UNREAL
ENGINE

UNREAL ENGINE TRAINING UE5

COURSE CATALOG

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Image courtesy of dlpparis

Planning your Unreal Engine 5 training

Unreal Engine enables game developers and creators across industries to realize next-generation real-time 3D content and experiences with greater freedom, fidelity, and flexibility than ever before. 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 titles listed in this catalog. Where UE5 courses are not available, we also offer courses in Unreal Engine 4.

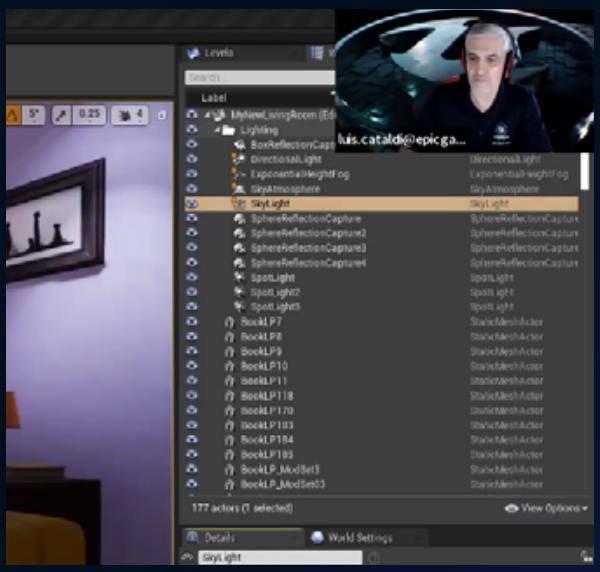
We will be updating and creating more UE5 courses throughout the year.

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 will be available as Blended Learning later this year. Currently only UE4 courses are available as Blended Learning and selected *Intermediate* and *Deep Dive* courses are available upon request.

ARCHITECTURE ENGINEERING AND CONSTRUCTION

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 5
Quickstart: Your First Project in Unreal Engine 5 for AEC
Lighting for AEC - Introduction
Materials for AEC - Introduction
Datasmith Ingestion
Sequencer for AEC
Cinematics for AEC
Blueprint - Introduction

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 - The Basics
Twinmotion - The Next Step

Image courtesy of Savannah College of Art and Design

VIRTUAL PRODUCTION CURRICULUM

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 5
Quickstart: Your First Project in Unreal Engine
FBX Data Ingestion
Quickstart: Landscape
Animation - Introduction

Virtual Production Deep Dive

Control Rig - Introduction
Blueprint - Introduction
Optimization - Examining Tools and Techniques

Image courtesy of dlpparis

AUTOMOTIVE CURRICULUM

Automotive curriculum

This course selection is designed for professionals in Automotive who are learning Unreal Engine for vehicle rendering 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 5
Quickstart: Your First Project in Unreal Engine 5 for Automotive
Introduction to Automotive Visualization in Unreal Engine
Blueprint - Introduction
Datasmith Ingestion
Datasmith Automation for Automotive and Aerospace
Optimization - Examining Tools and Techniques
Animation - Introduction for Automotive
Control Rig - Introduction for Automotive

HMI Deep Dive

UMG Fundamentals for HMI - UMG Design
UMG Fundamentals for HMI - Materials
UMG Fundamentals for HMI - Lights and Cameras
Intermediate HMI Pipeline

Image courtesy of J Hill

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 5
Quickstart: Your First Project in Unreal Engine 5
Quickstart: Your First Project in Unreal Engine 5 for Games
FBX Data Ingestion
Quickstart: Landscape
Blueprint - Introduction
Optimization - Examining Tools and Techniques
Niagara - Introduction

COURSE LIST

FOUNDATIONS

100.01 | INTRODUCTION TO UNREAL ENGINE 5

Course Description

In this course, you will be shown the basics of how to interact with the Unreal Engine 5 Editor. If you are new to Unreal Engine, or going from UE4 to UE5, this course is a must as it will help familiarize you with the Unreal Engine 5 Editor layout as well as some of the most commonly-used tools.

Course Learning Objectives

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

- Access and find the online help
- Use the Epic Games Launcher to find resources
- Understand how the interface works and where various tools are located
- Understand the most commonly used tools and sub-editors UE5 provides

Course Prerequisites

No Prerequisites Required

100.02 | QUICKSTART: YOUR FIRST PROJECT IN UNREAL ENGINE 5

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 Quixel Bridge
- 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

100.01-Introduction to Unreal Engine 5

100.03 | QUICKSTART: YOUR FIRST PROJECT IN UNREAL ENGINE 5 FOR GAMES

Course Description

In this course, you will look at how to build a simple, yet completely functional, game inside of Unreal Engine 5 using the third-person example template as a starting point. From setting up a complete game loop to implementing a clickable user interface and packaging your project to run on Windows, this course will show you all you need to get started building games of your very own.

Course Learning Objectives

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

- Understand the basics of how to pass data from one Blueprint to another
- Understand how Unreal Motion Graphics can be leveraged to help progress the logic of the game
- Understand the basic actors and Blueprints needed to help build a game in Unreal Engine 5

Prerequisites

100.07 | QUICKSTART: YOUR FIRST PROJECT IN UNREAL ENGINE 5 FOR AEC

Course Description

Discover Unreal Engine by importing an architectural project. Explore the engine's interface and navigational tools, add an environment such as Landscape or 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 Quixel Bridge
- 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

Prerequisites

100.01-Introduction to Unreal Engine 5

100.09 | YOUR FIRST PROJECT IN UNREAL ENGINE 5 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

100.01-Introduction to Unreal Engine 5

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:

- Create new projects using the UE Automotive Template
- Import and set up Automotive materials
- Import vehicles using Datasmith
- Assemble the scene
- Work with Cinematic Lighting
- Differentiate between GPU requirements for different teams
- Apply best practices for scene assembly

Prerequisites

100.01-Introduction to Unreal Engine 5

100.14 | QUICKSTART FOR EXECUTIVES

Course Description

An introduction to Unreal Engine for anyone who hasn't had experience working with development software. Together, we'll explore tools and get hands-on with core engine concepts.

Course Learning Objectives

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

- Navigate menus and the viewport
- Create a new project
- Explain what an "Engine" is
- Create a new material
- Explain and control GBuffer visualization
- Create a new Blueprint

Prerequisites

No Prerequisites Required

112.01 | TWINMOTION - 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 Twinmotion’s User Interface
- Explore and use Twinmotion’s library to add assets like cars, animated characters, and PBR Materials
- Add more context by adding GIS data and HDRI skydomes
- Add context with landscapes, vegetation, and pools of water
- Explore Path Animation

Prerequisites

No Prerequisites Required

112.02 | TWINMOTION - THE NEXT STEP

Course Description

Learn to use tools to better interact with your project. Learn to light the scene at night and how to store your own light fixtures. 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

112.01-Twinmotion - The Basics

Courtesy of Jamie Callow

COURSE LIST

MATERIALS

101.02 | MATERIALS FOR AEC - INTRODUCTION

Course Description

Explore the material system to increase the realism of a correctly lit scene. Discover PBR workflows and how to properly author materials in UE5.

Course Learning Objectives

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

- Create Material Parents and Instances
- Develop understanding of PBR workflow
- Find resources for readily-available PBR textures
- Identify utility of albedo, metallic, roughness, and normal maps
- Improve quality of materials through reflections
- Identify different Shader Models for different material types
- Cast light from a material

Prerequisites

100.01-Introduction to Unreal Engine 5

COURSE LIST

LIGHTING

103.02 | LIGHTING FOR AEC - INTRODUCTION

Course Description

Get started with real-time lighting in Unreal Engine. Learn about Lumen, the default lighting system in UE5, and how it can help you light your scenes effortlessly. Explore how to control lights and edit their properties.

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 a Post-Process Volume to control exposure and other effects
- Light the scene in daylight and at nighttime
- Work with IES Profiles

Prerequisites

100.01-Introduction to Unreal Engine 5

Courtesy of Vasiliy Poryadin

COURSE LIST

DATA PIPELINE

106.01 | FBX DATA INGESTION

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 modeling tools to make minor adjustments inside of the engine
- Organize texture and Lightmap UVs in DCC apps and inside of Unreal Engine
- Generate Collision objects in your DCC app and inside of Unreal Engine
- Store LODs in the FBX file or generate them at import time
- Import Skeletal Meshes
- Utilize the FBX Full Scene Import option to import fully assembled scenes

Prerequisites

100.01-Introduction to Unreal Engine 5

106.02 | DATASMITH INGESTION

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 modeling tools within Unreal Engine to adjust geometry

- 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. Explain how to create custom render passes
- Export data from Unreal Engine for use in offline editing

Prerequisites

100.01-Introduction to Unreal Engine 5

206.01 | DATASMITH AUTOMATION FOR AUTOMOTIVE AND AEROSPACE

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

106.02-Datasmith Ingestion

206.02 | DATASMITH AUTOMATION FOR AEC

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

106.02-Datasmith Ingestion

COURSE LIST

SEQUENCER

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 and interiors by using a Material Parameter Collection
- Animate humans to add life to the scene
- Change render styles of humans

Prerequisites

100.01-Introduction to Unreal Engine 5

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.

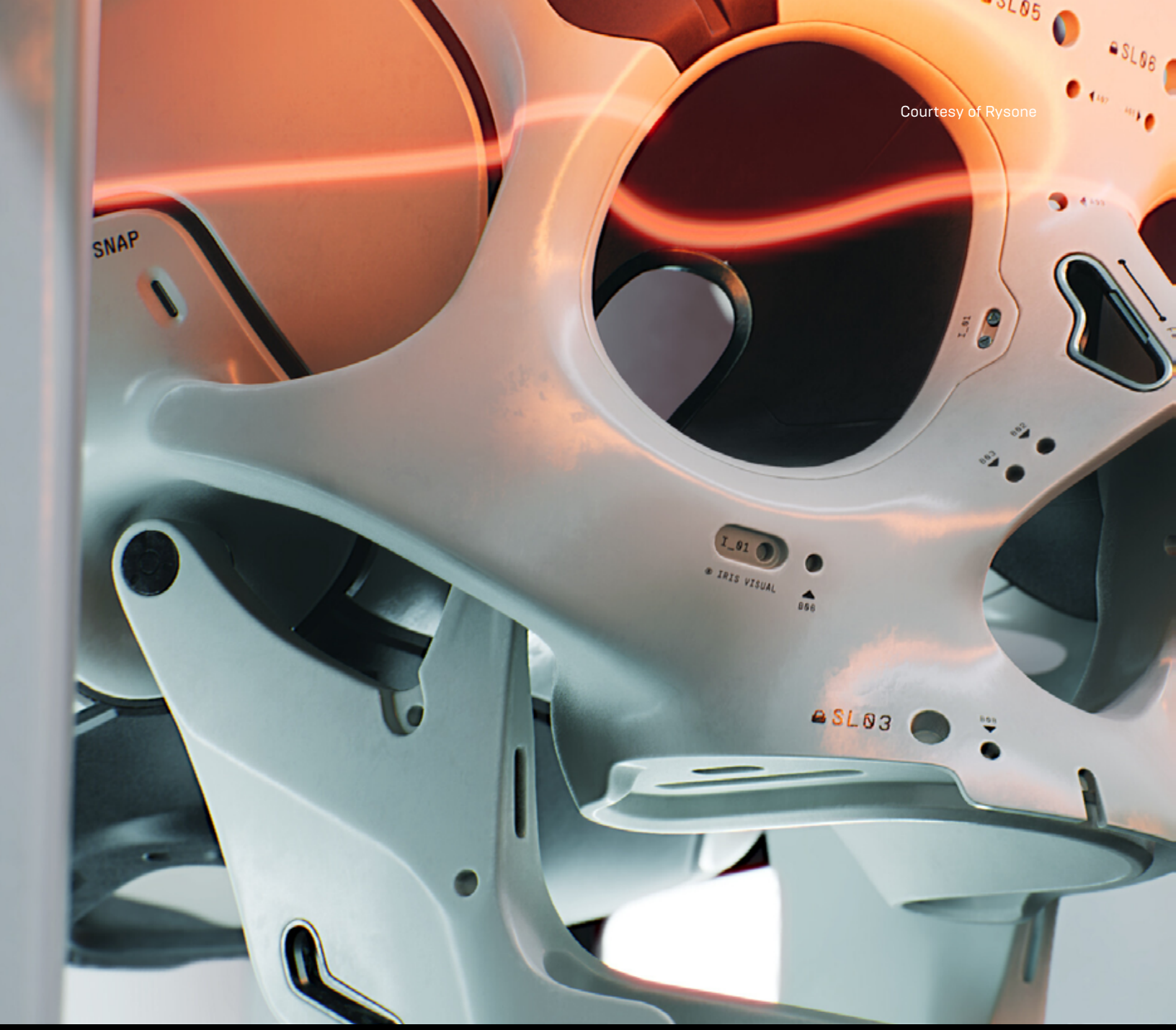
Course Learning Objectives

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
- Batch render movies using Movie Render Queue

Prerequisites

105.03-Sequencer for AEC



Courtesy of Rysone

COURSE LIST

OPTIMIZATION

204.01 | OPTIMIZATION - EXAMINING TOOLS AND TECHNIQUES

Course Description

In this course, you will be introduced to various tools and techniques that can be used to help with the performance of any Unreal Engine 5 project. Trying to figure out what is causing performance issues in your project can be a daunting task, due to the wide range of systems that are used. In this course you will be introduced to many of the tools UE5 provides that can help track down these performance issues and then fix them. In addition, these tools can help prevent issues happening in the future.

Course Learning Objectives

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

- Understand which tools can help you track down performance issues
- Which tool should be used to help determine specific performance issues
- How to fix or reduce performance issues that are found using the tools

Prerequisites

100.01 - Introduction to Unreal Engine 5

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

101.02-Materials for AEC - Introduction
106.02-Datasmith Ingestion
206.02-Datasmith Automation for AEC

204.03 | OPTIMIZATION FOR AEC - TOOLS AND TECHNIQUES

Course Description

This course will give you the skills to optimize your scene directly in Unreal Engine. We will first profile the level to identify problem areas, 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

101.02-Materials for AEC - Introduction
106.02-Datasmith Ingestion
206.02-Datasmith Automation for AEC

COURSE LIST

ANIMATION

107.01 | ANIMATION - INTRODUCTION

Course Description

In this introductory course, you will learn the basics of using animation to create real-time and linear media in the new Unreal Engine 5 UI. Using the Third Person Template, you'll import an animation and get an overview of the animation sub-editors. After you import a character and attach an object to the socket, you'll get an overview of Animation Blueprints, animate a simple animation in Sequencer, and finally be shown how to "bake out" your animation.

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
- Differentiate between animation assets (Skeleton, Skeletal Mesh, Animation)
- Attach Static Meshes to a Skeleton with sockets
- Animate and bake out sequences within Sequencer
- Light a character

Prerequisites

105.02-Sequencer - Introduction

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
- Create, understand, and control States
- Trigger animation Montages via Blueprints

Prerequisites

107.01-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 work with an existing animation and get an overview of the animation sub-editors. You'll attach an object to the socket, and finally be introduced to an animation via Sequencer.

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
- Differentiate animation assets (Skeleton, Skeletal Mesh, Animation, and Animation Blueprint)
- Attach Static Meshes to a Skeleton with sockets

Prerequisites

105.02-Sequencer - Introduction

108.01 | CONTROL RIG - INTRODUCTION

Course Description

We'll introduce you to Unreal's production ready control rig, to animate a car's steering and doors. 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 a simple FK controls to steer and move the car using Control Rig
- Animate rigged 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, or a new level sequence

Prerequisites

100.02-Quickstart: Your First Project in Unreal Engine
105.02-Sequencer - Introduction

108.02 | CONTROL RIG - INTRODUCTION FOR AUTOMOTIVE

Course Description

We'll introduce you to Unreal Engine's production-ready Control Rig, which you can use to animate a car's steering and doors. We'll build on previous Sequencer and Animation courses to create entirely new animations only using tools within Unreal Engine.

Course Learning Objectives

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

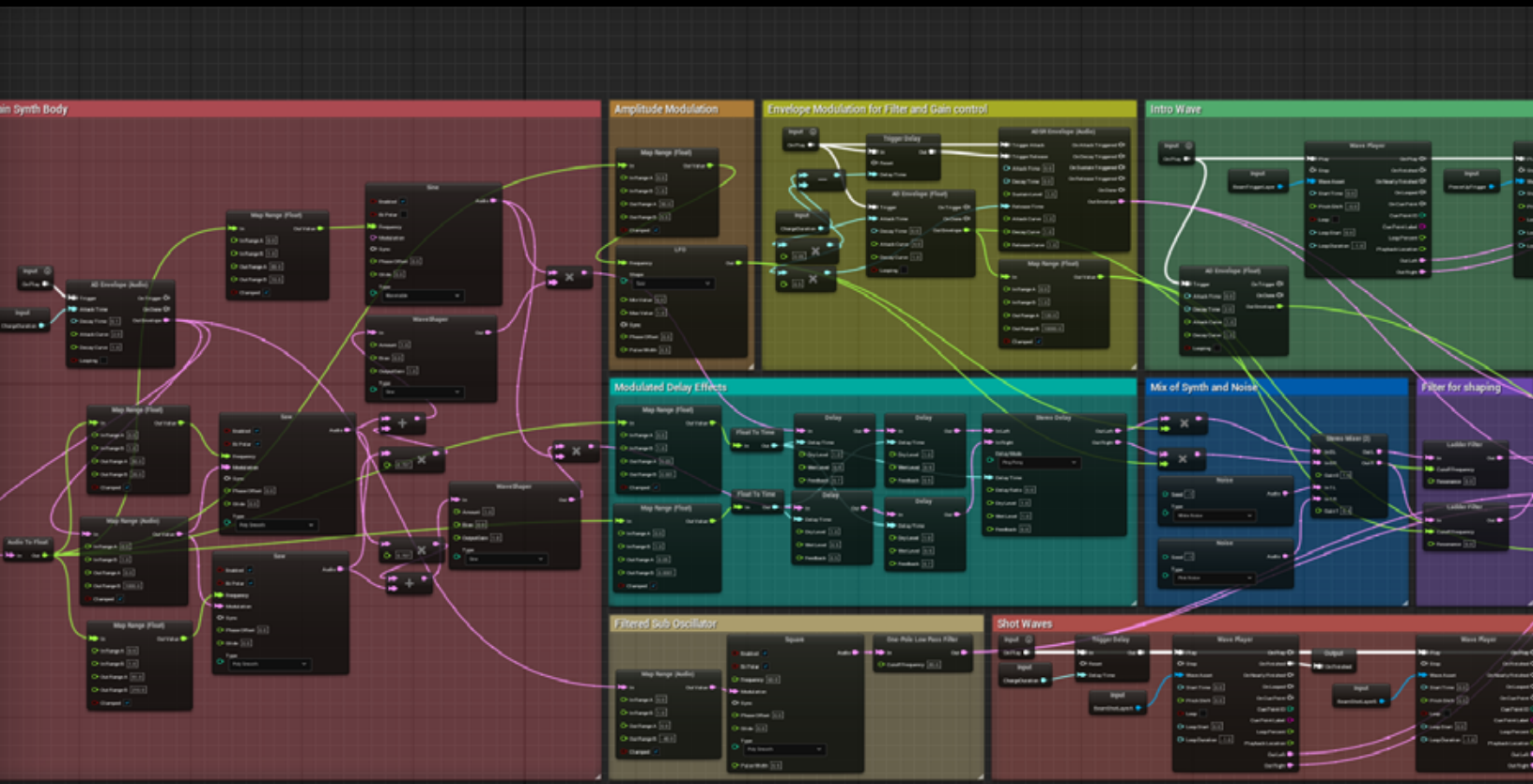
- Build a simple FK controls to steer and move the car using Control Rig
- Animate rigged vehicle skeletal meshes to create animations in Sequencer
- Create new animation assets using Control Rig and Sequencer that can then be used in an animation, Blueprint, or a new level sequence

Prerequisites

100.02-Quickstart: Your First Project in Unreal Engine 5

COURSE LIST

BLUEPRINTS



102.01 | BLUEPRINT - INTRODUCTION

Course Description

Learn basic Blueprint concepts, tools, and navigation by building simple interactions.

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
- 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

100.01-Introduction to Unreal Engine 5

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 to understand 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 and Blueprint
- Differentiate construction script, bindings, and tick behavior
- Send variable information via Blueprint communications
- Utilize Casting/Basic communication between UI and other Blueprints to display values of Blueprint Actors via UMG

Prerequisites

102.01-Blueprint - Introduction

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

100.01-Introduction to Unreal Engine 5

202.04 | EDITOR UTILITY WIDGETS 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

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

100.01-Introduction to Unreal Engine 5

202.05 | UMG FUNDAMENTALS FOR HMI - UMG DESIGN

Course Description

This is the first part of our UMG Fundamentals for HMI course series. We'll start by discussing the way that Unreal Engine compiles together 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

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

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

Prerequisites

102.02-Blueprint - Creating User Interfaces with UMG and Blueprints

202.06 | UMG FUNDAMENTALS FOR HMI - MATERIALS

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 create 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 also 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

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

- Create UI Materials/Textures
- Work with Material Parameters
- Utilize Texture Packing to optimize
- Communicate from UMG to Materials
- Display changes to Materials in real time

Prerequisites

202.05-UMG Fundamentals for HMI - UMG Design

202.07 | UMG FUNDAMENTALS FOR HMI - LIGHTS AND CAMERAS

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

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

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

Prerequisites

202.06-UMG Fundamentals for HMI - Materials

202.08 | INTERMEDIATE HMI PIPELINE

Course Description

Developing a standardized pipeline for your team is crucial to success. In order to understand what your process will look like, we will work together on a practical example of deploying to an HMI. We'll also discuss and demystify the various options and tools you'll encounter along the way.

Course Learning Objectives

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

- Create an HMI appropriate project
- Build functional User Interfaces
- Access automation tools
- Deploy to a HMI equivalent device
- Decide on your HMI pipeline's best practices

Prerequisites

102.01-Blueprint - Introduction

COURSE LIST

LANDSCAPE

111.00 | QUICKSTART: LANDSCAPE

Course Description

In this course, you will be shown the basics of how to get up and running with Unreal Engine 5.0 terrain creation and manipulation tool, Landscape. In this Quickstart, you will learn the basics needed to generate, sculpt and then paint any type of landscape using Unreal Engine 5.0 Landscape tools.

Course Learning Objectives

At the end of this course, you will be able to understand what each of the Landscape tools are used for.

- how to create a basic Landscape.
- how to use the Scult tools to shape the look of the Landscape.
- how to set up a Material that will allow you to paint on your Landscape.
- how to use the Paint tools to apply Materials to your Landscape changing the visual look.

Prerequisites

100.02-Quickstart: Your First Project in Unreal Engine,105.02-Sequencer - Introduction

COURSE LIST

VARIOUS

110.01 | NIAGARA INTRODUCTION

Course Description

In this course, you will be shown the basics of working with the Unreal Engine particle effect creation tool, Niagara. In this introductory course, you will be exposed to a wide range of Niagara topics while you follow along with building a smoke particle effect. This smoke effect will not only react to placed level lights, but can even have its various properties adjusted without an artist or designer opening / re-compiling the original effect to see the results.

Course Learning Objectives

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

- Understand the basics of how to use Niagara
- Understand how to convert Cascade content to Niagara content
- Understand how materials should be set up to work with Niagara content
- Understand how to expose Niagara properties so they can be adjusted later

Prerequisites

Introduction to Unreal Engine 5

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

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

- Import a custom MetaHuman Creator character into 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 add variety to imported MetaHumans
- Adjust MetaHuman materials to cater to several archviz styles
- Explore a modified MetaHuman Blueprint for generating random crowds
- Export a high-res archviz film using Movie Render Queue

Prerequisites

Introduction to Unreal Engine 5

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

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

- 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
- Add models 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

100.01-Introduction to Unreal Engine 5
106.02-Datasmith Ingestion
102.04-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

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

- Discuss VR basics and best practices
- 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
- Modify Spectator Cam to add key plan and smoothly follow HMD view
- Package your projects for distribution for .apk (Android) and .exe (Windows)

Prerequisites

100.01-Introduction to Unreal Engine 5
101.02-Materials for AEC - Introduction
103.02-Lighting for AEC - Introduction
102.04-Blueprint and UMG for AEC

216.04 | VARIANT MANAGER IN 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

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

- Discuss the pros and cons of demonstrating design options with the Variant Manager over Blueprint-based methods
- Utilize the Configurator Template
- Set up the Variant Manager
- Create variant sets of color, material, light, mesh, and camera choices
- Explore 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

100.01-Introduction to Unreal Engine 5
103.02-Lighting for AEC - Introduction
102.04-Blueprint and UMG for AEC

222.01 | CHAOS - INTRODUCTION TO CLOTH

Course Description

In this introductory course, you will learn the basics needed to use Chaos Cloth simulations in Unreal Engine 5. From making sure your 3D models are set up correctly to a hands-on tutorial with the tools, this class will provide you with all you need to know to start using Chaos Cloth in your Unreal Engine 5 projects.

Course Learning Objectives

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

- Understand how to set up Chaos Clothing for any skinned skeletal mesh asset
- Understand how to set up Chaos Cloth using the provided tools
- Understand how to work with custom Level of Detail (LOD) meshes

Prerequisites

None

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