

RAJA MANSINGH TOMAR MUSIC & ARTS UNIVERSITY

B.DES GAME DESIGN Scheme / Practical / Syllabus 2026-2027



Mr. Raja Ravichandra Prasad
HOD Game Design, ACAD



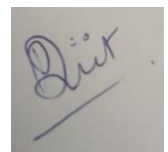
Mr. Ritesh Verma
3D Art Faculty



Mr. Madhvendra Singh
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Mr. Ayush Chakravarty
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Dr. Parul Dixit
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B.Design - 1st Year – Game Design - Scheme

	Paper	Time (In Hours)	Size Paper	Ext Marks		Midterm/ CCE		Total
				Max. Marks	Min. Marks	Max. Marks	Min. Marks	
	THEORY							
1.	Fundamentals of Art	3 Hours	-	70	23	30	10	100
2.	History of Games	3 Hours	-	70	23	30	10	100
3.	Fundamentals of Game Design	3 Hours	-	70	23	30	10	100
	PRACTICAL							
1.	Observational Drawing	4 Hours	A3	70	23	30	10	100
2.	Game Asset Design	6 Hours	Digital	70	23	30	10	100
3.	Physical Game Project	6 Hours	-	70	23	30	10	100
4.	Hypercasual Game Project	6 Hours	Digital	70	23	30	10	100
	TOTAL							700

NOTE: For Passing examination, the candidates shall be required to secure 33% marks in each of the prescribed subject, separately in

- The University Theory Exam
- The University Practical Exam
- Internal Assessment ,i.e., CCE done at college/university level.



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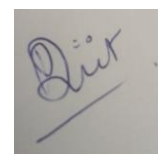
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B.Design -Game Design - 1st Year – Theory

Paper 1- Fundamentals of Art

Unit 1: Line and Form

- Definition, understanding, and types of line; line drawings, visual illusion, impression, and expressive/kinetic qualities (flow, weight, energy)
- Development, possibilities, and tools/materials used in line drawing (usage and evolution)
- Definition, classification, and visual impression of form; proportion and visual/formal weight (including colour)
- Relationship between form, content, and space

Unit 2: Colour, Value, Texture, and Space

- Definition, fundamentals, classification, and characteristics of colour; colour wheel, schemes, applications, and experimental approaches
- Psychological and emotional impact of colour; complementary and contrasting relationships
- Definition, classification, importance, and application of value; its relationship with space
- Definition, classification, and application of texture; its relationship with space and composition, including tools, techniques, and use in painting and sculpture
- Definition, principles, organization, and types of space (positive, negative, neutral, active/passive); relationship between space and form

Unit 3: Principles of Composition

- Definition and meaning of composition
- Unity: concept, objectives, visual perception, viewer relationship, and methods to achieve unity and avoid discord
- Harmony: definition, types (line, form, colour, texture, conceptual), and creation process
- Balance: definition, principles, visual weight (line, form, colour, tone), and types (symmetrical, asymmetrical, radial)

Unit 4: Advanced Composition Principles

- Dominance: definition, objectives, relationship with background, and creation of focal points/areas of interest
- Rhythm: definition, types, methods of creation, and visual/emotional impact



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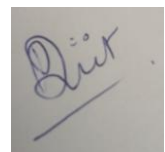
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- Proportion: definition, application in space division, relationship with form and colour, and human proportions

Unit 5: Perspective, Mediums, and Rendering

- Perspective: definition, types (linear, aerial, etc.), terms, principles, and applications (geometrical and imaginative)
- Mediums and methods: study of painting mediums, techniques, and processes of visual creation
- Drawing and rendering: definition, fundamentals, 2D representation challenges, creation of 3D effects, and best practices/common errors

Suggested Readings

- *Art Fundamentals: Color, Light, Composition, Anatomy, Perspective and Depth* – Gilles Beloeil, Andrei Riabovitchev, Roberto F. Castro
- *Color and Light: A Guide for the Realist Painter* – James Gurney

Paper 2 – History of Games

Unit 1: Origins of Video Games and the Birth of the Industry

- The world before Pong: pre video game entertainment technologies and experimental electronic games
- Ralph Baer as the father of the gaming industry and the Magnavox Odyssey
- Arrival of Pong and its commercial arcade breakthrough
- The King and Court: early home console competition
- Spacewar! and its influence on future game design
- The Jackals: early pioneers, innovators, and market disruptors

Unit 2: Expansion, Golden Age, and Industry Collapse

- Return of Nolan Bushnell and Atari's expansion
- The Golden Age of video games (1979–1983)
- Rise of arcade culture and mass popularity
- Donkey Kong and Nintendo's legal/commercial breakthrough
- Video game crash of 1983 and industry decline
- Aftermath of the crash and restructuring
- Birth and early rise of Sega



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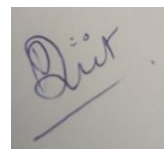
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Unit 3: Nintendo's Rise and Console Revolution

- Nintendo's first arcade ventures including Othello
- Donkey Kong and Mario's introduction
- Tetris and handheld gaming revolution
- Super Mario Bros and NES dominance & SNES
- Nintendo 64 and 64 bit gaming innovation
- GoldenEye 007 and console FPS evolution
- Zelda: Ocarina of Time and 3D adventure gaming

Unit 4: Major Companies and Franchise Development

- Atari's major releases: Football, Lunar Lander, Tempest, E.T., Pitfall
- Pac-Man Fever and the American gaming boom
- Midway's success with Space Invaders and Ms. Pac-Man
- SquareSoft's Final Fantasy series and RPG dominance
- Capcom's Street Fighter II and fighting game revolution
- Sony PlayStation, Crash Bandicoot, and PlayStation 2
- Bandai's Tamagotchi phenomenon
- Microsoft's Xbox entry into gaming
- Pokémon's global multimedia expansion
- Mortal Kombat's cultural and regulatory impact

Unit 5: Evolution of Gaming Industry

- Transition from 2D pixel art to 3D graphics
- Arcade visuals to realistic rendering
- Growth of animation quality, cinematic storytelling, and immersive visual experiences
- Rise of Indie studios and independent game development
- Growth of AA studios with moderate budgets and innovation focus
- Expansion of AAA studios with blockbuster production, large teams, and global franchises
- Development of game engines from proprietary systems to modern engines
- Major engines such as Unreal Engine, Unity, and custom engines

Suggested Reading:

- *The Ultimate History of Video Games: From Pong to Pokémon by Steven Kent*



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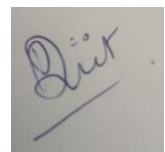
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Paper 3 – Fundamentals of Game Design

Unit 1: Introduction to Game Design & Industry Roles

- Game Genres
- New World of Gaming: Mobiles
- Online Distribution & Touchscreen
- People Involved in Game Design – Roles of Programmer, Artist, Designer, Producer, Tester, Composer, Sound Designer, Writer

Unit 2: Gameplay Elements & Game Production Pipeline

- Elements of Gameplay – Unique Solutions, Non-Linearity, Modeling Reality, Teaching the Player, Input/Output, Basic Elements,
- Game rules: structure, objectives, constraints, and balancing
- Stages of Production in the Game Pipeline
- Asset Creation for Games
- Level Design in Games

Unit 3: Game AI

- Artificial Intelligence - Goals of Game AI, AI Agents & Their Environment
- Evolution of Game AI
- Artificial Intelligence (AI) and Natural Intelligence (NI)
- Characteristics and functions of AI in games

Unit 4: Game Development Process

- Gameplay Working – Organic Process, Building the Game (Core Technology), Incremental Steps, Fully Functional Area, Iteration & Programming
- Game loops: core gameplay cycles and player engagement systems
- Game mechanisms: core mechanics and meta mechanics

Unit 5: Brainstorming & Project Planning in Game Design

- Introduction to Brainstorming Techniques
- Idea Generation Methods (Mind Mapping, SCAMPER, Rapid Ideation)
- Concept Development: Theme and Core Idea, Game Objectives and
- Player Motivation, Target Audience Identification
- Creative Thinking in Game Design
- Developing Game Concepts from Abstract Ideas



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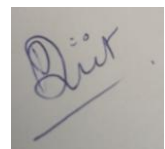
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- Game documentation: Game Concept Document (GCD), Game Design Document (GDD), and development documentation

Suggested Reading:

- *Game Design: Theory and Practice – Richard Rouse III*
- *The Art of Game Design: A Book of Lenses – Jesse Schell*
- *Fundamentals of Game Design – Ernest Adams*
- *Challenges for Game Designers – Brenda Romero & Ian Schreiber*
- *Game Design Workshop: A Playcentric Approach – Tracy Fullerton*



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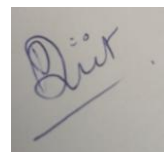
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B.Design - Game Design – 1st Year – Practical

PRACTICAL 1: OBSERVATIONAL DRAWING

Overview: This module on *Observational Drawing* develops foundational sketching skills essential for game design, focusing on Still Life & Nature Study, Perspective, and Human Figure drawing. Students learn line work and shape language to understand line quality, emotional expression, and how to make forms feel dynamic. Emphasis is placed on construction by simplifying complex objects into basic shapes and adapting them into stylized game art. Composition techniques such as the Rule of Thirds, leading lines, symmetry, negative space, silhouettes, and thumbnail sketching are explored to strengthen visual storytelling. The module also introduces drapery through the study of fabric folds and rendering techniques including hatching, cross-hatching, and smudging, along with an understanding of light, shadow, and color.

In perspective studies, students learn aerial and linear perspective, including 1-point, 2-point, and 3-point systems, vanishing points, horizon lines, grids, and proportion. Human figure drawing focuses on body mechanics using gesture lines, S and C curves, anatomical structure, and proportion. Students develop mannequins in perspective, explore male and female body differences, and apply head-based proportion methods to construct accurate and expressive figures.

Practical Submissions:

1. Construction drawing- 1 sheets (contains 1 silhouette drawing of the given object, 3 constructions drawing of the same in different angles, 1 drawing of form transformation in a specific art style.
2. Drapery study- 1 sheet showing all types of folds, their construction drawings and rendering black and white.
3. Still life black and white rendered- 1 sheet, it should contain 3 to 4 silhouette thumbnails of still-life composition iterations in different angles by side and 1 large detailed rendered composition with all the necessary values in black and white.
4. Still life colour rendered - 1 sheet, it should contain 3 to 4 silhouette thumbnails of still-life composition iterations in different angles by side and 1 large detailed rendered composition in multi colour scheme (triadic/ split complementary colours).
5. Nature study in black and white or color-1 sheet, it should contain 3 to 4 silhouette thumbnails of plant composition iterations in different angles by side and 1 large detailed rendered composition with all the necessary values in black and white.
6. 1 Point Perspective- 1 sheet showing an interior or exterior view of a specific architecture in a specific game style with 4 thumbnail composition iterations by side. (e.g. Indian forts in clash of clan art style).



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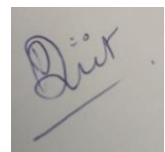
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7. 2 Point Perspective- 1 sheets showing an interior or exterior view of a specific architecture in a specific game art style with 4 thumbnail composition iterations by side. (e.g. Japanese temples in Ninja rangebound or prince of Persia art style).
8. 3 Point Perspective- 1 sheet showing an interior or exterior view of a specific architecture in a specific game art style with 4 thumbnail composition iterations by side. (e.g. Mesopotamian tombs in Zelda or Hades art styles)
9. Torso turnaround- 1 sheet, front, front 3/4th, profile, back 3/4th and back
10. Head turnaround- 1 sheet.
11. Full box mannequin turnaround- male- including head, arms and legs 1 sheet.
12. Full box mannequin turnaround - female-including head, arms and legs 1 sheet.

Suggested Reading:

- *Keys to Drawing – Bert Dodson*
- *How to Draw: Drawing and Sketching Objects and Environments – Scott Robertson*
- *Perspective Made Easy – Ernest R. Norling*
- *Figure Drawing for All It's Worth – Andrew Loomis*
- *Light, Shade and Shadow – E.L. Koller*

PRACTICAL 2: GAME ASSET DESIGN

Overview: This course introduces the fundamentals of game art creation, By studying one game style and create an artbook according to that focusing on visual analysis and practical design workflows. Students study existing game art through case studies, exploring color, composition, and character design, while developing skills in ideation, reference building, and iterative design.

Through hands-on work, students create 2D props with variations, stylized characters, and environment concepts using thumbnails, color keys, and final renders. The course also emphasizes compiling work into a professional art book, resulting in a portfolio-ready collection aligned with industry practices.

Practical Submissions:

1. Game Art Study (10-page case study which includes ,4 colour schemes,4 compositions,4-character studies,1 final fan art, and your thoughts on that game)
2. 2D Props (5 sheets props (backpack, potion bottle, chest box, Sword, vehicle Design, with 3 design versions of each prop)
3. Background (1 Reference Board,4 thumbnails sketch,4 colours key,1 final render)
4. 3 Stylized Character Design one protagonist, Antagonist, One NPC, (1 Reference board,3 Character variation ,1 Final render)



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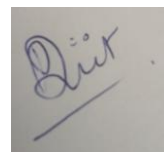
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5. Art Book (5 prop Design ,1 Character design,1 Weapon Design or vehicle Design ,1 Background)

Suggested Reading:

- *Color and Light: A Guide for the Realist Painter* – James Gurney
- *Creating Characters with Personality* – Tom Bancroft
- *Framed Ink: Drawing and Composition for Visual Storytellers* – Marcos Mateu-Mestre
- *Digital Painting Techniques* – 3DTotal Publishing

PRACTICAL 3: PHYSICAL GAME PROJECT

Overview: This course introduces Physical Prototyping, focusing on the role of physical prototypes in game design, rapid iteration, and translating digital mechanics into physical systems. Students will explore Board Game Design Fundamentals, including turn systems, resource management, area control, drafting, cooperative and competitive play, along with randomness, probability, player interaction models, and game balance. The course also addresses Rules and Systems Design such as rule creation, clarity, onboarding, accessibility, learning curves, and player engagement, alongside Playtesting and Iteration methods like observation, feedback collection, blind testing, and refinement cycles. Further, it includes Component and Experience Design (cards, boards, tokens, dice, modular components, readability, ergonomics, tactile feedback), Arcade Game Design (session design, difficulty curves, replayability, high score systems, engagement loops), and Physical Interaction and Controls (buttons, joysticks, motion input, responsiveness, player feedback). Finally, students engage with Materials and Fabrication using cardboard, foam board, wood, and simple construction techniques, supported by Case Studies analyzing mechanics, player experience, and interaction design.

Practical Submissions Guidelines:

- A simple physical race-to-the-end type board game
- A functional physical arcade game prototype

Practical Submissions:

1. Final Submission: A fully functional and tangible Arcade/Board game with a complete rulebook.

Suggested Reading:

- *Challenges for Game Designers* – Brenda Romero & Ian Schreiber



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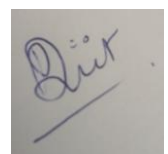
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PRACTICAL 4: HYPERCASUAL GAME PROJECT

Overview: This practical course introduces first-year game design students to the fundamentals of creating a hypercasual game using Unity 2D. The focus is on understanding core gameplay mechanics through simple and intuitive game concepts, along with basic programming required to implement them. Students learn essential Unity tools and workflows, including scene setup, sprite handling, and UI basics, while developing player movement systems such as input handling, collision, and basic physics. The course emphasizes rapid prototyping, iteration, and gameplay clarity, guiding students to build small, complete game experiences. Additional topics include scoring systems, simple UI feedback, sound integration, and basic optimization for smooth gameplay. By the end of the course, students will be able to design and develop a functional hypercasual game prototype, demonstrating core mechanics, player interaction, and polished presentation suitable for beginner-level portfolios

Practical Submission Guidelines:

- Implementation of Core Mechanics (movement, collision, scoring, win/lose conditions)
- UI Elements (start screen, score display, game over screen)
- Sound Integration (basic sound effects and feedback)
- Minimum 2–3 Levels or Progressive Difficulty Variation

Final Deliverables:

1. Game Concept Document (idea, core mechanic, target player, basic flow)
2. Prototype Development (basic playable level with player movement and interaction)
3. Final Playable Build (Unity/Unreal project + executable file)
4. Short Presentation or Demo Video explaining gameplay and design choices

Suggested Reading:

- *Unity in Action* – Joe Hocking
- *Learning C# by Developing Games with Unity* – Harrison Ferrone
- *Beginning 2D Game Development with Unity* – Matthew Johnson & James A. Henley
- *Unity 2D Game Development Cookbook* – Matt Smith
- *Level Up! The Guide to Great Video Game Design* – Scott Rogers
- *The Art of Game Design: A Book of Lenses* – Jesse Schell
- *Game Programming Patterns* – Robert Nystrom



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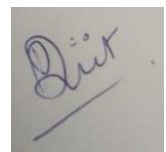
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B.Design – Game Design– 2nd Year - Scheme

	Paper	Time (In Hours)	Size Paper	Ext Marks		Midterm/ CCE		Total
				Max. Marks	Min. Marks	Max. Marks	Min. Mark s	
	THEORY							
1.	Non-Linear Story Telling & Cinematography	3 Hours	-	70	23	30	10	100
2.	Level Design & System Design	3 Hours	-	70	23	30	10	100
3.	Game Engine	3 Hours	-	70	23	30	10	100
	PRACTICAL							
1.	Interactive Game Assets 2D	6 Hours	Digital	70	23	30	10	100
2.	3D Modelling & Texturing Basics	12 Hours	Digital	70	23	30	10	100
3.	Game Engine	6 Hours	Digital	70	23	30	10	100
4.	Final Game Design Project	6 Hours	Digital	70	23	30	10	100
	TOTAL							700

NOTE: For Passing examination, the candidates shall be required to secure 33% marks in each of the prescribed subject, separately in

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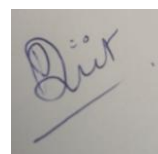
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B.Design - Game Design - 2nd Year - Theory

Paper 1 - Nonlinear Storytelling & Cinematography

Unit 1: Fundamentals of Storytelling

- Telling the Story – “Once upon a time” approach and bringing stories to life
- Conflict – The fuel of a story
- What Players Really Want? (Understanding player expectations and engagement)

Unit 2: Narrative Structures in Games

- The Hero’s Journey and Structure of Game Story
- The Three-Act Structure and Monomyths
- Story Flow and Progression
- Making Stories Emotional

Unit 3: Characters, Dialogue & Narrative Elements

- Characters and Character Arcs
- Dialogues and Exposition
- Believability in Game Narratives
- Missions and Final Goals

Unit 4: Types of Non-Linear Storytelling

- Multiple Ending Stories
- Branching Path Stories
- Open-End Stories
- Fully Player-Driven Stories

Unit 5: Cinematography for Game Design

- Introduction to Cinematography in Games
- Camera Angles and Shots (Close-up, Medium Shot, Long Shot, Over-the-Shoulder)
- Camera Movements (Pan, Tilt, Zoom, Tracking Shot)
- Framing and Composition (Rule of Thirds, Depth, Focus)
- Visual Storytelling through Camera
- Lighting Basics in Games (Mood, Atmosphere, Contrast)



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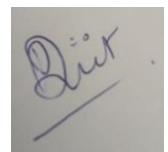
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- Cutsscenes vs Gameplay Camera
- Player Camera vs Cinematic Camera
- Continuity and Scene Transitions

Suggested Reading:

- *Video Game Storytelling: What Every Developer Needs to Know about Narrative Techniques* – Evan Skolnick
- *Interactive Storytelling for Video Games: A Player-Centered Approach to Creating Memorable Characters and Stories* – Josiah Lebowitz
- *Game Writing: Narrative Skills for Videogames* – Chris Bateman
- *The Five C's of Cinematography: Motion Picture Filming Techniques* – Joseph V. Mascelli
- *Film Directing Shot by Shot: Visualizing from Concept to Screen* – Steven D. Katz

Paper 2 - Level Design & System Design

Unit 1: Basics of Level Design & System Design

- Game Design vs Level Design - Definition and scope of Game Design and Level Design
- Level Design Goals and Roles - Purpose of level design in player experience, Balancing creativity vs technical constraints
- Introduction to Game Systems and System Thinking - Interconnected systems in games (combat, economy, progression), Emergent gameplay and systemic design
- Mechanics, Dynamics, and Player Experience- Dynamics: player interaction with mechanics, Applying MDA in level design

Unit 2: Level Structure & Player Progression

- Level Flow, Structure, and Navigation - Linear vs non-linear level design, Environmental storytelling and spatial design
- Progression Systems (Vertical, Horizontal, Hybrid) - Hybrid progression models, Designing progression pacing.
- Player Motivation, Reward Systems, and Unlock Mechanics - Intrinsic vs extrinsic motivation, Reward schedules and timing.

Unit 3: Game Systems & Resource Management

- Level Components (Action, Exploration, Puzzle, Story, Aesthetics)
- Economy Design (Currencies, Loops, Balancing) - Resource loops (earning, spending, sinks), Hybrid progression models



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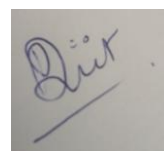
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- Inventory Systems (Types, Parameters, Usability)- Item categorization and rarity systems, UI/UX considerations for usability.

Unit 4: Gameplay Systems & Level Design Principles

- Principles of Good Level Design - Exploration (hidden paths, secrets), Story integration (environmental storytelling, narrative beats)
- Combat Systems (Enemy Design, Balance, Feedback) - Types of currencies (soft, hard, premium), Inflation and balancing issues
- Crafting Systems (Resources, Recipes, Player Interaction) - Balancing crafting usefulness, integration with economy and exploration

Unit 5: Balancing & Intro to Game Psychology

- Level Design Process (Concept to Playtesting) - Concept development and ideation, Documentation (GDD, level design docs).
- System Balancing and Iteration - Identifying imbalance issues , Data-driven design decisions
- Feedback Loops and Optimization - Positive and negative feedback loops, Player feedback integration
- Introduction to game psychology and player behaviour - player behaviour models like Bartle's taxonomy and understanding reward system.

Suggested Reading:

- *Game Design: Theory and Practice* – Richard Rouse III
- *Level Design: Concept, Theory, and Practice* – Rudolf Kremers
- *Game Mechanics: Advanced Game Design* – Ernest Adams & Joris Dormans
- *Designing Virtual Economies* – Vili Lehdonvirta & Edward Castronova

Paper 3 - Game Engine

Unit 1: Introduction to Game Engines

- What is a Game Engine?
- Engine Differences Across Genres
- Runtime Engine Architecture
- Tools and Asset Pipeline

Unit 2: Mathematics, Physics & Space in Games

- 3D Math for Games – Points, Vectors, Solving 3D Problems in 2D



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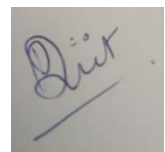
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- Real-World Mechanics –Principles of Vectors, 2D & 3D Space, Local and World Coordinate Systems, Laws of Physics and Animation Principles
- Optimization Techniques – Fog, Moving Textures, Blob Shadows

Unit 3: Animation & Gameplay Mechanics

Animation Mechanics

- Sprites, Texture Atlas, Animated Sprites
- Baked 3D Animation, Biomechanics
- Animation Blending, Secondary Animation
- Skinning, Controllers, State Machines
- Animation Pipeline and Compression Techniques

Gameplay Mechanics

- Core Game Mechanics (Searching, Matching, Shooting, Racing, etc.)
- Rewards and Penalties
- Character Mechanics – Line of Sight, FSM, Waypoints, Flocking, Decision Trees
- Player Mechanics – UI/UX, Inventories, Navigation, Layout
- Environment Mechanics – Map Design, Terrain, Weather
- External Forces – Motion, Gestures, AR Basics

Unit 4: Game Loop, Systems & Tools

- Game Loop and Real-Time Simulation
- Rendering Loop and Update Cycle
- Gameplay Systems – Game World, Game Objects, Data-driven Design
- Engine Support Systems – Memory Management, Configuration
- Human Interface Devices (HID) – Input/Output Systems
- Debugging Tools – Logging, Console, Profiling, Debug Cameras

Unit 5: Advanced Systems & Platform Handling

- Game World Editor and System Implementation
- Data-driven Game Engines
- Platform Differences – Preprocessor Directives, Multi-platform Access
- Integration with Engines (e.g., Unity Basics)

Suggested Reading:

- *Game Engine Architecture (2nd Edition)* – Jason Gregory
- *Holistic Game Development with Unity* – Penny de Byl



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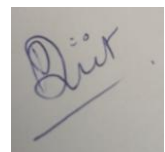
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B.Design - Game Design – 2nd Year – Practical

PRACTICAL 1: INTERACTIVE GAME ASSETS 2D

Overview: This course introduces the advance of character design (Your own Design), environment creation with tiles based game, and basic animation for game development. Students develop visual concepts through reference boards, character variations, and color studies, focusing on silhouette, proportion, and stylization. They explore character locomotion using turnarounds and gestures, and create environments through composition, line art, and final rendering with prop detailing.

The course also covers core animation principles such as timing and spacing (slow in/slow out), along with physics and weight through ball and pendulum exercises. Students create basic animation cycles including walk and bird flight using digital tools like Clip Studio Paint. By the end, students produce a cohesive set of character, environment, and animation work suitable for a beginner-level portfolio.

Practical Submission:

1. Character Design (1 Reference board, 5 variations, 3 colour variations)
2. Character Locomotion (1 full turnaround sheet, 5 gesture)
3. Environment Design/ Set Dressing (1 Reference board, 1 Line art, 1 Final colours with 4 Details prop)
4. Animation Basics (Create 5 animation cycles, idle, walk, Run, Jump, attack, using Spine or Photoshop)
5. Timing for Animation, Slow in & Slow out (Ball)- 1 Animation in .avi format. (To be Done in Lightbox)
6. Bouncing Ball (Same Place & Progressive with Tail)- 2 Animations in .avi format. (To be Done in Clipstudio)
7. Pendulum with string- 1 Animation in .avi format. (To be Done in Clipstudio)
8. Walk Cycle Animation (Progressive - Profile view, Front and Front $\frac{3}{4}$ view)- 3 Animation. (To be Done in Clipstudio)
9. Bird Flying Animation (To be Done in Clipstudio)

Suggested Reading:

- *Creating Characters with Personality* – Tom Bancroft
- *Figure Drawing: Design and Invention* – Michael Hampton
- *Framed Ink: Drawing and Composition for Visual Storytellers* – Marcos Mateu-Mestre
- *Color and Light: A Guide for the Realist Painter* – James Gurney
- *The Animator's Survival Kit* – Richard Williams



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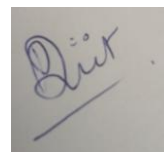
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PRACTICAL 2: 3D MODELLING & TEXTURING BASICS

Overview: This course introduces students to the fundamental workflows of 3D modeling and texturing for game design using industry-standard tools. Students begin with understanding the interface and navigation of Autodesk Maya, followed by learning essential polygonal modeling techniques through simple object creation. The course emphasizes hard surface modeling, focusing on correct topology, form development, and adding detail for production-ready assets.

Students are introduced to UV unwrapping techniques to prepare models for texturing, followed by basic texturing workflows using Substance Painter, including material creation and rendering. Additionally, the course provides an introduction to digital sculpting using ZBrush, covering interface navigation, sculpting techniques, masking, and polygon visibility.

By the end of the course, students will be able to create optimized 3D assets, unwrap them efficiently, and apply basic textures suitable for game environments.

Practical Submissions:

1. Create 15 Low-Poly Assets (basic game-ready props)
2. Create 10 Mid-Poly Detailed Assets with proper topology
3. Perform UV Unwrapping for all 10 detailed assets
4. Apply basic texturing on a minimum of 5 assets using Substance Painter

Suggested Reading:

- *Introducing Autodesk Maya 2020 – Dariush Derakhshani*
- *Polygon Modeling with Maya – Todd Palamar*
- *Substance Painter for Game Artists – Allegorithmic (Adobe)*
- *ZBrush Digital Sculpting Human Anatomy – Scott Spencer*
- *Game Asset Creation: The Complete Guide – 3DTotal Publishing*

PRACTICAL 3: GAME ENGINE - UNITY

Overview: This course advances students' understanding of game development using Unity by expanding upon foundational 2D concepts and introducing the basics of 3D game design. Students deepen their skills in Unity 2D through advanced gameplay systems, including state machines, physics interactions, animation systems, and UI/UX refinement. Emphasis is placed on structured coding practices, modular design, and efficient asset management.



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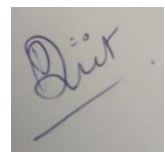
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The course also introduces Unity 3D fundamentals, enabling students to understand 3D space, camera systems, lighting, materials, and basic character movement. Students explore scene building and interaction systems in 3D, bridging the gap between 2D and 3D workflows.

By the end of the course, students will be able to develop a polished 2D game and a basic 3D prototype, demonstrating an understanding of both pipelines and preparing them for intermediate-level game development.

Practical Submission Guidelines:

- Create an Enhanced Development Document (expanded mechanics and progression)
- Implement Advanced Player Systems: State Machines (idle, run, jump, attack states),
- Improved Physics and Collision Handling, Power-ups / Ability Systems
- Develop Animation Systems: Animator Controller setup, Smooth transitions between states
- Design UI/UX Systems: Main menu, pause menu, settings, HUD elements (health, score, feedback indicators)
- Integrate Audio Systems: Background music and sound effects, Trigger-based audio feedback
- Create a Basic 3D Scene (terrain or blockout environment)

Practical Submissions :

1. Build Level Progression: Minimum 3–5 levels with increasing difficulty, Checkpoints or save system
2. Develop a 3D Player Controller (movement and rotation) and Implement a Camera System (first-person or third-person)
3. Build a 3D Scene and Apply Lighting and Materials to enhance the scene
4. Create Interaction Systems (trigger zones, object interaction)
5. Develop a Mini 3D Prototype (exploration or simple objective-based gameplay)

Suggested Reading:

- *Unity in Action – Joe Hocking*
- *Learning C# by Developing Games with Unity – Harrison Ferrone*
- *Mastering Unity 2D Game Development – Simon Jackson*
- *Unity 3D Game Development Essentials – Will Goldstone*
- *Game Programming Patterns – Robert Nystrom*



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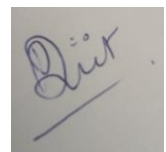
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PRACTICAL 4: FINAL GAME DESIGN PROJECT

Overview: This capstone course builds upon prior learning in game design, art, and engine development, guiding students to create complete and polished game experiences. The course is divided into two parts: an individual 2D game project and a team-based 3D game project.

Students apply advanced design thinking, gameplay systems, level design, UI/UX, and optimization techniques to develop production-ready games. Emphasis is placed on the full game development pipeline, including concept development, prototyping, iteration, testing, and final deployment.

The 2D project focuses on refining individual skills in gameplay mechanics, polish, and presentation, while the 3D team project introduces collaborative workflows, role distribution (design, art, programming), and production management similar to industry practices. By the end of the course, students will have portfolio-ready projects demonstrating both individual capability and teamwork in game development.

Practical Submissions:

Part A: 2D Game Project (Individual)

- Game Design Document (concept, mechanics, target audience, core loop)
- Prototype Development (core gameplay implementation)
- Advanced Gameplay Systems: Player mechanics, enemies, scoring, progression, Power-ups / abilities / level logic
- UI/UX Design: Menus, HUD, feedback systems
- Level Design: Minimum 3–5 levels or progressive difficulty
- Audio Integration: Sound effects and background music
- Game Polish: Visual feedback, transitions, juice, basic optimization
- Final Playable Build (Unity Project + Executable)

Part B: Final 3D Game Project (Team-Based)

- Team Formation (roles: designer, programmer, artist, etc.)
- Game Concept & Documentation: Game Design Document (GDD), Art Style Guide and Reference Board, Technical Planning
- Pre-Production: Prototype / Vertical Slice, Core gameplay validation
- Production: 3D Environment Design (level/blockout → final assets), Character / Props Integration, Gameplay Systems (movement, interaction, AI basics), UI/UX Systems



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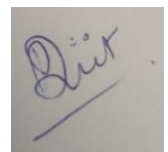
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- Level Design: Structured gameplay flow and objectives
- Audio & Visual Polish: Lighting, materials, effects, sound
- Testing & Iteration: Bug fixing, playtesting, balancing

Final Submissions:

1. Completed 2D Individual Game
2. Completed 3D Team Game Project
3. Game Builds + Source Files (Unity Projects)
4. Trailer Video (1–2 min) for both projects
5. Final Presentation / Viva explaining: Design decisions, Workflow and pipeline, Team contribution (for 3D project), Challenges and solutions

Suggested Reading:

- *The Art of Game Design: A Book of Lenses – Jesse Schell*
- *Level Up! The Guide to Great Video Game Design – Scott Rogers*
- *Game Programming Patterns – Robert Nystrom*
- *Game Engine Architecture – Jason Gregory*
- *Rules of Play: Game Design Fundamentals – Katie Salen & Eric Zimmerman*



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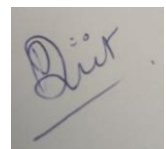
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B.Design – Game Design – 3rd Year– Scheme

	Paper	Time (In Hours)	Size Paper	Ext Marks		Midterm/ CCE		Total
				Max. Marks	Min. Mark s	Max. Mar ks	Min. Marks	
	THEORY							
1.	Game Feel & Interaction Design	3 Hours	-	70	23	30	10	100
2.	Artificial Intelligence for Games	3 Hours	-	70	23	30	10	100
3	Defining Rules	3 Hours	-	70	23	30	10	100
	PRACTICAL							
1.	Game Engine - Unreal	6 Hours	Digital	70	23	30	10	100
2.	3D Animation & Game Cinematics	6 Hours	Digital	70	23	30	10	100
3.	World Building for Games	12 Hours	Digital	70	23	30	10	100
4.	Advanced Studio Practices I	6 Hours	Digital	70	23	30	10	100
	TOTAL							700

NOTE: For Passing examination, the candidates shall be required to secure 33% marks in each of the prescribed subject, separately in

1. The University Theory Exam
2. The University Practical Exam
3. Internal Assessment ,i.e., CCE done at college/university level.



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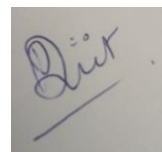
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B.Design - Game Design– 3rd Year – Theory

Paper 1 - Game Feel and Interaction Design

Unit 1: Foundations of UI, UX and Game Feel

- Introduction to User Interface (UI), User Experience (UX) and Game Feel, Importance of usability, responsiveness and player-centred design in interactive systems.
- Defining Game Feel – Understanding virtual sensation, real-time control, responsiveness, immersion and player feedback.
- Principles of Game Feel – Input, response, context, polish and metaphor, and the relationship between mechanics and sensory feedback.

Unit 2: Game Feel, Perception and Interactivity

- Game Feel and Human Perception – Attention, perception, cognition, reaction time, cognitive load and their influence on player interaction and satisfaction.
- The Game Feel Model of Interactivity – Player input, system processing and sensory output, and feedback loops between player and game.
- Mechanics of Game Feel – Control systems, movement mechanics, camera behaviour, physics responses, animation timing and environmental feedback.
- Metrics for Game Feel – Input metrics, response metrics, context metrics, polish metrics, metaphor rules metrics and evaluation of responsiveness.

Unit 3: UX Research, Player Understanding and Onboarding

- UX Research Methods – Player research, observation, usability testing, heuristic evaluation and iterative design approaches.
- User Personas and UX Archetypes – Player motivations, behavioural segmentation, demographic and psychographic profiling.
- Empathy Mapping – Think / Say / Do / Feel model for understanding player emotions and expectations.
- Player Onboarding and First Time User Experience (FTUE) – Tutorials, learning curves, progressive disclosure, affordances and retention strategies.

Unit 4: Interface Design, Prototyping and Information Architecture

- Information Architecture – Structuring game information, navigation systems, HUD hierarchy, menu flow and usability considerations.



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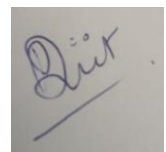
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- Wireframing and Prototyping – Low-fidelity (Lo-Fi), high-fidelity (Hi-Fi), paper and interactive prototypes.
- UI Mockups and Visual Interface Design – Layout, typography, color, iconography, readability, accessibility and responsiveness across platforms.

Unit 5: Game Interfaces and Case Studies

- Game HUD and Interface Types – Diegetic and non-diegetic interfaces, balancing immersion and clarity, and communication design.
- Case Studies – Super Mario Bros., Asteroids, Bionic Commando, Super Mario 64, and Raptor: Call of the Shadows, focusing on UI/UX and game feel decisions in successful games.

Suggested Readings:

- *Game Feel: A Game Designer's Guide to Virtual Sensation* – Steve Swink
- *The Gamer's Brain: How Neuroscience and UX Can Impact Video Game Design* – Celia Hodent
- *Universal Principles of Design* – William Lidwell et al.

Paper 2 - Artificial Intelligence for Games

Unit 1: Introduction to Game AI

- What is Artificial Intelligence?
- Differences between Academic AI and Game AI
- Model of Game AI – Movement, Decision Making, Strategy, Infrastructure, Agent-Based AI
- Algorithms and Data Structures in AI
- The Complexity Fallacy –When simple systems work better, When complex systems fail, Windows and Changes in Behaviour

Unit 2: Foundations and Types of Game AI

- Kinds of AI in Games – Hacks, Heuristics, and Algorithms
- Speed and Memory Considerations –Processor Constraints, Memory Constraints
- Structure of an AI Engine

Unit 3: Core AI Techniques

- Finite State Machines (FSM) – States, Transitions, Behaviour Modelling
- Behaviour Trees – Hierarchical Decision Making and Control Flow



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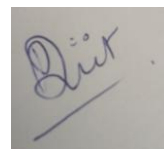
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- Pathfinding and Navigation – Graphs, Nodes, Navigation Meshes, Heuristic Search

Unit 4: Advanced AI Systems

- Goal-Oriented Action Planning (GOAP) – Goal-driven Behaviour and Planning
- Player Modelling and Dynamic Difficulty Adjustment (DDA)
- Group and Crowd AI – Coordination, Flocking, Multi-agent Systems

Unit 5: Designing Believable AI

- Illusion of Intelligence
- Creating Believable and Fair AI Behaviour
- Player Perception and Gameplay Experience

Suggested Readings:

- *Artificial Intelligence for Games – Ian Millington & John Funge*

Paper 3 - Defining Rules

Unit 1: Fundamentals of Game Rules

- Defining Rules in Games
- Importance of Rules in Game Design
- Rules on Three Levels (Operational, Constitutive, Implicit)

Unit 2: Rules in Digital Games

- The Rules of Digital Games
- How Rules Shape Gameplay Experience
- Flexibility and Constraints in Digital Systems

Unit 3: Games as Systems

- Games as Emergent Systems
- Games as Systems of Uncertainty
- Games as Systems of Information

Unit 4: Advanced System Perspectives

- Games as Information Theory Systems
- Games as Cybernetic Systems (Feedback Loops)
- Games as Game Theory Systems



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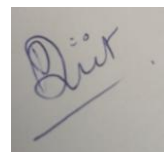
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Unit 5: Conflict and Rule-Breaking

- Games as Systems of Conflict
- Breaking the Rules – Innovation and Player Agency
- Impact of Rule Modification on Gameplay

Suggested Readings:

- *Rules of Play: Game Design Fundamentals* – Katie Salen Tekinbaş & Eric Zimmerman



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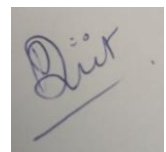
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B.Design - Game Design – 3rd Year– Practical

PRACTICAL 1: GAME ENGINE - UNREAL

Overview: This course introduces students to game development using Unreal Engine, focusing on real-time workflows and Blueprint based visual scripting. Students learn the fundamentals of the Unreal interface, level creation, asset integration, and material setup. The course emphasizes building gameplay systems such as scoring, inventory, and UI using Blueprints, enabling students to create interactive experiences without extensive coding. Students are also introduced to basic Artificial Intelligence concepts, including navigation systems and Behaviour Trees for creating responsive game agents. The course focuses on developing a small playable prototype by integrating gameplay mechanics, UI systems, and AI behaviours. By the end of the course, students will be able to design and develop a functional Unreal based game prototype suitable for portfolio development. By the end of the course, students will deliver a portfolio-ready 3D game demonstrating technical proficiency and design thinking aligned with industry standards.

Practical Submissions Guidelines :

- Game Design Document (GDD): Concept, genre, target audience, core mechanics, gameplay loop
- Pre-Production Work: Storyboard / Level Flow, Concept art / references, Asset planning
- Game Development in Unreal Engine : Level design and environment setup, Player controller and gameplay mechanics, UI implementation (HUD, menus), Basic AI (enemy behavior / interaction), Sound integration
- Core Systems Implementation: Scoring / progression system, Interaction systems, Game rules (win/lose conditions)
- Art & Animation Integration: Characters, props, and environment assets, Basic animations and effects
- Game Testing & Optimization: Bug testing and fixing, Performance optimization

Final Deliverables

1. Playable 3D Game Build (Executable)
2. Unreal Project Files
3. Game Trailer / Demo Video
4. Final Presentation (workflow + design explanation)

Suggested Reading

- *Unreal Engine 5 Game Development with C++ & Blueprints* – Stephen Ulibarri
- *Game Engine Architecture* – Jason Gregory



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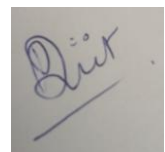
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- *The Art of Game Design: A Book of Lenses* – Jesse Schell
- *Level Up! The Guide to Great Video Game Design* – Scott Rogers
- *Artificial Intelligence for Games* – Ian Millington & John Funge

PRACTICAL 2: 3D ANIMATION & GAME CINEMATICS

Overview: This course unifies 3D rigging (Maya) and real-time animation & cinematics (Unreal Engine) into one cohesive pipeline. Students move from asset preparation → rigging → animation cinematic storytelling.

They begin by building production-ready rigs (mechanical and organic), mastering IK/FK systems, weight painting, and control hierarchies. These rigs are then animated in Maya using core principles like timing, spacing, and body mechanics.

The pipeline then shifts into Unreal Engine, where students integrate animations, refine them using Control Rig, and build cinematic sequences using Sequencer, MetaHumans, and motion capture. By the end, students produce a portfolio-grade cinematic that demonstrates rigging, animation, and storytelling in a real-time engine—aligned with modern game and film pipelines.

Practical Submissions:

Rigging & Animation (Maya)

Submission guideline

- Create a Rig of table lamp 3D model and Animate using IK Handle
- Create a Rig of one organic Spider model With using Weight Paint ,Set Driven Key and groups
- Character full body Rig Study and Create key Posing in maya
- Create a Human hand Rigging and create an Animation with using weapon prop
- Character Walk cycle
- Character Run cycle
- Character Weight Lifting Animation

Final Deliverables :

1. 1 Maya Rig file and 10 second Animation and 1 Video file resolution 1920*1080 in .MOV format
2. 1 Spider Rig maya file.
3. 20 key poses
4. 4 Maya Animation file and 4 Video (file resolution 1920*1080 in .MOV format).



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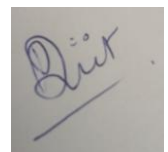
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Game Cinematic Scene 1 (Unreal)

Create a high-intensity chase scene where one character pursues or escapes another within a designed environment. The sequence must demonstrate cinematic storytelling, character animation, camera dynamics, and real-time rendering in Unreal Engine.

Final Deliverables

1. Rendered video (45–60 sec, Full HD)
2. Unreal project files
3. Storyboard PDF
4. Short production breakdown (1–2 pages)

Game Cinematic Scene 2 (Unreal)

Create a character-driven cinematic moment focused on emotion, interaction, or decision-making. The scene must communicate a clear story arc using performance, camera, and environment not action speed.

Final Deliverables

1. Final cinematic video (60–90 sec, high quality)
2. Unreal Engine project (organized)
3. Maya rig + animation files (if custom)
4. Detailed storyboard + shot breakdown
5. Production document (3–5 pages)

Suggested readings:

- *The Animators Survival Kit* - Richard Williams
- *Cinematic Photoreal Environments in Unreal Engine* - Giovanni Visai
- *Rig It Right: Maya Animation Rigging Concept* - Tina O'Hailey

PRACTICAL 3: World Building for Games

Overview: This course focuses on world building using Unreal Engine and Twinmotion, emphasizing immersive environment creation and real-time optimization. Students learn how to design visually compelling 3D environments through environment art, advanced material systems, procedural generation, and cinematic lighting workflows.

The course covers large-scale environment creation, landscape development, procedural content generation (PCG), material workflows, and advanced lighting techniques including Lumen, global illumination, atmospheric effects, and cinematic lighting.



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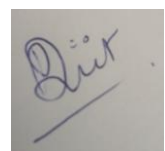
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By the end, students will be able to create production-ready worlds optimized for games, cinematics, and real-time visualization.

Topics Covered

- Advanced Material Creation
- Landscape Materials & Layer Blending
- Basic grey blocking
- First and Second Draft of the Block out
- Procedural Content Generation (PCG)
- Foliage Systems
- World Building Pipelines
- Terrain Design
- Lighting & Atmosphere
- Lumen, Baked GI, and Real-Time Lighting
- Environmental Storytelling
- Optimization for Large-Scale Environments

Practical Submissions Guidelines

- Create 3 large-scale 3D environments
- Develop graybox/blockout for each
- Apply advanced materials:
- Use PCG for (Foliage, Trees, Rocks, etc)
- Implement realistic lighting
- Optimize using: Nanite, Instancing and Efficient rendering techniques

Final Deliverables:

1. 3 fully developed environments
2. 3 graybox/blockout versions
3. 15 cinematic shots
4. Final high-quality renders
5. Complete Unreal Engine project files

Suggested readings:

- *Mastering Technical Art in Unreal Engine: World Building* — Markus P. Penninck
- *Building Open World Landscapes with Unreal Engine 5* — David Ignacio García
- *Cinematic Photoreal Environments in Unreal Engine 5* — Giovanni Visai
- *The Environment Artist's Survival Kit* — Various Industry Resources
- *Twinmotion for Visualization Professionals*



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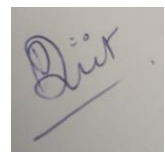
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PRACTICAL 4: Advanced Studio Practices I

(Student must select one of the following modules and submit the assignments of the selected module)

Module 1: Advance 3D Modelling and Texturing

Overview : This course focuses on advanced 3D modeling and texturing techniques for game asset creation, emphasizing efficiency, accuracy, optimization, and production-ready workflows. Students learn how professional 3D modeling improves game development pipelines through better speed, precision, scalability, and reduced production costs.

The course highlights the importance of real-world references, where students collect and analyze assets to study proportions, anatomy, materials, surface details, textures, lighting, and construction methods for realistic asset creation.

Students develop skills in creating optimized low-poly and high-quality game-ready assets using techniques such as polygon optimization, clean topology, UV mapping, baking, normal mapping, and PBR texturing workflows. The course also introduces basic character modeling, including human proportions, facial structure, clothing creation, and character texturing for game production. Students learn the complete workflow for character and hard-surface asset creation, including block-out, detailing, retopology, UVs, baking, and final presentation.

By the end of the course, students will be able to create professional game-ready assets and basic characters with optimized geometry and high-quality textures suitable for real-time game engines.

Practical Submissions Guidelines:

- Create and texture 5 sword assets, 2-gun assets, 1 basic character, and 2 low-poly vehicles with strong modeling, topology, and material quality.
- Apply proper UV mapping, texture optimization, and game-ready asset workflows across all major assets.
- Ensure all assets are optimized for performance while maintaining visual quality.

Final Submission:

1. 5 textured sword assets
2. 2 textured gun assets
3. 1 basic character model
4. 2 low-poly vehicle models



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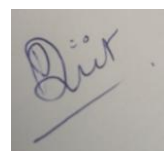
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5. Rendered final outputs for all assets
6. Complete 3D source files

Suggested readings:

- *Digital Modeling – William Vaughan*
- *Game Asset Creation: The Complete Guide – 3DTotal Publishing*
- *The PBR Guide – Allegorithmic (Adobe)*
- *Polygon Modeling with Maya – Todd Palamar*
- *3D Game Textures: Create Professional Game Art Using Photoshop – Luke Ahearn*

Module 2: Advance 2D Art & Animation

Overview: This course focuses on advancing students by creating story and worldbuilding based interconnected portfolios, also advancing environments like Set Dressing skills in 2D game art and animation through the creation of a story-driven, gamified portfolio. Students develop original characters supported by gesture and expression studies to enhance personality, movement, and visual appeal. Emphasis is placed on environment design, including both interior set dressing and exterior world-building, along with prop and weapon design to create cohesive game-ready visuals.

The course also introduces detailed 2D animation workflows using Spine, enabling students to bring characters to life through expressive and polished animation sequences. Students integrate art, design, and storytelling into a unified portfolio, demonstrating both artistic development and an understanding of production pipelines. By the end of the course, students will have a strong, narrative-driven portfolio showcasing character design, environments, and animation suitable for industry presentation.

Practical Submissions:

1. Story based gamified Portfolio
2. (2 characters, 1 gesture sheets, 1 expression sheet, 1 interior design/ set dressing, 1 exterior design, 1 weapon design, 2 Detailed Animation in Spine)

Suggested readings:

- *The Big Bad World of Concept Art for Video Games: How to Start Your Career as a Concept Artist*
- *Designing Creatures and Characters" by Marc Taro Holmes*



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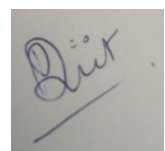
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Module 3: AR / VR Development (Unity or Unreal Engine)

Overview: This course focuses on developing immersive AR and VR games using Game Engine (students can choose either platform based on preference). Students learn to design interactive gameplay experiences by combining 3D environments, player interaction, and spatial mechanics.

The course covers AR fundamentals such as image tracking and real-world interaction, along with VR game development including player locomotion, interaction systems, and immersive UI design. In Unity, students will work with tools like AR Foundation and XR Interaction Toolkit, while in Unreal Engine, they will use built-in AR/VR frameworks and Blueprints/C++.

Emphasis is placed on gameplay design, user comfort, performance optimization, and real-time responsiveness. Students will explore how game mechanics adapt to immersive platforms, creating engaging and intuitive experiences.

By the end, students will be able to develop functional AR/VR games using **Unity or Unreal Engine**, with optimized performance and strong interaction design suitable for modern immersive platforms.

Practical Submissions Guidelines:

- Implement VR locomotion systems (teleportation / smooth movement)
- Design gameplay mechanics (object interaction, triggers, scoring system)
- Create interactive UI (health, score, instructions in world space)
- Implement physics-based interactions (grab, throw, collision) using Unity XR Interaction Toolkit or Unreal Physics system
- Optimize AR/VR gameplay for performance and comfort (both Unity and Unreal techniques)

Final Deliverables:

1. Create 1 basic AR game (marker-based or surface interaction gameplay) using Unity (AR Foundation) or Unreal Engine
2. Develop 1 VR game environment with player interaction
3. Create 1 mini game combining environment, interaction, and gameplay loop
4. Submit build files + project files (Unity project or Unreal project)
5. Test gameplay on target device (mobile AR / VR headset)



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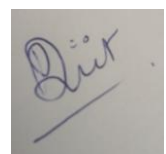
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Suggested readings:

- *Learning Virtual Reality – Tony Parisi*
- *Augmented Reality for Developers – Jonathan Linowes*
- *Unreal Engine VR Cookbook – Mitch McCaffrey*
- *Designing Virtual Reality Systems – Gerard Jounghyun Kim*

Module 4: Advance Level Design 3D

Overview: This course focuses on level design inside the game engine, emphasizing gameplay structure, navigation flow, player guidance, spatial readability, narrative integration, and mission-based progression. Students learn how to create functional, engaging, and visually coherent spaces by combining level design theory with narrative design, quest systems, and mission objective planning. The course covers layout creation, player progression, environmental readability, narrative storytelling, quest design, mission objectives, POI placement, gameplay pathing, and optimization for real-time experiences. By the end, students will be able to design production-ready levels that combine structure, gameplay flow, narrative depth, and interactive storytelling.

Topics Covered

- Level Design Fundamentals
- Spatial Design Principles
- Layout Development
- Player Navigation & Flow
- Visual Readability
- Points of Interest (POIs)
- Environmental Storytelling
- Narrative Design Integration
- Quest Design Systems
- Mission Objective Planning
- Grayboxing & Blockouts
- Optimization in Level Design
- Cinematic Path Design

Practical Submissions

1. Design 3 complete level layouts
 - a. Create structured graybox/blockout versions
 - b. Establish clear player flow, navigation, and progression paths



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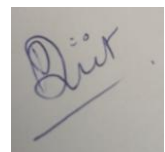
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- c. Include minimum 3 Points of Interest (POIs) per level
 - d. Develop integrated narrative design elements within environments
2. Level Design Document
- a. Design and implement quest structures for each level
 - b. Create clear mission objectives, progression milestones, and player goals
 - c. Focus on level readability, player guidance, and pacing

Suggested readings:

- *An Architectural Approach to Level Design — Christopher W. Totten*
- *World of Level Design (WoLD) — Alex Galuzin*
- *Level Up! The Guide to Great Video Game Design — Scott Rogers*
- *Game Level Design — Ed Byrne*



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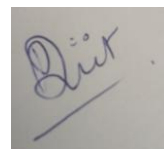
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B.Design – Game Design– 4th Year - Scheme

	Paper	Time (In Hours)	Size Paper	Ext Marks		Midterm/ CCE		Total
				Max. Marks	Min. Marks	Max. Marks	Min. Mark s	
	THEORY							
1.	Game Psychology	3 Hours	-	70	23	30	10	100
2.	Game Marketing, Publishing & Monetization	3 Hours	-	70	23	30	10	100
3.	Game Production & Management	3 Hours	-	70	23	30	10	100
	PRACTICAL							
1.	Portfolio Development	6 Hour	Digital	70	23	30	10	100
2.	AI Tools in Game Development Pipeline	6 Hour	Digital	70	23	30	10	100
3.	Advance Studio Practices II	6 Hour	Digital	70	23	30	10	100
4.	Final Game Design Project	6 Hour	Digital	70	23	30	10	100
	TOTAL							700

NOTE: For Passing examination, the candidates shall be required to secure 33% marks in each of the prescribed subject, separately in

1. The University Theory Exam
2. The University Practical Exam
3. Internal Assessment, i.e., CCE done at college/university level.



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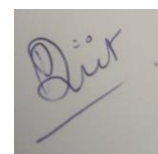
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B.Design - Game Design – 4th Year – Theory

Paper 1 - Game Psychology

Unit 1: Psychology of Player

- Players – Why do perfectly normal people become crazy online? Why do people cheat, hack & peek at guides, nostalgia about old games, emotional attachment to games, understanding player motivations and engagement.
- The Games – Do we shape our in-game avatars or do they shape us? Why do we like violent games so much, and should we be concerned? Do video games enhance cognitive abilities? Psychological impact of gameplay on cognition, identity, and behaviour.

Unit 2: Psychology of Game Makers

- Game Makers – How do games encourage competition, scoring, side quests, and achievement chasing? How do developers create excitement around rewards and loot? Psychological tools used by designers to influence player behaviour and retention.
- Building Blocks of Emotional Design – Designing for multiplayer emotions, using movement design to evoke emotions, and creating intimacy and connection between players through interaction systems.

Unit 3: Psychology of Game Sellers

- Game Seller – How do games create immersion in imaginary worlds? Why do players respond strongly to digital sales? How do games capture player attention quickly and encourage peer-driven promotion? Marketing psychology and behavioural triggers in games.

Unit 4: Game Impact, Well-being & Ethics

- Game addiction and internet gaming disorder, social behaviour, video games and cognitive performance
- Benefits and risks associated with prolonged gameplay.

Unit 5: Applied Game Psychology and Frameworks

- Octalysis Framework – Identifying player motivations through core drives of human behaviour, intrinsic and extrinsic motivation, and applying motivational psychology in game design.
- MDA Framework – Mechanics, Dynamics, and Aesthetics as a model to understand the relationship between game systems and player emotional experience, and to analyse games from both design and player perspectives.



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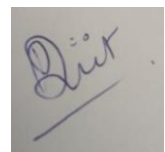
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- Gamification – Understanding Games as a Service, habit formation through games, and reinforcement learning.

Suggested Readings:

- *Getting Gamers: The Psychology of Video Games and Their Impact on the People who Play Them* – Jamie Madigan
- *How Games Move Us: Emotion by Design (Playful Thinking)* – Katherine Isbister
- *Actionable Gamification: Beyond Points, Badges, and Leaderboards* by Yu-kai Chou
- *Game Design Workshop: A Playcentric Approach to Creating Innovative Games* by Tracy Fullerton

Paper 2 - Game Marketing, Publishing & Monetization

Unit 1: Introduction to Game Marketing

- Overview of the game industry and market landscape
- Importance of marketing in game development
- Target audience identification and player personas
- Market research and competitor analysis
- Branding and positioning of games
- Game marketing lifecycle (Pre-launch, Launch, Post-launch)

Unit 2: Marketing Strategies & Promotion

- Digital marketing for games – social media, influencers, communities
- Content marketing – trailers, teasers, devlogs, screenshots
- App Store Optimization (ASO) and discoverability
- Paid marketing – ads, user acquisition campaigns
- PR strategies and media outreach
- Community building and engagement (Discord, forums, live events)

Unit 3: Game Publishing

- What is game publishing? Roles and responsibilities
- Self-publishing vs publisher partnerships
- Platform ecosystems – PC, console, mobile stores
- Submission processes and certification requirements
- Distribution platforms (Steam, Play Store, App Store, etc.)
- Legal aspects – contracts, IP rights, licensing



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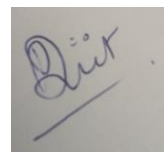
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Unit 4: Monetization Strategies

- Overview of monetization models in games
- Premium, Free-to-Play (F2P), and Hybrid models
- In-app purchases (IAP), microtransactions
- Ads monetization – rewarded ads, interstitials, banners
- Subscription models and battle passes
- Ethical considerations in monetization

Unit 5: Game Economy & Analytics

- Basics of game economy design (sources, sinks, balancing)
- Player retention, engagement, and lifetime value (LTV)
- Key performance indicators (KPIs) – DAU, MAU, ARPU, retention rate
- A/B testing and data-driven decision making
- Live operations (LiveOps) and content updates
- Post-launch support and scaling strategies

Suggested Readings:

- *The Art of Game Design: A Book of Lenses* – Jesse Schell
- *Video Game Marketing and PR* – Scott Steinberg
- *Free-to-Play: Making Money From Games You Give Away* – Will Luton
- *Mobile Game Monetization* – Annie Cheng
- *Games as a Service* – Oscar Clark

Paper 3 - Game Production and Management

Unit 1: Game Production Pipeline

- Introduction to game production
- Production cycle overview
- Pre-production phase (concept, planning, prototyping)
- Production phase (development, asset creation, implementation)
- Testing phase (QA, debugging)
- Post-production phase (release, updates, maintenance)



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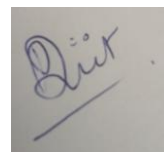
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Unit 2: Project Management in Games

- Overview of project management in game development
- Project management methodologies: Agile, Scrum, Waterfall
- Task allocation and team coordination
- Milestones, deliverables, and timelines
- Risk management in game projects

Unit 3: Developer & Publisher Relationships

- Roles of developers and publishers
- Pitching a game to a publisher
- Financing options (self-funded, publisher-funded, investors)
- Managing developer–publisher relationships
- Third-party approvals and platform compliance

Unit 4: Game Planning & Resource Management

- Game planning and documentation
- Scheduling and timeline creation
- Staffing and team structure
- Budgeting and cost management
- Outsourcing and external collaborations
- Use of middleware in game development

Unit 5: Game Build, Testing & Documentation

- Game build process and version control
- Multilingual builds and localization
- Build notes and documentation
- Preventing piracy and content protection
- Testing pipeline and testing cycles
- Internal and external testing
- Game documentation and reporting

Suggested Readings:

- *The Game Production Handbook – Heather Maxwell Chandler*



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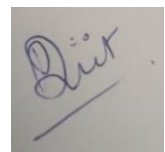
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B.Design - Game Design – 4th Year – Practical

Practical 1 - Portfolio Development

Overview: This capstone course focuses on preparing students for professional entry into the game industry by developing a specialized, industry-ready portfolio in their chosen domain of game design. Students identify their preferred field—such as game art, game design, level design, technical design, UI/UX, animation, or game development—and build a cohesive body of work aligned with current industry standards.

The course emphasizes personal branding, project selection, iterative improvement, and presentation quality. Students refine previously developed work and create new, high-quality projects that demonstrate both technical skills and creative thinking. Guidance is provided on portfolio structuring, documentation, case studies, and showcasing work through digital platforms such as ArtStation, Behance, or personal websites.

By the end of the course, students will produce a polished portfolio tailored to their career goals, supported by a professional resume, demo reel (if applicable), and presentation, making them ready for internships, placements, or freelance opportunities.

Practical Submissions:

1. Portfolio Specialization Selection: Choose a domain (Art, Design, Programming, UI/UX, Animation, etc.), Define career goal and target role
2. Portfolio Planning Document: List of projects and deliverables, Skill mapping and improvement plan
3. Core Portfolio Projects (Minimum 3–5 High-Quality Projects) : Domain-specific works (e.g., game prototype, character designs, levels, UI systems, etc.), Each project must include process documentation and iteration
4. Case Studies / Documentation: Concept, development process, challenges, solutions, Visual breakdowns and design thinking
5. Online Portfolio Development: Upload and organize work on platforms like ArtStation / Behance / personal website, Maintain visual consistency and clarity
6. Resume & Personal Branding: Industry-standard resume, Artist/designer statement or bio
7. Demo Reel (if applicable): Animation / game / cinematic showcase video
8. Final Presentation / Portfolio Review: Portfolio walkthrough, Explanation of specialization and career direction



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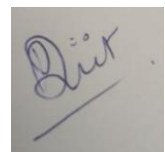
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Suggested Readings:

- *The Art of Game Design: A Book of Lenses* – Jesse Schell
- *Level Up! The Guide to Great Video Game Design* – Scott Rogers
- *Creative Careers in Games* – Oliver Lowenstein
- *The Non-Designer's Design Book* – Robin Williams
- *Show Your Work!* – Austin Kleon

Practical 2 - AI Tools in Game Development Pipeline

Overview: This course introduces final-year game design students to the role and application of AI tools across the modern game development pipeline. It focuses on how artificial intelligence is used to enhance productivity, creativity, and iteration speed in areas such as concept art, asset creation, animation, level design, programming assistance, and testing.

Students explore a range of industry-relevant AI tools and workflows, including generative art, AI-assisted coding, procedural content generation, and automation in game production. The course emphasizes responsible and ethical use of AI, understanding its limitations, and integrating AI outputs into professional pipelines without compromising originality and design intent.

Through hands-on experimentation, students learn how to incorporate AI tools into their chosen specialization—whether art, design, or development—and use them to accelerate prototyping and production. By the end of the course, students will be able to effectively utilize AI tools within a game development workflow and demonstrate their application through practical outputs and documentation.

Practical Submissions:

1. AI Tools Exploration Report: Study and document at least 3–5 AI tools used in game development, Analyze their use cases, advantages, and limitations
2. AI-Assisted Concept Development: Generate concept art / ideas using AI tools, Refine and adapt outputs into usable game assets
3. AI Integration in Chosen Specialization: Art: AI-generated concepts → refined assets, Design: AI-assisted level ideas / narratives, Development: AI-assisted scripting or logic support
4. Procedural / Generative Workflow Experiment: Use AI tools for procedural content (levels, textures, variations, etc.)
5. Pipeline Integration Task: Demonstrate how AI tools fit into a game production pipeline, Show before/after comparison (manual vs AI-assisted workflow)



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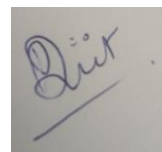
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6. Ethics & Limitations Report: Bias, originality, copyright considerations, Responsible use in professional practice
7. Final Project: Create a small game prototype / asset set using AI-assisted workflow, include documentation of process and tools used
8. Presentation / Demo: Showcase outputs and explain AI integration strategy

Suggested Readings:

- *Artificial Intelligence for Games – Ian Millington, John Funge*
- *You Look Like a Thing and I Love You – Janelle Shane*
- *The Art of Game Design: A Book of Lenses – Jesse Schell*
- *Creative AI for Game Developers – Andrew Hugill*
- *Generative Deep Learning – David Foster*

Practical 3 - Advanced Studio Practices II

(Student must select one of the following modules and submit the assignments of the selected module)

Module 1: Advance 3D Sculpting

Overview: This course focuses on advanced digital sculpting techniques for creating high-quality 3D characters, creatures, and AAA game assets using industry-standard tools such as Autodesk Maya, ZBrush, and Marvelous Designer. Students learn the complete production pipeline, starting from block-out and proportion building to high-resolution sculpting, detailing, and optimization for game-ready assets.

The course emphasizes organic modeling, anatomy, cloth creation, and surface detailing, including wrinkles, pores, and material definition. Students also explore AAA asset workflows such as retopology, UV mapping (UDIM workflow), baking, and texturing using Substance Painter. By the end of the course, students will be able to create production-ready characters, creatures, and assets suitable for real-time rendering and professional portfolios.

Practical Submissions:

1. Create 1 Fully Detailed Game-Ready Character : Block-out, sculpting, clothing, detailing, retopology, UVs, and texturing
2. Create 1 Fully Detailed Game-Ready Creature : Anatomy study, sculpting, surface detailing, retopology, and texturing



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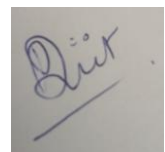
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3. Create 3 AAA Game-Ready Assets : Follow full pipeline: block-out → high-poly → retopology → UV → baking → texturing
4. Apply Cloth Creation using Marvelous Designer : Pants, T-shirt, shirt with detailing (pockets, zips, stitching)
5. Perform High-Poly Sculpting in ZBrush : Organic forms, wrinkles, pores, and micro-details
6. Execute Game Asset Pipeline: Retopology (clean low-poly mesh), UV Mapping (UDIM workflow), Baking maps (Normal, AO, Curvature, ID), Texturing in Substance Painter
7. Submit Final Renders + Source Files

Suggested Readings :

- *ZBrush Character Creation: Advanced Digital Sculpting – Scott Spencer*
- *Digital Sculpting with ZBrush – Scott Spencer*
- *Anatomy for Sculptors – Uldis Zarins*
- *The PBR Guide – Allegorithmic (Adobe)*
- *Creating Games with Unreal Engine, Substance Painter & Maya – Tomasz Stachowiak*

Module 2: Professional 2D Art Pipeline

Overview: This course focuses on understanding and applying professional 2D art workflows used in the game industry. Students study real-world studio pipelines, analyzing how art is developed from concept to final production across characters, environments, props, and worldbuilding. The course emphasizes aligning artistic output with industry standards by simulating studio-based tasks, style adaptation, and production constraints.

Students research a selected game studio and its visual style, gaining insights into design language, asset consistency, and pipeline structure. Through structured exercises and mock production tests, students develop the ability to create portfolio-ready work tailored to specific studio requirements. By the end of the course, students will have a refined portfolio demonstrating cohesive worldbuilding and an understanding of professional expectations in 2D game art production.

Practical Submissions:

1. Studio Selection & Research: Choose a game studio/company and analyze its art style and pipeline
2. Dummy Production Tests (3) : Simulated art tests based on the selected studio's style, Focus on accuracy, consistency, and quality



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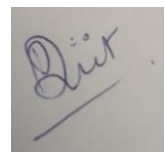
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3. Game Study (5 Pages) : In-depth analysis of a selected game from the studio, Art style, color, composition, character design, environment, and UI, Observations on pipeline and production quality
4. Worldbuilding Portfolio (5 Pages) : Character Design, Environment Design, Prop Design, Set Dressing / Scene Composition, Maintain consistency in style and theme
5. Final Portfolio Compilation : Clean presentation of all work, Organized and industry-ready format

Suggested Readings :

- *The ultimate Concept Art Career Guide - 3D Total*
- *ImagineFX (Magazine)*
- *Fantasy World Building - Mark A.Nelson*

Module 3: Advance Game Engine (Unity / Unreal)

Overview: This subject focuses on advanced-level technical and architectural understanding of modern game engines such as Unity and Unreal Engine. Students will move beyond basic development workflows and explore engine-level systems used in professional game production. The course emphasizes AI systems implementation, performance optimization techniques, engine architecture design patterns, and advanced rendering workflows including post-processing pipelines.

Key learning focus areas include:

- Designing scalable game systems using engine architecture principles
- Implementation of advanced AI behaviors and decision systems
- Performance profiling and optimization for real-time applications
- Advanced rendering techniques and post-processing effects
- Memory management and resource optimization strategies
- Production-ready workflow development for high-end games

By the end of the subject, students will be capable of building optimized, production-grade gameplay systems and understanding how large-scale games are structured inside professional engines.



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HOD Game Design, ACAD



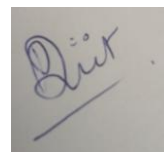
Mr. Ritesh Verma
3D Art Faculty



Mr. Madhvendra Singh
Game Design Faculty



Mr. Ayush Chakravarty
Game Engine Faculty



Dr. Parul Dixit
HOD Fashion Dept. RMTU

Practical Submissions:

1. Advanced Engine Prototype Project : A fully functional gameplay system built in Unity or Unreal, Must include AI systems (e.g., navigation, decision-making, behavior trees or FSM)
2. Optimization Case Study Report : Profiling report with before/after optimization metrics, CPU, GPU, memory optimization strategies used
3. Post-Processing Showcase Scene : A visually polished environment demonstrating lighting, color grading, and effects
4. Engine Architecture Breakdown Document : System design diagrams (UI systems, gameplay loop, data flow architecture)
5. Technical Documentation : Code structure explanation, Tools, plugins, and pipeline used

Suggested Readings :

- *Game Engine Architecture – Jason Gregory*
- *Unity in Action – Joseph Hocking*
- *Unreal Engine 5 Game Development Cookbook – John P. Doran*
- *Real-Time Rendering – Tomas Akenine-Möller et al.*
- *Official Unity & Unreal Engine Documentation (latest versions)*
- *GDC Vault Talks on Optimization & Engine Systems*

Module 4: Advance Game Design

Overview: This subject focuses on high-level game design principles with emphasis on player experience, systemic design, and level architecture. Students will explore how game systems influence emotional engagement, pacing, difficulty balancing, and long-term player retention.

The course emphasizes:

- Designing meaningful and engaging gameplay experiences
- Advanced level design for pacing, flow, and spatial storytelling
- Player psychology and interaction-driven design decisions
- Balancing mechanics for challenge, reward, and progression
- Experience optimization through iteration and playtesting
- Systems thinking in game design (economy, progression, loops)

Students will learn to critically analyze player experience and design levels and systems that align with intended emotional and gameplay outcomes.



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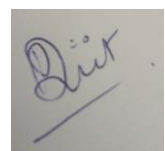
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Practical Submissions:

1. Playable Level Design Project
 - a. A complete level or sequence designed for a specific gameplay goal
 - b. Must demonstrate pacing, challenge curve, and player guidance
2. Game Experience Analysis Document
 - a. Study of player experience flow (UX + emotional curve mapping)
 - b. Breakdown of engagement loops and retention mechanics
3. Gameplay System Design Document (GDD Section)
 - a. Core mechanics + progression system design
 - b. Balancing logic and reward structures
4. Level Blockout + Iteration Logs
 - a. Greybox level iterations showing improvement cycles
 - b. Feedback integration from playtesting
5. Playtesting Report
 - a. Observations, user feedback, and design changes made

Suggested Readings :

- *The Art of Game Design – Jesse Schell*
- *Level Design: Concept, Theory, and Practice – Rudolf Kremers*
- *Game Feel – Steve Swink*
- *Rules of Play – Katie Salen & Eric Zimmerman*
- *Theory of Fun for Game Design – Raph Koster*
- *GDC Talks on Level Design & Player Experience*

PRACTICAL 4: FINAL GAME DESIGN PROJECT

Overview: This capstone course enables final-year game design students to conceptualize, design, and develop a complete game project using their preferred platform and specialization. Students can choose to create either a 2D or 3D game using industry-standard engines such as Unity or Unreal Engine, based on their career interests in art, design, or programming. The course emphasizes end-to-end game development, including ideation, prototyping, gameplay mechanics, level design, asset integration, UI systems, and basic AI. Students apply production pipelines, iterative development, and testing methodologies to build a polished, playable experience. The project encourages creativity, technical problem-solving, and specialization, while maintaining a strong focus on portfolio quality and industry relevance. By the end of the course, students will deliver a fully functional game along with supporting documentation, demonstrating their skills in game design, development, and presentation suitable for professional portfolios and placement opportunities.



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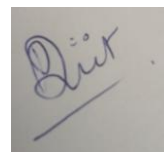
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Practical Submissions Guidelines:

- Game Concept & Design Document (GDD) : Game idea, genre, target audience, Core gameplay loop and mechanics, Art style and reference
- Pre-Production Work: Storyboard / Level flow, Concept art / asset planning, Technical planning
- Game Development (Unity / Unreal): 2D or 3D game creation, Player mechanics and controls, Level design and progression, UI implementation (menus, HUD), Basic AI / interactions
- Core Systems Implementation: Scoring / progression system, Game rules (win/lose conditions), Sound and feedback systems
- Art & Animation Integration: Characters, props, environments, Animation and visual effects
- Testing & Optimization: Bug fixing and iteration, Performance optimization

Final Deliverables

1. Playable Game Build (Executable)
2. Project Files (Unity / Unreal)
3. Game Trailer / Demo Video
4. Final Presentation (design + workflow explanation)

Suggested Readings :

- *The Art of Game Design: A Book of Lenses* – Jesse Schell
- *Level Up! The Guide to Great Video Game Design* – Scott Rogers
- *Game Engine Architecture* – Jason Gregory
- *Rules of Play: Game Design Fundamentals* – Katie Salen Tekinbaş, Eric Zimmerman
- *Challenges for Game Designers* – Brenda Brathwaite



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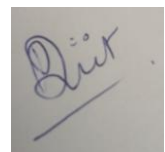
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