

Unreal Engine



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E-LEARNING COURSE

Module 1: Introduction to Unreal Engine

- Overview of Unreal Engine & its capabilities
- Installing & setting up Unreal Engine
- Understanding the Unreal Engine interface
- Navigation & viewport controls
- Creating a new project

Module 2: Working with Assets

- Importing & managing assets
- Understanding asset types
- Using the Content Browser
- Basic material creation & texturing

Module 3: Level Design & World Building

- Understanding levels & world composition
- Using BSP (Geometry) tools for blockouts
- Landscape tools & terrain sculpting
- Placing assets & optimizing world layout
- Lighting basics & environment effects

Module 4: Blueprint Visual Scripting

- Introduction to Blueprints & how they work
- Creating & using variables, functions, and events
- Actor, Class, and Level Blueprints
- Simple game mechanics with Blueprints
- Debugging & performance optimization

Module 5: Character & Animation

- Setting up a player character
 - Using the Unreal Engine animation system
- Implementing character movement & input
- Anim Blueprints & State Machines & Blending animations & IK setup

Module 6: Game Mechanics & UI

- Creating player interactions (pickup items, open doors, etc.)
- Implementing health, damage, and game rules
- Creating & managing UI with UMG
- Adding HUD elements (health bars, score, etc.)
- Using widgets & menus

Module 7: Physics & Effects

- Implementing physics-based interactions
- Using the Chaos physics engine
- Ragdoll & destruction effects
- Particles & visual effects (Niagara system)
- Sound & audio integration

Module 8: AI & Advanced Gameplay

- Introduction to AI in Unreal Engine
- Setting up AI controllers & behavior trees
- Creating pathfinding & navigation
- Implementing enemy AI & NPC interactions
- Advanced AI decision-making techniques

Module 9: Multiplayer & Networking

- Introduction to Unreal Engine networking
- Setting up a multiplayer game
- Replication & server-client interactions
- Creating online sessions & matchmaking
- Debugging multiplayer issues

Module 10: Optimization & Deployment

- Performance profiling & optimization techniques
- Level of Detail (LOD) & culling
- Packaging & deploying projects
- Publishing for PC, Console, and Mobile
- Exporting for VR & AR platforms