

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

- **Sem** : 6
- **Subject Code** : 05BA0604
- **Subject** : Game Level Design

- **Course Objectives** : Students will be able:
 1. Understand the fundamentals of game level design and spatial storytelling.
 2. Use Unreal Engine to prototype, design, and iterate game levels.
 3. Learn modular design, lighting, and gameplay flow for engaging environments.
 4. Apply playtesting and iteration methods for player experience.
 5. Develop portfolio-ready playable game levels.

- **Prerequisites** : Basic knowledge of Unreal Engine interface and 3D asset manipulation.

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PRACTICALS

Unit No	Topics Covered	No of lectures required
1	Foundations of Level Design <ul style="list-style-type: none"> ▪ Core principles of level design: player guidance, flow, and navigation ▪ Gameplay spaces: understanding scale, metrics, and affordances ▪ Introduction to Unreal Engine UI, tools, and project setup ▪ Blockout and grayboxing techniques using BSPs and modeling tools ▪ Player motivation, challenges, and progression design 	30
2	Layout, Gameplay, and Prototyping <ul style="list-style-type: none"> ▪ Iterative design through grayboxing and rapid prototyping ▪ Encounter and pacing design: combat zones, puzzles, traversal ▪ Implementing triggers, doors, collectibles, and objectives in Unreal ▪ Navigation aids: lighting, color theory, landmarks, and signposting ▪ Case studies from different genres (FPS, platformer, adventure) 	30

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3	<p>Visual Design and World Building</p> <ul style="list-style-type: none"> ▪ Modular asset placement and set dressing for believable environments ▪ Environmental storytelling through props, decals, and layout ▪ Landscape tools: sculpting terrain, adding foliage, and pathing ▪ Lighting fundamentals and post-process effects for mood ▪ Creating atmosphere: skyboxes, volumetric fog, ambient sound 	30
4	<p>Polish, Testing, and Final Project</p> <ul style="list-style-type: none"> ▪ Playtesting techniques: observation, feedback, iteration ▪ Performance optimization: LODs, occlusion, lighting bakes ▪ Basic cinematics: cameras, cutscenes, and gameplay transitions ▪ Preparing final level: bug fixing, polish, and final presentation ▪ Final Project – A fully playable and visually polished level with gameplay elements 	30

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Course Outcomes:

1. Students will understand spatial layout and player engagement in level design.
2. Students will build and iterate level prototypes using blockout methods.
3. Students will use Unreal Engine tools to polish and populate game levels.
4. Students will integrate gameplay elements and optimize navigation flow.
5. Students will present a portfolio-ready level demonstrating design and creativity.

Course Outcomes – Program Outcomes Mapping Table:

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

Text Book:

1. Level Up! The Guide to Great Video Game Design by Scott Rogers 2024 by Wiley.

Reference Books:

1. An Architectural Approach to Level Design by Christopher W. Totten 2019 by CRC Press
2. Game Level Design by Edward Byrne 2004 by Charles River Media

Web Reference:

1. <https://dev.epicgames.com/> – Unreal Engine Documentation
2. <https://worldofleveldesign.com/>

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App Reference:

1. YouTube – Virtus Learning Hub, Unreal Sensei
2. Udemy / Skillshare – Unreal Engine Level Design Courses.

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

Unit	Chapter Numbers
1	Level Up! – Ch. 3–6 (Layout, Blockouts, Player Flow) World of Level Design Tutorials – Greyboxing and Playability
2	Totten – Ch. 7–10 (Modularity, Visual Polish) Unreal Engine Docs – Environment Tools and Lighting