

COURSE TITLE	GAME ENGINE
COURSE CODE	05MA0302
COURSE CREDITS	4

Objective:

- 1 Understand the user interface and navigation tools in Unreal Engine
- 2 Learn to import 3D models and organize a scene layout for games or walkthroughs.
- 3 Apply and tweak basic lighting, cameras, and materials in a non-technical workflow.
- 4 Create simple interactive scenes using prebuilt templates and tools—without coding.
- 5 Export levels or cinematic walkthroughs for presentation and portfolios.

Course Outcomes: After completion of this course, student will be able to:

- 1 Students will confidently navigate Unreal Engine’s interface and organize a scene.
- 2 Students will import 3D assets and create a complete layout for visualization.
- 3 Students will use simple tools for camera movement and environmental lighting.
- 4 Students will create basic interactive experiences using built-in Unreal tools—no code required.
- 5 Students will present final levels or walkthroughs suitable for portfolios or client demos.

Pre-requisite of course: Basic knowledge of 3D modeling (from Maya or Blender), level design, and computer operations.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	8	0	0	0	50	50

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Getting Started with Unreal Engine Installing and launching Unreal Overview of UI: Viewport, World Outliner, Content Browser Navigating the viewport and organizing the scene Creating a new level and saving projects	30

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
2	Importing & Assembling Scenes Importing FBX models (props, architecture, characters) Placing and aligning objects in the scene Creating basic terrains with Landscape Tool Working with materials and applying them to objects	30
3	Lighting, Camera & Presentation Using Directional Light, Point Light, and Sky Light Environment and Sky Sphere setups Adding cameras and using keyframes for camera animation Creating static or walkthrough renders using Sequencer	30
4	Interactivity & Presentation without Code Using built-in templates (e.g., ArchViz, Third Person) Basic navigation using prebuilt character controls Adding trigger areas for opening doors or lights (drag-n-drop),Exporting the level or video walkthrough Final project: interior/exterior walkthrough with interactions.	30
Total Hours		120

Textbook :

- 1 Unreal Engine 5 Fundamentals , David Nixon, Packt Publishing, 2010

References:

- 1 Unreal Engine Virtual Production Cookbook, Unreal Engine Virtual Production Cookbook, Epic Games, Epic Games, 2019
- 2 Level Design: Concept, Theory, and Practice, Level Design: Concept, Theory, and Practice, Rudolf Kremers, A K Peters, CRC Press, 2009

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	15.00	25.00	25.00	25.00	0.00

Instructional Method:

- 1 Practical & Demo

Supplementary Resources:

- 1 <https://www.unrealengine.com/en-US/onlinelearning-courses>
- 2 <https://docs.unrealengine.com>