

**FACULTY OF COMPUTER APPLICATIONS**  
**B.Sc.(IT) ( Animation, Vfx and Game Design)**

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- **Sem** : 5
- **Subject Code** : 05BA0505
- **Subject** : Game Engine
  
- **Course Objectives** : Students will be able:
  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.
  
- **Prerequisites** : Basic knowledge of 3D modeling (from Maya or Blender), level design, and computer operations.

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**PRACTICALS**

<b>Unit No</b>	<b>Topics Covered</b>	<b>No of lectures required</b>
<b>1</b>	Getting Started with Unreal Engine <ul style="list-style-type: none"> <li>▪ Installing and launching Unreal</li> <li>▪ Overview of UI: Viewport, World Outliner, Content Browser</li> <li>▪ Navigating the viewport and organizing the scene</li> <li>▪ Creating a new level and saving projects</li> <li>▪ Importing &amp; Assembling Scenes</li> <li>▪ Importing FBX models (props, architecture, characters)</li> <li>▪ Placing and aligning objects in the scene</li> <li>▪ Creating basic terrains with Landscape Tool</li> <li>▪ Working with materials and applying them to objects</li> </ul>	<b>30</b>
<b>2</b>	Lighting, Camera & Presentation <ul style="list-style-type: none"> <li>▪ Using Directional Light, Point Light, and Sky Light</li> <li>▪ Environment and Sky Sphere setups</li> <li>▪ Adding cameras and using keyframes for camera animation</li> <li>▪ Creating static or walkthrough renders using Sequencer Interactivity &amp; Presentation without Code</li> <li>▪ Using built-in templates (e.g., ArchViz, Third Person)</li> <li>▪ Basic navigation using prebuilt character controls</li> <li>▪ Adding trigger areas for opening doors or lights (drag-n-drop)</li> <li>▪ Exporting the level or video walkthrough</li> <li>▪ Final project: interior/exterior walkthrough with interactions.</li> </ul>	<b>30</b>

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**Course Outcomes:**

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.

**Course Outcomes – Program Outcomes Mapping Table:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	M	-	H	-	L	H	-	M	-	L
CO2	L	-	H	-	M	-	-	M	-	H	-
CO3	-	L	M	-	-	H	-	H	-	-	M
CO4	H	-	-	M	-	-	M	-	H	-	L
CO5	-	H	-	-	L	M	-	L	M	H	-

**Text Book:**

1. Unreal Engine 5 Fundamentals by David Nixon 2001 by Packt Publishing.

**Reference Books:**

1. Unreal Engine Virtual Production Cookbook 2023 by Epic Games
2. Level Design: Concept, Theory, and Practice by Rudolf Kremers 2009 by A K Peters/CRC Press

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**Web Reference:**

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

**App Reference:**

1. Unreal Engine Learning App (Android / iOS)
2. Udemy App – Course: Unreal Engine for Beginners.

**Syllabus Coverage from text /reference book & web/app reference:**

Unit	Chapter Numbers
1	Book 1 – Chapters 1 & 2 (Getting Started with Unreal)
2	Book 1 – Chapter 3 (Importing Assets & Materials)