



# GODOT GAME DEVELOPMENT



## E-LEARNING COURSE

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**ZETLAN TECHNOLOGIES**

# COURSE MODULES

## Module 1: Introduction to Godot

- What is Godot? Overview of the Engine
- Installing Godot and Setting Up the Editor
- Understanding Godot's Interface (Nodes, Scenes, Inspector)
- GDScript vs. Visual Scripting vs. C#
- Running and Exporting a Simple Project

## Module 2: Understanding Godot's Scene System

- Nodes and Scene Hierarchy
- Scenes as Prefabs (Instancing)
- Signals and Event-Driven Programming
- Groups and Autoload (Singletons)

## Module 3: 2D Game Development Basics

- 2D Nodes: Sprite2D, AnimatedSprite2D, TileMap, Camera2D
- Character Movement: KinematicBody2D & RigidBody2D
- Handling Input: Keyboard, Mouse, Touch
- Animations with the AnimationPlayer and AnimatedSprite
- Parallax Backgrounds & Camera Effects
- Collision Detection and Physics in 2D
- Creating a Simple Platformer

## **Module 4: 3D Game Development Basics**

- Intro to 3D Nodes: Spatial, MeshInstance, Camera, Lights
- Understanding 3D Transformations
- Importing 3D Models and Textures
- Basic Character Movement in 3D
- Physics and Collision Detection in 3D
- Simple 3D Scene (First-Person / Third-Person Controller)

## **Module 5: UI and User Interaction**

- UI Nodes: Control, Button, Label, Panel, TextureRect
- Handling UI Input (Click, Hover, Touch)
- Creating Menus, HUDs, and Pause Screens
- Managing Scenes and Transitions

## **Module 6: Game Mechanics & AI**

- Implementing a Health and Damage System
- Inventory and Item Pickup System
- Enemy AI: Pathfinding and State Machines
- Dialogue System (for RPGs or Story-based games)

## **Module 7: Audio and Visual Effects**

- Adding Sounds & Music with AudioStreamPlayer
- Particle Effects and Shaders
- Screen Shake and Post-Processing Effects
- Dynamic Lighting and Shadows

## **Module 8: Multiplayer and Networking**

- Introduction to Multiplayer in Godot
- Syncing Player Movement Over a Network
- Hosting and Joining Online Games
- Peer-to-Peer vs. Server-Client Architecture

## **Module 9: Optimization and Debugging**

- Debugging Tools in Godot
- Profiling Performance & Reducing Lag
- Optimizing 2D and 3D Graphics
- Reducing Load Times with Resource Management

## **Module 10: Publishing and Deployment**

- Exporting Games for Windows, Linux, Mac
- Exporting to Android and iOS
- HTML5 Deployment
- Creating an Itch.io or Steam Release