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A5 Cabriolet model courtesy of Audi Business Innovation
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 three 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 handpick your courses from the selection of 50 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 3 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 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 are available as Blended Learning sessions.
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 - 1 day
Introduction to Unreal Engine
Quickstart: Your First Project in Unreal Engine for AEC
Visualization for Architectural Exteriors
Visualization for Architectural Interiors
Animation and Rendering for AEC
Twinmotion Quick Start - Bonus Course

This Essentials Track is available as live training or blended learning

Deep Dive for AEC - 2 days
Lighting - Introduction for AEC
Materials - Introduction for AEC
Static Mesh Ingestion with Datasmith
Datasmith Automation
Optimization - Examining Tools and Techniques
Blueprint - Introduction to Blueprints
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 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: Previs - 3 days

Introduction to Unreal Engine
Transitioning from Legacy Production to Unreal Engine
Quickstart: Your first Project in Unreal Engine
Static Mesh Ingestion with FBX
Quickstart: Sequencer Shot Creation for Virtual Production
Materials - Introduction
Lighting - Introduction
World Building for Virtual Production
Sequencer - Introduction
Quickstart: Landscape
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 - 3 days

Sequencer - Production Workflow and CineCamera Techniques
Sequencer - Live Link VCam - Shot Creation and Editing
Sequencer - Performance Capture with Live Link Face
Animation - Retargeting & Crowds
Virtual Production Deep Dive continued
Animation - Alembic Importing and Live Link
Blueprint - Introduction to Blueprints
Blueprint - Tool Creation
Optimization - Examining Tools and Techniques
Quickstart: Landscape
Quixel - Install, Pipeline, and Usage

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

Artist and Designer Deep Dive - 2 days
Materials - Masking and Material Functions
Materials - Translucent, Displacement, and VFX
Lighting - Atmospheric Lighting
Lighting - Ray Tracing
Lighting - Cinematic Fundamentals
Post Processing and Rendering

Landscape Deep Dive - 2 days
Landscape Creation
Quickstart: Water Tools
Landscape Foliage & Grass
Advanced Landscape Sculpting & Painting
Landscape Materials Creation
General Unreal Engine 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 Engine Essentials - 3 days
Introduction to Unreal Engine
Quickstart: Your First Project in Unreal Engine
Materials - Introduction
Lighting - Introduction
Sequencer - Introduction
Static Mesh Ingestion with FBX
Quickstart: Landscape
Blueprint - Introduction to Blueprints
Optimization - Examining Tools and Techniques
Understanding Source Control and Perforce Setup

*This Essentials Track is available as live training or blended learning*

Artist and Designer Deep Dive - 2 days
Materials - Masking and Material Functions
Materials - Translucent, Displacement, and VFX
Lighting - Atmospheric Lighting
Lighting - Ray Tracing
Lighting - Cinematic Fundamentals
Post Processing and Rendering
Asset Ingestion Deep Dive
Static Mesh Ingestion with Datasmith
Static Mesh Ingestion with FBX
Datasmith Automation
Quixel - Install Pipeline and Usage

Landscape Deep Dive - 2 days
Landscape Creation
Quickstart: Water Tools
Landscape Foliage & Grass
Advanced Landscape Sculpting & Painting
Landscape Materials Creation

Animation Deep Dive - 2 days
Sequencer - Production Workflow and CineCamera Techniques
Animation - Introduction
Control Rig - Introduction
Animation - Retargeting & Crowds
Animation - Blueprints and Take Recorder
Animation - Alembic Importing and Live Link
Animation - Introduction to Runtime Animation for Games

Tech Artist and Developers Deep Dive - 2 days
Blueprint - Creating User Interfaces with UMG and Blueprints
Blueprint - Set Up for Scalability: Interface System and Parent/Child Classes
Blueprint - Tool Creation
Animation - Blueprints and Take Recorder
Blueprint Project - Your First Mobile App with Blueprint and UMG
C++ Introduction to Unreal Engine for Experienced 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
Course Learning Objectives continued

• Create a basic terrain and sculpt with terrain editing tools
• Add foliage with the Foliage Paint and editing tools

Prerequisites

Introduction to Unreal Engine

100.07 | QUICKSTART: YOUR FIRST PROJECT IN UNREAL ENGINE 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 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

By 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
• Create a basic terrain and sculpt with terrain editing tools
• Add foliage with the Foliage Paint and editing tools

Prerequisites

Introduction to Unreal Engine

100.08 | TRANSITIONING FROM LEGACY PRODUCTION TO UNREAL ENGINE

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

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216.01 | UNDERSTANDING SOURCE CONTROL AND PERFORCE SETUP

Course Description

Walk through the fundamental concepts of source control using Perforce.

Course Learning Objectives

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

• 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
Course Description

Learn to import 3D content into Twinmotion. Discover how to show off designs with images, panoramas, videos, and stand-alone Presenter files.

Course Learning Objectives

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

- Link or import data between Revit 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
- Use Presenter to create a stand-alone collection of the media you have already saved for distribution

Prerequisites

Introduction to Unreal Engine
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

101.02  |  MATERIALS - INTRODUCTION FOR AEC

Course Description
Work with Materials to increase the realism of a correctly lit scene. Discover PBR workflows and how the material system works.

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
201.01 | MATERIALS - MASKING AND MATERIAL FUNCTIONS

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

201.02 | MATERIALS - TRANSLUCENT, DISPLACEMENT, AND VFX

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

Prerequisites

Introduction to Unreal Engine

Course Description

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

Pre-Req

Landscape - Quickstart

Course Description

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

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.

**Prerequisites**
- Introduction to Unreal Engine
- Landscape - Quickstart

### 311.03 | Landscape Foliage & Grass

**Prerequisites**
- Introduction to Unreal Engine
- Landscape - Quickstart

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

### 311.04 | Landscape Creation

**Prerequisites**
- Introduction to Unreal Engine
- Landscape - Quickstart

**Course Description**
Discover the various ways to create, adjust, and optimize Landscape height maps.
COURSE LIST 2021

LIGHTING
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 how lighting works in Unreal Engine.

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
• Use Lightmass efficiently to bake lighting and shading information onto geometry
• Utilize Lightmaps for optimal performance
• Understand and use the different reflection types
• Add a background in the form of HDRI images
• Combine light baking and ray tracing for optimal results
• Leverage Lightmass Importance Volume
• Use a Post-Process Volume to control the scene lighting

Prerequisites
Introduction to Unreal Engine
100.04 | VISUALIZATION FOR ARCHITECTURAL INTERIORS

Course Description

Learn how to create a realistic visualization for interior design. Explore light baking via Lightmass and improve the scene with IES profiles and Light Portals. Learn how to optimize Lightmass settings for better quality and performance, and use post effects to achieve the final result.

Course Learning Objectives

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

• Create a high-fidelity interior scene
• Light the scene using daylight
• Use Twinmotion Materials from the Marketplace
• Customize Materials
• Turn on ray tracing
• Render a number of high-resolution stills that highlight your scene from multiple vantage points

Prerequisites

Introduction to Unreal Engine
Quick Start: Your First Project in Unreal Engine for AEC

100.06 | VISUALIZATION FOR ARCHITECTURAL EXTERIORS

Course Description

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

Course Learning Objectives

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

• Create an interactive animated external large-scale scene
• Populate the scene with vegetation and animated people
• Create a movie going from day to night with lights turning on

Prerequisites

Introduction to Unreal Engine
Quick Start: Your First Project in Unreal Engine for AEC
203.02 | LIGHTING - CINEMATIC FUNDAMENTALS

Course Description
Enhance a scene with cinematic lighting. Explore exposure and lighting control. Take an in-depth look at using Mesh Distance Fields, Post-Process Volumes for visual effects, and Lightmass.

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 field
• Light a character

Prerequisites
Lighting - Introduction

203.03 | LIGHTING - ATMOSPHERIC LIGHTING

Course Description
Create Fog elements and Post-Process Volume Materials, then learn how to use them.

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
**203.04 | LIGHTING - RAY TRACING**

**Course Description**

Build a ray-traced scene and explore the elements in detail.

**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
- Adjusting the settings in lights and Post-Process Volumes to get the best possible output
- Create Blueprints for ray-tracing optimization

**Prerequisites**

Lighting - Introduction

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**209.01 | POST PROCESSING AND RENDERING**

**Course Description**

Learn post-production and final render techniques within Unreal Engine.

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

**Prerequisites**

Lighting - Cinematic Fundamentals
Lighting - Ray Tracing
Sequencer - Production Workflow and CineCamera Techniques
106.01 | Static Mesh Ingestion with FBX

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

106.02 | Static Mesh Ingestion with Datasmith

Course Description

Learn the basics of Static Mesh file import using Datasmith. You’ll also learn the basics of
optimization techniques by combining objects for better real-time performance.

Course Learning Objectives

At the end of 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
Visualization for Architectural Interiors
Visualization for Architectural Exteriors
Lighting - Introduction for AEC
Materials - Introduction for AEC

Course Description
Examine the vast resources found in the Megascans Library.

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

• 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

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 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
Static Mesh Ingestion with Datasmith

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

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Course Description
Design and construct layouts using Unreal Engine tools and workflows.

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

• Create a layout using Unreal tools, assembling pieces for better work flows for Virtual Production.
• Utilize basic modeling in Unreal
• Use the Variant Manager to present different layout scenarios
• Use basic Blueprints for instancing

Prerequisites
Introduction to Unreal Engine
Quickstart Your First Project in Unreal Engine
Materials Introduction
Lighting Introduction
Course Description

Learn how to set up your first virtual production project and explore hands-on virtual camera (vCam) controls.

Course Learning Objectives

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

• Install virtual production plugins
• Understand sequence management
• Animate CineCameras using Sequencer
• Create a simple shot sequence in Sequencer
• Set up Live Link VCam for shot creation

Prerequisites

Introduction to Unreal Engine
Course Description

Discover how to animate various aspects of your AEC scene using Sequencer. Learn how to animate a camera, and animate the transition from day to night lighting. This includes controlling sunlight and how to switch man-made lights on or off. Learn how to render stills and movies using Movie Render Queue.

Course Learning Objectives

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

- Create CineCameras and adjust shots
- Animate the lighting from daytime to nighttime
- Animate the lights turning on using a Material Parameter Collection
- Use levels to control external light visibility in time
- Use Marketplace characters to add life to the scene
- Render high-resolution stills
- Batch render movies

Prerequisites

Introduction to Unreal Engine
Quick Start: Your First Project in Unreal Engine for AEC
Visualization for Architectural Exteriors

Course Description

Discover additional features in Sequencer, explore organization structures, and utilize Sequencer’s editing capabilities through the application of new CineCamera tools and Modification tracks.

Course Learning Objectives

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

- Explain the use of subscenes to organize tracks for visual effects, audio, and animation, and to trigger events between tracks or communicate between tracks
- 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
Course Learning Objectives continued

- Utilize the Curve Editor for key manipulation
- Utilize cinematic camera tools, rig rail, and crane to animate the camera
- Apply various tools such as Visibility, Transform, Time Dilation, and Fade Tracks to refine the animation

Prerequisites

Quick Start - Sequencer Shot Creation for Virtual Production
Sequencer - Introduction

Course Description

Learn how to set up recordable effects, place them in a virtual set, and record hand-held virtual camera 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:

- Navigate the Virtual Camera interface
- Create takes in Virtual Camera with Take Recorder
- Illustrate how to use the Blueprint for Virtual Camera
- Record physics and effects simulations in Take Recorder
- Record foley with Take Recorder
- Edit recorded shots into a film sequence

Prerequisites

Sequencer - Introduction

Course Description

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

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

• Create performance takes with Take Recorder
• Record actor body mechanics performances in Take Recorder
• Record facial capture performances with Live Link Face
• Attach facial capture onto an animated character
• Record cinematic character animation

Prerequisites

Sequencer - Introduction
COURSE LIST 2021

ANIMATION
**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 the 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
- Manually adjust animations using Additive tracks

**Prerequisites**

Introduction to Unreal Engine

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**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
**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 joint, 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

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**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.

**Course Learning Objectives**

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

- Import, export, and play an Alembic animation
- Use the Live Link Plugin to connect Maya 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 To Blueprints
Animation - Introduction

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**207.03 | Animation - Retargeting & 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
**102.01 | BLUEPRINT - INTRODUCTION TO BLUEPRINTS**

**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

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**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 communications
- Utilize Casting/Basic communication between UI and other Blueprints to display values of Blueprint Actors via UMG
**Prerequisites**

Blueprint - Introduction To Blueprints

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**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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**202.01 | BLUEPRINT - SET UP FOR SCALABILITY: INTERFACE SYSTEM AND PARENT/CHILD CLASSES**

**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
Course Learning Objectives continued

- 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 To Blueprints

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

Prerequisites

Introduction to Unreal Engine
Blueprint – Creating User Interfaces with UMG and Blueprints
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 To Blueprints
COURSE LIST 2021

PROGRAMMING

Image courtesy of David Baylis
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

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

- 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

None

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.

Understanding the Gameplay building blocks available in Unreal Engine – the DNA of an Unreal Engine project.

Prerequisites

- Attended “C++ Intro to Unreal Engine 4 for Experienced Programmers”
- Working knowledge of C++/object orientated programming
- Basic knowledge of Unreal Engine 4, or
- Previous engine experience