams:
Artist and Designer Deep Dive
Blueprint Deep Dive
Programmer Deep Dive
GENERAL CURRICULUM
General curriculum

This course selection is designed for teams or professionals who are getting started with Unreal Engine in games, manufacturing, and many other industries.

After completing the curriculum, participants will have the fundamental knowledge needed to work with Unreal Engine.

Prerequisites

Unreal Engine knowledge is not required; however, participants with prior Unreal Engine experience will also benefit from selected tracks.

Unreal Essentials

Introduction to Unreal Engine
Quickstart: Your First Project in Unreal Engine
Quickstart: Your First Project in Unreal Engine for Games
Materials - Introduction
Lighting - Introduction
Sequencer - Introduction
FBX Data Ingestion
Quixel - Install, Pipeline, and Usage
Quickstart: Landscape
Blueprint - Introduction
Optimization - Examining Tools and Techniques
Niagara - Introduction
Understanding Source Control and Perforce Setup

This Essentials Track is available as live training or blended learning

Artist and Designer Deep Dive

Materials - Masking and Material Functions
Materials - Translucent, Displacement, and VFX
Materials - Layered Materials, Subsurface Materials and Material Parameter Collection
Materials - Composition Tools and Techniques
Lighting - Cinematic Fundamentals
Lighting - Atmospheric Lighting
General curriculum continued

Lighting - Ray Tracing and Path Tracer
Post Processing and Rendering

Landscape Deep Dive
Quickstart: Landscape
Quickstart: Water Tools
Landscape Creation
Landscape Foliage & Grass
Landscape Materials Creation
Advanced Landscape Sculpting & Painting

Animation Deep Dive
Animation - Introduction
Control Rig - Introduction
Animation - Retargeting and Crowds
Sequencer - Animation Production Workflows
Animation - Blueprints and Take Recorder
Animation - Alembic Importing and Live Link
Animation - Introduction to Runtime Animation for Games

Blueprint Deep Dive
Blueprint - Introduction
Blueprint - Creating User Interfaces with UMG and Blueprints
Blueprint - Set Up for Scalability: Interface System and Parent/Child Classes
Blueprint - Tool Creation
Blueprint Project - Your First Mobile App with Blueprint and UMG

Programming Deep Dive
C++ Introduction to Unreal Engine for Programmers
C++ Introduction to Gameplay in Unreal Engine for Programmers
C++ Introduction to AI in Unreal Engine for Programmers
C++ Introduction to Networking in Unreal Engine for Programmers
C++ Introduction to UI with Unreal Motion Graphics in Unreal Engine for Programmers
100.01  |  INTRODUCTION TO UNREAL ENGINE

Course Description
Gain a high-level understanding of game engine principles along with an overview of the Unreal Editor and its various tools.

Course Learning Objectives
At the end of this course, you will be able to:

• Utilize sample projects and other resources, including free and paid content
• Work with Unreal Engine’s project structure
• Explain how to bring in data such as geometry, lights, cameras, animation, and more
• Navigate in a scene
• Find your way around the Unreal Engine Editor
• Explain the concepts of Physically Based Rendering (PBR)
• Differentiate between dynamic and static lighting
• Explain the basics of the Blueprint visual scripting

Prerequisites
None

100.02  |  QUICKSTART: YOUR FIRST PROJECT IN UNREAL ENGINE

Course Description
Discover Unreal Engine by creating a simple project that touches on various aspects of the software. Learn how to import data from a variety of sources, then use that data to create a simple environment, author basic materials, explore the lighting system, and add basic Landscape and Foliage to bring the scene to life.

Course Learning Objectives
At the end of this course, you will be able to:

• Start a project using a base template
• Get content from the Marketplace and load starter content
• Import data using Datasmith and FBX
• Place, transform, and duplicate assets to create an environment
• Light an exterior scene using different light types and mobility settings
• Create and apply simple materials

Prerequisites
None
100.03 | QUICKSTART: YOUR FIRST PROJECT IN UNREAL FOR GAMES

Course Description

In this course you’ll learn to create a simple playable level. Designed for novice and experienced games developers who are new to Unreal Engine, it is intended to give a practical step-by-step guide to creating your first basic level in Unreal Engine. This class should serve as a foundation that will allow you to progress and learn more advanced topics.

Course Learning Objectives

At the end of this course, you will be able to:

- Make a basic landscape
- Set up and paint foliage
- Add simple dynamic lighting
- Add basic atmospheric effects
- Add a simple post process to your level
- Place and manipulate meshes
- Place gameplay actors
- Enable simple physics
- Test your level using play in editor

Prerequisites

Introduction to Unreal Engine

100.06 | VISUALIZATION FOR ARCHITECTURAL EXTERIORS

Course Description

Learn how to create a realistic visualization for an exterior scene, add post-processing effects to improve the quality of the scene, and render out high-resolution images.

Course Learning Objectives

At the end of this course, you will be able to:

- Create Streaming Levels for better scene management
- Choose appropriate Daylight startup scenarios
- Create an interactive animated external large-scale scene
- Adjust the Time of Day and fine-tune Exposure controls
- Populate the scene with vegetation and animated people
- Output high-resolution still images
Prerequisites
Introduction to Unreal Engine

Course Description
Discover Unreal Engine by importing an architectural project. Explore the engine's interface and navigational tools, add an environment such as Landscape and Foliage to complement your building, learn to author and apply basic materials, and explore the lighting system in a daylight scenario. This two-hour journey of discovery gives you a good overview of the capabilities of the software.

Course Learning Objectives
At the end of this course you will be able to:

• Start a project using a base template
• Get content from the Marketplace and load starter content
• Import data using Datasmith and FBX
• Place, transform, and duplicate assets to create an environment
• Create a basic terrain and sculpt with terrain editing tools
• Add foliage with the Foliage Paint and editing tools
• Create and apply simple Materials
• Light an exterior scene using different light types and mobility settings

Prerequisites
None

Course Description
As Unreal Engine becomes more utilized in the virtual production space, many artists and supervisors in traditional animation and VFX facilities are uncertain how it fits into the production pipeline. This course introduces you to Unreal's basic operation logic and provides a series of best practices that will help you get your projects off the ground.
Course Learning Objectives
At the end of this course, you will be able to:

- Describe a typical virtual production pipeline
- Understand the asset pipeline
- Understand how to utilize team collaboration tools including Perforce, Unreal Game Sync (UGS), and Shotgun. *Understand Unreal's project structure and logic
- Understand how Sequencer is used for content creation and cinematic process
- Differentiate between possessable and spawnable actors
- Differentiate between GPU requirements for different teams
- Apply best practices for scene assembly

Prerequisites
None

100.09 | QUICKSTART: YOUR FIRST PROJECT IN UNREAL ENGINE FOR AUTOMOTIVE

Course Description
Discover Unreal Engine by creating a simple project that touches on various aspects of the software. Learn how to import data from a variety of sources, then use that data to create a simple environment, author basic materials, explore the lighting system, and add basic Landscape and Foliage to bring the scene to life.

Course Learning Objectives
At the end of this course, you will be able to:

- Start a project using a base template
- Get content from the Marketplace and load starter content
- Import data using Datasmith and FBX
- Place, transform, and duplicate assets to create an environment
- Light an exterior scene using different light types and mobility settings
- Create and apply simple materials
- Animate assets using built-in tools

Prerequisites
None
100.10 | INTRODUCTION TO AUTOMOTIVE VISUALIZATION IN UNREAL ENGINE

Course Description
This course introduces the core principles of creating a production-ready automotive project from start to finish.

Course Learning Objectives
At the end of this course, you will be able to:

- New Project creation using the UE Automotive Template
- Automotive Materials Import/Setup
- Vehicle import using Datasmith
- Scene Assembly
- Cinematic Lighting

Prerequisites
Introduction to Unreal Engine

112.01 | TWINMOTION PART 1 - THE BASICS

Course Description
Learn to import 3D content into Twinmotion. Embellish the scene by adding GIS surroundings, compelling materials, animated characters, vehicles and vegetation to populate and bring life to your environment.

Course Learning Objectives
At the end of this course, you will be able to:

- Link or import data between your DCC app and Twinmotion
- Explore and use Twinmotion’s library to add assets like cars, animated characters, and PBR Materials
- Add context with landscapes, vegetation, and pools of water
- Work with lighting for daytime and nighttime scenarios
- Output media such as images, panorama, and videos
- Explore Phasing to simulate different stages of a building construction
- Use Presenter to create a stand-alone collection of the media you have already saved for distribution

Prerequisites
None
Course Description

Learn to import 3D. Learn to use tools to better interact with your project. Discover how to output and distribute your end results using still images, panoramas, videos, and stand-alone Presenter files.

Course Learning Objectives

At the end of this course, you will be able to:

• Work with Twinmotion’s helper tools such as Animators, Section Cubes, Notes and Measure  
• Work with lighting for daytime and nighttime scenarios  
• Combine meshes and light sources to create your own custom light fixtures  
• Output media such as still images, Panoramas, and Videos  
• Explore Phasing to simulate different stages of a building construction  
• Use Presenter to create a stand-alone collection of the media you have already saved for distribution

Prerequisites

None
### 101.01 MATERIALS - INTRODUCTION

**Course Description**

Explore introductory material techniques and learn about Physically Based Rendering (PBR) in Unreal Engine.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Create Material Parents and Instances
- Animate Materials using the Panner node and layering for animation
- Create Materials using Materials parameters for alpha channels
- Control Material domains, Blend modes, and Shading Models

**Prerequisites**

Introduction to Unreal Engine

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### 101.02 MATERIALS - INTRODUCTION FOR AEC

**Course Description**

Explore the material system to increase the realism of a correctly lit scene. Discover PBR workflows and methods for simulating or even generating added geometry.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Create Material Parents and Instances
- Develop understanding of PBR workflow
- Identify utility of roughness, normal, displacement and parallax occlusion maps
- Improve quality of Materials through reflections
- Cast light from a material

**Prerequisites**

Introduction to Unreal Engine
**Course Description**

Create more elaborate Parent Materials with extended functionality. Build a Material Function and investigate how it works.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Make an Instance Material to control UVs
- Switch between a color or texture as well as values of Material properties
- Use a Material Function to make an Emissive Material and attach it to a light
- Create a single Material that uses masking techniques

**Prerequisites**

Materials - Introduction

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**Course Description**

Create more advanced materials such as translucent materials, foliage materials, and displacement. Explore more advanced properties when creating Material Functions and shading profiles.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Create plant materials using Shading Models and subsurface options
- Create a dissolve effect using material functions
- Create a translucent material and add secondary effects such as Bump Offset
- Create displacement materials using the Material settings

**Prerequisites**

Materials - Introduction
Course Description

In this course, using natural materials such as ice and jade as a reference, you’ll learn advanced techniques for creating visually rich surfaces. You’ll also discover how different techniques affect the resulting look and performance.

Course Learning Objectives

At the end of this course, you will be able to:

- Use parallax occlusion mapping to simulate a 3D look
- Create natural effects using layered materials
- Use material parameter collections to animate in sequencer
- Use three different techniques to build subsurface materials for realism and optimization
- Understand when and how to use Quixel materials for layers

Prerequisites

Materials - Introduction
Materials - Masking and Material Functions
Materials - Translucent, Displacement, and VFX

Course Description

In this course, you’ll learn to apply Megascans assets to an existing environment using blending techniques.

Course Learning Objectives

At the end of this course, you will be able to:

- Use Blueprint construction tools with Megascans assets for a quick layout
- Employ material techniques with virtual texturing and optimizing
- Create world alignment nodes
- Merge assets into a terrain

Prerequisites

Materials - Introduction
Materials - Masking and Material Functions
Materials - Translucent, Displacement, and VFX
Quixel - Install, Pipeline and Usage
103.01 | LIGHTING - INTRODUCTION

Course Description

Get started with real-time lighting in Unreal Engine. Explore how to control lights and edit their properties and learn how to approach lighting hero objects using different lighting techniques.

Course Learning Objectives

At the end of this course, you will be able to:

• Apply different light types and properties in different scenarios
• Explain the three states of light mobility
• Differentiate between static and dynamic lighting
• Use Lightmass efficiently to bake lighting and shading info onto geometry
• Utilize Lightmaps for optimal performance
• Leverage Lightmass Importance Volume and Post-Process Volume
• Understand and use the different reflection types offered in Unreal Engine

Prerequisites

Introduction to Unreal Engine

103.02 | LIGHTING - INTRODUCTION FOR AEC

Course Description

Discover the power of real-time lighting in Unreal Engine for visualizing the built environment.

Course Learning Objectives

At the end of this course, you will be able to:

• Apply different light types and properties within different scenarios
• Differentiate between static and dynamic lighting
• Utilize Lightmaps for optimal performance
• Distinguish use cases for the different reflection types
• Light using an HDRI
• Use a Post-Process Volume to control the scene lighting

Prerequisites

Introduction to Unreal Engine
**203.02 | LIGHTING - CINEMATIC FUNDAMENTALS**

**Course Description**


**Course Learning Objectives**

At the end of this course, you will be able to:

- Create realistic lighting for environments
- Control exposure with Viewmode Exposure and Post-Process Effects
- Control outdoor and interior lighting
- Use Screen Space Global Illumination
- Use Mesh Distance Fields
- Light a character

**Prerequisites**

Lighting - Introduction

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**203.03 | LIGHTING - ATMOSPHERIC LIGHTING**

**Course Description**

Create Fog elements and Post-Process Volume Materials, then learn how to use them. Take an in-depth look at using Mesh Distance Fields and GPU Lightmass.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Create materials and attach them to post-process effects for stylized visual looks
- Add atmospheric lighting to fog to create an effect

**Prerequisites**

Lighting - Introduction
Lighting - Cinematic Fundamentals
203.04 | LIGHTING - RAY TRACING AND PATH TRACER

Course Description

Build a ray-traced scene and explore the elements in detail. This course also provides a breakdown of Path Tracer and how to use it.

Course Learning Objectives

At the end of this course, you will be able to:

• Create a scene that uses ray-traced lighting actors
• Edit ray-tracing settings for best results
• Edit materials for ray-tracing, adjust light settings, post-process volumes to get the best possible output
• Create Blueprints for ray-tracing optimization
• Use path tracer for Movie Render Queue

Prerequisites

Lighting - Introduction
Lighting - Cinematic Fundamentals
Lighting - Atmospheric Lighting

209.01 | POST PROCESSING AND RENDERING

Course Description

Learn how to combine post process volumes and final rendering techniques in order to achieve the color output and quality you need. You’ll learn to render final pixel-quality images for film, TV, and print.

Course Learning Objectives

At the end of this course, you will be able to:

• Use LUT for color grading
• Use Post-Process Volumes to control the color of a scene
• Explain the Post-Process Exposure Control in the viewport
• Render image sequences using the Movie Render Queue
• Determine which Console Variables are best suited for production output
• Explain how to create custom render passes
• Export data from Unreal Engine for use in offline editing
Prerequisites
Lighting - Cinematic Fundamentals
Lighting - Ray Tracing and Path Tracer
Sequencer - CineCamera Tools and Techniques
COURSE LIST

DATA PIPELINE
Course Description

Apply the basics of Static Mesh file import using the FBX file format. This file type is the most common way of importing models into Unreal Engine and works well when building assets one at a time. The course touches on topics such as System Units conversion, Pivot Points, Collisions, LODs and more.

Course Learning Objectives

At the end of this course, you will be able to:

• Import Static Meshes and discover the options of the FBX Import dialog box
• Utilize Unreal Engine’s Mesh Editing tools to make minor adjustments inside of the engine
• Organize Texture and Lightmap UVs in both DCC apps and inside of Unreal Engine
• Generate Collision objects in both your DCC app and inside of Unreal Engine
• Generate LODs
• Import Skeletal Meshes
• Utilize the FBX Full Scene Import option to import fully assembled scenes

Prerequisites

Introduction to Unreal Engine

Course Description

Learn the basics of Static Mesh file import using Datasmith. Datasmith works well with fully constructed scenes such as architectural models created in digital content creation (DCC) applications such as 3ds Max, Revit, or SketchUp Pro; or mechanical designs created in CAD software such as Catia, Solidworks or Inventor among others. With such large ingested data, you also learn the basics of optimization techniques by combining objects together for better real-time performance.
Course Learning Objectives

At the end of this course, you will be able to:

- Recognize the impact the Datasmith file format and workflow has on project development
- Assess how Datasmith works and how it parses information
- Download and install Datasmith exporters for specific DCC applications
- Recognize how Datasmith handles hierarchies and pivot points for imported objects
- Utilize the Mesh Editing tools to make adjustments to geometry from within Unreal Engine
- Generate collisions for a Mesh using the Static Mesh Editor
- Generate LODs for a Mesh using the Static Mesh Editor
- Recognize the significance of merging actors in a scene to improve performance

Prerequisites

Introduction to Unreal Engine

Course Description

Learn how to automate Datasmith workflows with Python scripts and Unreal Engine’s Visual Dataprep tools to sift through a Datasmith file and make changes and adjustments before you commit the data to Unreal Engine.

Course Learning Objectives

At the end of this course, you will be able to:

- Assess the importance of automating the Datasmith import process
- Discover Python scripting automation to load a Datasmith file
- Utilize Python scripting to generate LODs and replace materials quickly and efficiently
- Discover Visual Dataprep
- Assess the Visual Dataprep workflow and recognize how it can help the process of Datasmith ingestion
- Develop “recipes” to automate cleanup and scene management before you commit the changes to the Unreal Editor

Prerequisites

Datasmith Ingestion
Course Description
Learn how to automate Datasmith workflow with python scripts and Unreal Engine’s Visual Dataprep tools to sift through a Datasmith file and make changes and adjustments before you commit the data to Unreal Engine.

Course Learning Objectives
At the end of this course, you will be able to:

• Assess the importance of automating the Datasmith import process
• Discover Python scripting automation to load a Datasmith file
• Utilize Python scripting to generate LODs and replace materials quickly and efficiently
• Discover Visual Dataprep
• Assess the Visual Dataprep workflow and recognize how it can help the process of Datasmith ingestion
• Develop “recipes” to automate cleanup and scene management before you commit the changes to the Unreal Editor

Prerequisites
Datasmith Ingestion
**105.01 | QUICKSTART: SEQUENCER SHOT CREATION FOR VIRTUAL PRODUCTION**

**Course Description**

Learn how to set up your first virtual production project and explore the foundations of shot creation within Sequencer.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Understand sequence management for virtual production
- Install virtual production plugins
- Understand Sequencer foundations
- Animate CineCameras using Sequencer
- Organize your project’s film structures
- Create a simple three shot sequence in Sequencer

**Prerequisites**

Introduction to Unreal Engine

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**105.02 | SEQUENCER - INTRODUCTION**

**Course Description**

Learn the basics of working with Unreal Engine’s cinematic creation tool, Sequencer.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Understand the different functions of a sequence in Unreal Engine, including the hierarchical difference between shot sequences, a sub-scene track, and a take
- Discuss the fundamental functions used by CineCameras
- Build multi-camera and simple three-shot film sequences with keyframed cameras, animations, and cuts
- Generate rendered movies from Sequencer using the Sequencer Movie Scene Capture

**Prerequisites**

Introduction to Unreal Engine
**105.03 | SEQUENCER FOR AEC**

**Course Description**

Dive into your first Sequencer project by animating lights, materials, and people.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Animate the lighting from daytime to nighttime
- Animate light fixtures by using a Material Parameter Collection
- Use levels to control external light visibility
- Animate humans to add life to the scene
- Change render styles of humans

**Prerequisites**

Introduction to Unreal Engine

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**105.04 | CINEMATICS FOR AEC**

**Course Description**

Explore the ways CineCameras empower compelling shots to communicate design intent of your real-time scene as easily shareable 2D media.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Understand what CineCameras are and how they work
- Create CineCameras and adjust shots
- Animate CineCameras in a variety of ways
- Discover the advantages of outputting videos and stills in Unreal Engine
- Render high-resolution stills using HRSST
- Batch render movies using Movie Render Queue

**Prerequisites**

Sequencer for AEC
Course Description

Discover additional features in Sequencer, explore organization structures, and utilize Sequencer’s animation editing capabilities through the application of new animation production workflows.

Course Learning Objectives

At the end of this course, you will be able to:

• Discuss virtual production workflows, pipelines, and best practices for animating in-engine
• Explain the use of Sequencer Tools and Features such as subscenes, bone matching, animation blending, and transform tracks related to animation in Unreal Engine
• Apply motion capture animation to a character, use blend and transform tracks, bone matching, and the inverse solve to experience cinematic animation workflows within Sequencer
• Utilize Control Rig and the Curve Editor for keyframe animation and manipulation
• Generate LODs
• Import Skeletal Meshes
• Utilize the FBX Full Scene Import option to import fully assembled scenes

Prerequisites

Sequencer - Introduction
Animation - Introduction
Control Rig - Introduction

Course Description

Learn the basics of Static Mesh file import using Datasmith. You’ll also learn the basics of Discover additional features in Sequencer, explore cinematography techniques, and utilize Sequencer’s editing capabilities through the application of CineCamera tools and modification tracks.
**Course Learning Objectives**

At the end of course, you will be able to:

- Understand the different cameras, components, and functions while working with CineCameras in Sequencer
- Blend shots in the camera cuts track using the Curve Editor as well as use Look At and Focus tracking to follow a subject within those shots
- Create film transitions such as crossfade using the Scene Capture components
- Utilize cinematic camera tools, rig rail, and crane to animate the camera
- Explain the use of subscenes to organize tracks for visual effects, audio, and animation.
- Trigger events between tracks or communicate between tracks
- Apply various tools such as visibility, transform, and fade tracks to refine the cinematography

**Prerequisites**

Sequencer - Introduction

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**205.03 | SEQUENCER - LIVE LINK VCAM - SHOT CREATION AND EDITING**

**Course Description**

Learn how to set up Virtual Cameras, place them in a virtual set, and record hand-held virtual cameras and audio takes through Take Recorder for editing into a Film Sequence.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Enable the Virtual Camera using the Live Link VCam or Unreal Remote 2 apps
- Navigate the Virtual Camera interface
- Create Virtual Camera shots with Take Recorder
- Utilize the Curve Editor for key manipulation
- Edit recorded shots into a film sequence

**Prerequisites**

Sequencer - Introduction
Sequencer - Animation Production Workflows
Sequencer - CineCamera Tools and Techniques
Course Description

Discover how to set up recordable actors, place them in a virtual set, and record physical, audio, and facial performances through Take Recorder.

Course Learning Objectives

At the end of this course, you will be able to:

• Create vehicle performance takes with Take Recorder
• Discuss recording actor body mechanics performances in Take Recorder
• Record facial capture and dialog performances with Live Link Face and Take Recorder
• Attach facial capture onto an animated character
• Layer performances into a complete shot sequence.

Prerequisites

Sequencer - Introduction
Sequencer - Animation Production Workflows
COURSE LIST

OPTIMIZATION
204.01 | OPTIMIZATION - EXAMINING TOOLS AND TECHNIQUES

Course Description

This course examines optimization concepts and profiling tools and techniques.

Course Learning Objectives

At the end of this course, you will be able to:

- Understand fundamental optimization concepts
- Keep in mind optimization tips before beginning asset production
- Optimize project assets from inside the Unreal Editor
- Use optimization view modes to identify performance issues in your scenes
- Use the Audit Asset tools to determine which assets are taking up the most memory / disk space
- Optimize Static and Skeletal Meshes, Textures, Materials and Lighting
- Understand ways to increase ray-tracing scene performance

Prerequisites

Introduction to Unreal Engine

204.02 | OPTIMIZATION FOR AEC - PROFILING AND OPTIMIZATION PROCESS

Course Description

This course introduces you to a detailed analysis of the profiling and optimization process. We will compare quality/features vs performance.

Course Learning Objectives

At the end of this course, you will be able to:

- GPU Profiler
- CVARS
- View Modes
- Draw Calls
- Quad Overdraw
- HLODs

Prerequisites

Introduction to Unreal Engine
Materials Introduction for AEC
Datasmith Ingestion
Datasmith Automation for AEC
### 204.03 | Optimization for AEC - Tools and Techniques

**Course Description**

This course will give you the skill to optimize your scene directly in Unreal Engine. We will first profile the level to identify problem areas and then use in-editor tools to optimize the scene.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Runtime Virtual Textures
- LODs
- Imposters
- Culling
- Proxy Meshes

**Prerequisites**

Introduction to Unreal Engine
Materials Introduction for AEC
Datasmith Ingestion
Datasmith Automation for AEC

### 204.04 | Optimization for HMI

**Course Description**

Discover how to animate various aspects of your AEC scene using Sequencer. Learn how in this course, you'll take a deep look into the tools and workflows that are needed to help your UE4 HMI project run smoothly when deployed to your target devices.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Understand the benefits and limitations of enabling certain rendering features and how they affect rendering quality on HMI devices
- Understand how to create textures that will compress correctly when used on HMI devices
- Understand how to optimize materials to meet a wide range of uses
- Look at some of the optimization view modes to better understand how they can help you spot problematic areas of your project
Course Learning Objectives continued

• Look at some of the optimization tools and commands UE4 provides to help you better understand how your content is being deployed to the HMI device

Prerequisites

Introduction to Unreal Engine
Materials - Introduction
**107.01 | ANIMATION - INTRODUCTION**

**Course Description**

Learn the basics of using animation to create real-time and linear media in Unreal Engine. Using the Third Person Template, you’ll import an animation and get an overview of the animation sub-editors. You’ll import a character and attach an object to the socket.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Identify how the different sub-editors interact to form a single animated asset
- Import FBX animations and Skeletal Meshes for new or existing Skeletons
- Connect different animation assets (Skeleton, Skeletal Mesh, Animation, and Animation Blueprint)
- Attach Static Meshes to a Skeleton with sockets

**Prerequisites**

Introduction to Unreal Engine

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**107.03 | ANIMATION - INTRODUCTION TO RUNTIME ANIMATION FOR GAMES**

**Course Description**

In this course, we’ll familiarize you with the various runtime animation blending controls available in Unreal Engine using Anim Blueprints. You’ll learn to inject a punch into a run cycle with the press of a button and add new animation states based on parameter changes.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Explain the relationship between the Animation Blueprint’s Event Graph and the Animation Graph
- Drive your animation with real-time game data using the Event Graph
- Use Blend Spaces to cleanly shift from one animation to another using input data

**Prerequisites**

Animation - Introduction
107.04 | Animation - Introduction for Automotive

Course Description

Learn the basics of using animation to create real-time and linear media in Unreal Engine. Using a skeletal mesh of a vehicle, you’ll import an animation and get an overview of the animation sub-editors. You’ll import a character and attach an object to the socket.

Course Learning Objectives

At the end of this course you will be able to:

- Identify how the different sub-editors interact to form a single animated asset
- Import FBX animations and Skeletal Meshes for new or existing Skeletons
- Connect different animation assets (Skeleton, Skeletal Mesh, Animation, and Animation Blueprint)
- Attach Static Meshes to a Skeleton with sockets

Prerequisites

Animation - Introduction

207.01 | Animation - Alembic Importing and Live Link

Course Description

Discover geometry cache importing and previewing real-time animation through Live Link. We will also touch on topics such as external 3D modeling tools built to assist Unreal developers. Supports Maya 2020.

Course Learning Objectives

At the end of the course, you will be able to:

- Import, export, and play an Alembic animation
- Use the Live Link Plugin to connect Maya 2020 and Unreal Engine
- Import assets from Blender
- Find external tools that assist the Unreal Engine import pipeline

Prerequisites

Animation - Introduction
207.02 | Animation - Blueprints and Take Recorder

Course Description

Learn intermediate techniques for blending animations in Unreal Engine. The course introduces Unreal Engine’s Animation Blueprint concepts for use in real-time applications, simulations, and games. This also includes blending animations with physics and Collision assets in the level.

Course Learning Objectives

At the end of this course, you will be able to:

• Control and blend skeletal bones via Animation Blueprint
• Blend animations and physics reactions in real time with Animation Blueprints
• Utilize a variety of blending functions available in Animation Blueprints

Prerequisites

Blueprint - Introduction

207.03 | Animation - Retargeting and Crowds

Course Description

Discover how retargeting animations with Unreal Engine will save you time and effort when working with many different meshes and Skeletons. Diverse background crowds can then be created and driven by combining retargeting with the AI navigation system.

Course Learning Objectives

At the end of this course, you will be able to:

• Apply different animations to different Skeletons
• Utilize retargeting to reassign meshes onto different Skeletons
• Use basic AI to create randomized crowd animation
• Combine animations into one using composites

Prerequisites

Animation - Introduction
108.01 | CONTROL RIG - INTRODUCTION

Course Description

Animate a Skeletal Mesh using Control Rig, and keyframe it in Sequencer. We’ll build on Sequencer and Animation courses to create entirely new animations using only tools within Unreal Engine.

Course Learning Objectives

At the end of this course, you will be able to:

• Build IK/FK, Look At, and Transform rigs using Control Rig
• Animate rigged Skeletal meshes to create animations in Sequencer
• Create new animation assets using Control Rig and Sequencer that can then be used in an Animation Blueprint

Prerequisites

Animation - Introduction

108.02 | CONTROL RIG - INTRODUCTION FOR AUTOMOTIVE

Course Description

Animate a car’s wheels and doors by using a Control Rig. We’ll build on Sequencer and Animation courses to create entirely new animations using only tools within Unreal Engine.

Course Learning Objectives

At the end of this course, you will be able to:

• Build FK and IK rigs using Control Rig
• Animate riged vehicle skeletal meshes to create animations in Sequencer
• Create new animation assets using Control Rig and Sequencer that can then be used in an Animation Blueprint

Prerequisites

Introduction to Animation for Automotive
102.01 | Blueprint - Introduction

Course Description

Learn basic Blueprint tools and concepts, and create a simple interaction.

Course Learning Objectives

At the end of this course, you will be able to:

- Differentiate the Level Blueprint and Actor Blueprint
- Select the appropriate Blueprint parent class
- Explain inheritance and build a parent/child relationship in Blueprints
- Identify common/basic variable types (nodes, wires, and pins)
- Create, set, and get basic variables
- Recognize how local variables and functions work in Blueprints
- Utilize Blueprint nodes to control the logic flow
- Execute a simple Blueprint

Prerequisites

Introduction to Unreal Engine

102.02 | Blueprint - Creating User Interfaces with UMG and Blueprints

Course Description

Learn to create a basic user interface using Unreal Motion Graphics (UMG) and Blueprint. Build a small game with simple menu controls and the ability to display data.

Course Learning Objectives

At the end of this course, you will be able to:

- Bind data to displays and display text
- Create a menu with working buttons using UMG
- Apply input core concepts and set up pawn/controller communications
- Differentiate UMG functions and Blueprint
- Differentiate construction script, bindings, and tick behavior
- Send variable information via Blueprint interfaces
- Utilize Casting/Basic communication between UI and other Blueprints to display values of Blueprint Actors via UMG

Prerequisites

Blueprint - Introduction
**102.03 | QUICKSTART: BLUEPRINT FOR VIRTUAL PRODUCTION**

**Course Description**

Learn basic concepts and create your first Blueprints for Virtual Production.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Control cameras through interaction
- Differentiate the Level Blueprint and Actor Blueprint
- Identify common/basic variable types (nodes, wires, and pins)
- Have a basic understanding of how variables and functions work
- Differentiate Level Blueprint and construction scripts
- Execute a simple Level Blueprint * Create a simple construction script

**Prerequisites**

Introduction to Unreal Engine

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**102.04 | BLUEPRINT AND UMG FOR AEC**

**Course Description**

Learn essential Blueprint and UMG tools and concepts for AEC design and visualization by developing a variety of methods for viewing design options in this project-based learning session.

**Course Learning Objectives**

At the end of this course, you will be able to:

- Discuss the utility of Blueprint visual scripting for AEC
- Understand the basics of sending and receiving data with the Blueprint system
- Set up static design options that can be easily cycled via keyboard input
- Add a UMG system for cycling design options via buttons
- Create new design options using the Editor Utility Widget

**Prerequisites**

Introduction to Unreal Engine
Course Description

Learn how to set up Blueprints to act as templates for all other Blueprints in the project. This parent/child setup has many advantages and is key when working on large projects. The course demonstrates the concepts and techniques by walking through the complete process of creating a modular light switch.

Course Learning Objectives

At the end of this course, you will be able to:

• Set up a project for scalability to your target platform
• Create a parent Blueprint with specific properties that can be inherited and used in child Blueprints
• Set up a Blueprint Interface system to send/receive information and function calls between Blueprints
• Use Action and Axis mappings to allow for device specific controls
• Possess and control pawn Actors with a Player Controller
• Utilize the Line Trace functions for general purposes
• Create a Blueprint communication system through multiple Blueprint Interfaces

Prerequisites

Blueprint - Introduction

Course Description

Learn how to use Unreal Motion Graphics (UMG) to create a wide range of interactive and reactive UI elements, and how to communicate with UMG from Blueprints.

Course Learning Objectives

At the end of this course, you will be able to:

• Create a new mobile project with UMG
• Work with media player to stream in an audio file
• Create UI with a widget Blueprint
• Create a play button used to play and pause media
• Import, adjust, and apply images for the UI
• Set up image selection to change background image when a button is pressed
Course Learning Objectives continued

- Animate buttons using the timeline in UMG
- Utilize the packaging features in Unreal Engine to build projects for target platforms
- Utilize the packaging features in Unreal Engine to build projects for target platforms

Prerequisites

Introduction to Unreal Engine

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202.03 | Blueprint - Tool Creation

Course Description

Learn how to use Blueprint to create production-ready tools. Make your pipeline easier by adding your own tools to the Editor.

Course Learning Objectives

At the end of this course, you will be able to:

- Extend functionality with utility actions
- Extend the Editor with utility widgets
- Build a texture creator with a render target
- Build a simple camera switcher with construction scripts

Prerequisites

Blueprint - Introduction

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202.04 | Editor Utility Widgets for AEC

Course Description

Learn Editor Utility Widgets, a way to create custom tools within the editor and to automate tasks. We will use metadata to drive the selection of a mesh or meshes in the level. We will also touch on Scene Captures and Render Targets and be heavily Blueprint focused.
Course Learning Objectives

At the end of this course, you will have a new procedural and dynamic Editor Utility Widget which can select meshes. Bonus content, time permitting, will show you how to manipulate the editor viewport to focus the camera on your selection. The objective is not necessarily to learn how to create a specific tool, but to think about how to create useful tools for your own projects.

Prerequisites

Blueprint - Introduction

Course Description

This is the first part of our UMG Fundamentals for HMI course series. We start by discussing the way that Unreal Engine compiles all of its parts, and what types of Blueprint classes will be useful during UMG development. Then, we'll build out a menu that will hide or appear with an animation via a button press. Also covered are different input methods, 3D Widgets, and tips for vehicle displays.

Course Learning Objectives

- Create interactive UMG Widgets for use in HMIs
- Organize and animate menus
- Display data via 3D widgets

Prerequisites

Blueprint - Creating User Interfaces with UMG and Blueprints

Course Description

This is the second course of the UMG Fundamentals for HMI series. Now that you have made a working menu, you will need to make ways of displaying values to your HMI’s user. In this course you will pass information about the temperature and air speed settings into your user interface, and the display vehicle, using Dynamic Material Instances. This is a deep dive into how Blueprints, Materials and UMG communicate and display information.
Course Learning Objectives

- Create UI materials/textures
- Work with Material Parameters
- Utilize Texture Packing to optimize your design
- Communicate from UMG to materials
- Display changes to materials in real time

Prerequisites

UMG Fundamentals for HMI - Setup and Design

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Course Description

This is the third and final course in our UMG Fundamentals for HMI series. This time our primary focus will be to integrate a new menu for controlling the lights and which camera position to show the displayed scene from. We'll combine techniques we learned before as well as new ways to interact with objects in a scene via UMG.

Course Learning Objectives

- Create Dynamic Lights
- Blend Camera Views
- Manipulate Cameras and Lights with UMG

Prerequisites

UMG Fundamentals for HMI - Setup and Design
Course Description

Learn key concepts for programming within Unreal Engine. This course should serve as a starting point if you have experience programming with C++ but are new to Unreal Engine.

Course Learning Objectives

- Project compilation for testing and deployment in UE4
- Core code structure for initial project setup in Unreal Engine
- Modules
- UnrealBuildTool
- UnrealHeaderTool
- Reflection in UE4
- Components and Actors
- Basic memory management/Garbage Collection [code] in Unreal Engine
- Object and Actor lifecycle in UE4

Prerequisites

A working knowledge of C++/object orientated programming
A basic knowledge of Unreal Engine 4 or previous Engine experience

Course Description

In this class you’ll be introduced to the core gameplay systems that the Unreal Engine offers, building up from the C++ Introduction to Unreal Engine for experienced programmers. This class will give you knowledge of the building blocks of gameplay that will allow you to create gameplay systems for your project.

Course Learning Objectives

In this class you’ll be introduced to the core gameplay systems that the Unreal Engine offers, building up from the C++ Introduction to Unreal Engine for experienced programmers. This class will give you knowledge of the building blocks of gameplay that will allow you to create gameplay systems for your project.

Prerequisites

C++ Intro to Unreal Engine for Programmers
**115.03 | C++ INTRODUCTION TO AI IN UNREAL ENGINE FOR PROGRAMMERS**

**Course Description**

In this class, you’ll be introduced to the various artificial intelligence tools that Unreal Engine offers, giving you foundational knowledge of the AI systems and how you can start creating versatile AI in your project.

**Course Learning Objectives**

At the end of this course you will understand the available tools that Unreal Engine 4 provides for creating versatile AI.

**Prerequisites**

C++ Intro to Unreal Engine for Programmers

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**115.04 | C++ INTRODUCTION TO NETWORKING IN UNREAL ENGINE FOR PROGRAMMERS**

**Course Description**

In this class, you will learn how to use Unreal Engine’s networking building blocks to develop multiplayer features designed for network performance.

**Course Learning Objectives**

- Architect code that takes networking into account
- Send a function over the network
- Get a value to be replicated from server to client
- Deal with relevancy
- Deal with dormancy

**Prerequisites**

C++ Intro to Unreal Engine for Programmers

Strong knowledge of C++/object-orientated programming

Previous engine experience, or working knowledge of Unreal Engine 4
Course Description

In this talk, you’ll learn what UMG is, and how we can develop UI systems with C++ in mind. We will cover how developing UI differs from developing other gameplay elements, and what tips and tricks we can employ to develop smart UI elements.

Course Learning Objectives

At the end of this course you will have: a basic overview of the Unreal Motion Graphics (UMG) system

Prerequisites

C++ Intro to Unreal Engine for Programmers
COURSE LIST

LANDSCAPE
Course Description

In this course, you'll get started with the Landscape tools to sculpt, paint and apply foliage to landscapes inside Unreal Engine.

Course Learning Objectives

- Make a new landscape using the built-in Landscape tools.
- Sculpt the landscape using the Landscape tools.
- Create a Material that can be applied to the landscape for painting.
- Paint the landscape.
- Apply foliage to the landscape.

Prerequisites

Introduction to Unreal Engine

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Course Description

In this course, you'll get started with the Water tools to add oceans, lakes, and rivers to your landscape.

Course Learning Objectives

- Enable the water tools plugin in your UE4 project.
- Understand the basic level setup that is required for water tools to work properly.
- Look at how each of the individual tools works both separately and together.
- Learn how to use the buoyancy actor to have objects that can react to the flow of water.

Prerequisites

Landscape – Quickstart
311.01 | Landscape Materials Creation

Course Description
Discover various ways to create materials for your landscapes and the reasons behind each method.

Course Learning Objectives
• Better understand when certain Landscape material setup should be used.
• Learn how to set up materials that can procedurally set up the look of your landscape.
• Take a look at how to mix various landscape materializing methods together.
• Get a better understanding of how to optimize your landscape materials.

Prerequisites
Introduction to Unreal Engine
Landscape - Quickstart

311.02 | Advanced Landscape Sculpting & Painting

Course Description
Utilize the various painting tools to add more details to the landscapes. Implement various Landscape Sculpting tools to shape the landscape to meet your project’s needs.

Course Learning Objectives
• Understand how to work with custom heightmap data.
• Understand how to use a custom brush on the landscapes.
• Know how to restrict painting to only certain landscape layers.

Prerequisites
Introduction to Unreal Engine
Landscape - Quickstart

311.03 | Landscape Foliage & Grass

Course Description
Utilize Foliage and Grass tools to apply meshes to your landscapes.
Course Learning Objectives

• Take applied static meshes and turn them into foliage types.
• Learn how to restrict foliage placement to only certain layers.
• Gain a better understanding of what the foliage settings do and how to work with them.
• Learn how to use Blueprints with the foliage tools.

Prerequisites

Introduction to Unreal Engine
Landscape - Quickstart

Course Description

Discover the various ways to create, adjust, and optimize Landscape height maps.

Course Learning Objectives

• Understand how different landscape sizes affect memory.
• Learn how to work with landscape height maps.
• Understand the height map import/reimport process.
• Gain a better understanding of how scale affects the landscape size and shape.

Prerequisites

Introduction to Unreal Engine
Landscape - Quickstart
COURSE LIST

VARIOUS
**110.01 | Niagara Introduction**

**Course Description**

Take your first look at working with Niagara particles inside Unreal Engine 4.

**Course Learning Objectives**

- Know how to enable and create Niagara assets
- Understand how to convert Cascade effects to Niagara effects
- Go over how Niagara effects are created and how they differ from Cascade
- Understand how to set up a new Niagara system for use in a level

**Prerequisites**

Introduction to Unreal Engine
Materials - Introduction

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**114.01 | Quixel - Install, Pipeline and Usage**

**Course Description**

Examine the vast resources found in the Megascans Library.

**Course Learning Objectives**

- Understand the Quixel ecosystem
- Utilize Bridge for asset selection and acquisition
- Employ the Mixer toolset for non-destructive asset modification.

**Prerequisites**

Introduction to Unreal Engine

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**213.01 | MetaHumans in AEC**

**Course Description**

Bring your archviz scene to life with MetaHumans, Unreal Engine’s custom character creation pipeline. Add a sense of human scale, match various visual styles to aid in communicating design intent, and accurately represent end-user demographics. See for yourself why MetaHumans are the future of digital humans.
Course Learning Objectives

- Export a MetaHuman Creator character from Quixel Bridge to Unreal Engine
- Retarget body animations from humanoid rigs to any MetaHuman
- Record facial animation using Live Link Face
- Mix and match Alembic grooms, clothing, and colors to make a few MetaHumans seem like a greater variety
- Adjust MetaHuman materials to cater to several archviz styles
- Explore a modified MetaHuman Blueprint for generating random crowds
- Locate animated MetaHumans in the context of an archviz scene
- Export a high-res archviz film using Movie Render Queue
- Optimize MetaHumans to run well on mobile devices and in VR

Prerequisites

Introduction to Unreal Engine
Sequencer for AEC
Cinematics for AEC

Course Description

Learn how the Unreal Engine Variant Manager provides a no-frills approach to cycling and showcasing AEC design and visualization options.

Course Learning Objectives

- Discuss the pros and cons of demonstrating design options with the Variant Manager over Blueprint-based methods
- Utilize the new 4.27 Configurator Template
- Set up the Variant Manager
- Create variant sets of color, material, light, mesh, and camera choices
- Build a dynamically configurable UMG interface
- Utilize the remote control system for activating changes in editor from a browser
- Package your project so others can review your variant options

Prerequisites

Introduction to Unreal Engine
Lighting - Introduction for AEC
Blueprint and UMG for AEC
216.01 | UNDERSTANDING SOURCE CONTROL AND PERFORCE SETUP

Course Description
Walk through the fundamental concepts of source control using Perforce.

Course Learning Objectives
- Understand what source control is, and how it will improve your team's ability to collaborate, grow and achieve success with *Unreal Engine
- Describe the overall source control workflow from the perspective of a creative department
- Deploy a server using Amazon EC2 cloud services to create a server that team members can access from around the world
- Utilize Perforce to manage a Unreal Engine project
- Utilize the in-editor source control tools to streamline your workflow.

Prerequisites
Introduction to Unreal Engine

216.02 | AEC COLLABORATIVE REVIEWS

Course Description
Learn how the Collab Viewer Template enables compelling, customized shared experiences for design review in Unreal Engine.

Course Learning Objectives
- Discuss when the Collab Viewer Template is a reasonable foundation for your projects
- Set up Bookmarks and States
- Toggle X-Ray mode
- Explode the building design as a complex assembly
- Measure and annotate
- Highlight key design moments via the Section tool
- Change model on the fly using Datasmith runtime
- Disable features you don’t need
- Customize to your needs [e.g. add ability to teleport all users to host]
- Test multi-user functionality

Prerequisites
Introduction to Unreal Engine
Datasmith Ingestion
Blueprint and UMG for AEC
216.03  INTRODUCTION TO VR FOR AEC

Course Description

Gain a high-level understanding of developing virtual reality AEC experiences in Unreal Engine.

Course Learning Objectives

• Discuss VR basics and best practices
• Determine if VR is right for your project
• Utilize the OpenXR template to work across a range of VR devices
• Work with optimizing lighting, materials, and geometry for VR
• Build upon the template’s Blueprints to move (e.g. dash teleportation, flying, scaling)
• Utilize the Grabbable component to interact with objects in your scene
• Add additional buttons and functionality to the controller menu
• Demonstrate effective use of VR Mode in the Editor
• Modify Spectator Cam to add key plan and smoothly follow HMD view
• Package your projects for distribution for .apk (Android) and .exe (Windows)

Prerequisites

Introduction to Unreal Engine
Materials - Introduction for AEC
Lighting - Introduction for AEC
Blueprint and UMG for AEC

219.00  WORLD BUILDING FOR VIRTUAL PRODUCTION

Course Description

Design and construct layouts using Unreal Engine tools and workflows.

Course Learning Objectives

• Create a layout using Unreal Engine tools, assembling pieces for better virtual production workflows
• Understand the basics of how to use Mixer
• Utilize basic modeling in Unreal Engine
• Use the Variant Manager to present different layout scenarios in Mixer
• Use basic Blueprints for instancing
Prerequisites
Introduction to Unreal Engine
Quickstart Your First Project in Unreal Engine
Materials Introduction
Lighting Introduction