

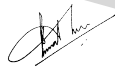
Raja Mansingh Tomar

Music & Arts University,

Gwalior, Madhya Pradesh

**B.DESIGN ANNUAL PROGRAM (BACHELOR OF
DESIGN) REGULAR**

2021 - 2022



Dr. S. K. Mathew
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Animation
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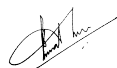
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Assistant Professor Fine Arts &
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DDU Gorakhpur University,
Gorakhpur



Dr. Sonali Jain
Principal
Rahini College of Art &
Design, Mhow, Indore

B.DESIGN IST YEAR - GAME DESIGN - SCHEME

Paper	Time (In Hours)	Size	Ext. Marks	Midterm/CCE	Total
THEORY (SUBJECT)					
1. Fundamental Of Art	03	--	70	30	100
2. HISTORY OF GAMES	03	--	70	30	100
3 FUNDAMENTALS OF GAME DESIGN	03	--	70	30	100
PRACTICAL					
1. SKETCHING	06	¼ Imperial	70	30	100
2. PRINCIPLES OF ANIMATION	06	¼ Imperial	70	30	100
3. PRE- PRODUCTION	06	¼ Imperial	70	30	100
4. INTRODUCTION TO DIGITAL TOOLS	06	8”X10”	70	30	100
TOTAL					700



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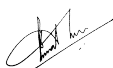


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B.DESIGN I YEAR GAME DESIGN

Paper – I (Theory) – FUNDAMENTAL OF ART

- Line: Definition of Line, Lines And Visual Illusion, Line And Impression, Different Types of Lines And Drawings, Development And Possibilities of Line Drawings, Knowing The Tools And Materials, Drawing – Its Evolution And Possibilities, Line-Visual Kinetics (Flow And Weight), Energy And Lines, Other Values of Line Etc.
- Form: Definition of form, Classification, Impression, Visual and Formal Weight and Colors, Forms and Proportion, Form and content, Form and Space Etc.
- Colour: Definition, Knowledge of Colors, Colour Wheel, Characteristics of Colour (Guna and Doshas), Classification of Colour, Colour and Feeling, Complementary and Opposite Colors, Cause of Change, Colour Schemes, Experiments in Colors Etc.
- Tone: Definition, Classification, Impression, Tone-Its Importance and Application, Emotional Aspects of Tone, Relation of Tone with Space Etc.
- Texture: Meaning & Definition, Classification, Texture and Space, Texture and Principles of composition, Texture Creating Tools and Ways of Creating Texture, Texture Exploration, Texture and Painting, Texture and Sculpture Etc.
- Space: Definition, Space Division, Theories/Principles Relating Space, Division, Role Of Space (Negative/Passive, Passive/Active, Neutral/Assisting And Their Importance), Organization Of Form And Its Relation To Space Etc.
- What is composition (general meaning and definition?)
- Unity: Definition, object, unity and vision, unity and visitor, unity and relativity, unity creation in painting, unity and opposite (discord)
- Harmony: Definition, line-harmony, form-harmony, texture-harmony, conceptual harmony, colour harmony, process of harmony creation etc.
- Balance: definition, balance and visual weight (line, form, colour and tone), principles of balances etc.



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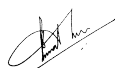
- Dominance: Definition and object, fundamentals, dominance and background, ways to create dominance point of interest in a painting space.
- Rhythm: Definition, different types, ways of creating rhythm, feeling of rhythm.
- Proportion – Definition, Proportion and space division, form and proportion, colour and proportion, human forms and proportion etc.
- Perspective – Definition, different types of perspective, terms relating to perspective, geometrical forms and perspective, imaginative perspective.
- Medium and methods – All about painting medium and methods relating to creation
- Drawing and rendering – Definition, problem relating two dimensional drawing and rendering, and three dimensional effects, do's and don'ts in it.

Suggested Reading

Art Fundamentals: Color, Light, Composition, Anatomy, Perspective, and Depth by 3DTotal Team (Author), Gilles Beloeil, Andrei Riabovitchev, Roberto F. Castro

PAPER – II (THEORY) – HISTORY OF GAMES

- The World before Pong, Father of the Industry, Arrival of Pong
- The King and Court, Space War, the Jackals
- The Return of Bushnell, the Golden Age (1979-1983)
- A Case of two Gorillas, The Fall, The Aftermath
- The Birth of Sega
- Nintendo – Othello (First Arcade Game), Donkey Kong, Tetris, Super Mario Bros, Release of Super NES Console, Saturn, Virtual Boy, 64-Bit Nintendo 64 Game Console in Japan, Golden Eye 007, The legend of Zelda: Ocarina of Time of Nintendo 64, Game cube, Game Boy Advanced
- Atari – First Pizza Time Theatre Football, Lunar Lander, the Pacman Fever- The American Video



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Game Boom of the early 1980s, Tempest, ET, Pitfall,

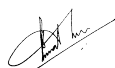
- Midway – Ms. Pac-Man, Space Invaders, Square Soft – Final Fantasy, Final Fantasy 7
- Capcom – Street Fighter 2
- Sony – Play Station, Crash Bendicoot, Play Station 2
- Bandai – Tamagotchi
- Microsoft – Xbox
- Pokémon, Mortal Kombat
- The Next Generation Games

Suggested Reading

1. The Ultimate History of Video Games: From Pong to Pokémon - The Story Behind the Craze That Touched Our Lives and Changed the World by Steven Kent

PAPER – III (THEORY) – FUNDAMENTALS OF GAME DESIGN

- Game Genres, New world of gaming: Mobiles, online distribution & touch screen.
- People involved in game design – Roles of programmer, artist, designer, producer, tester, composer, sound designer, writer
- Elements of Game play – Unique solutions, Non Linearity, Modeling reality, teaching the player, input/output, basic elements
- Stages of Production in the Game Pipeline
- Level Design in Games
- Asset Creation for games
- Artificial Intelligence – The Goals of Game AI, AI Agents & their environment
- Game play Working – The organic process, Building the game – core technology, incremental steps, fully functional area, going through the changes, programming



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Suggested Reading

1. Game Design: Theory and Practice (2nd Edition) (Word ware Game Developer's Library) 2nd Edition by Richard Rouse III (Author)
2. Level Up! The Guide to Great Video Game Design by Scott Rogers
3. Challenges for Game Designers 1st Edition by Brenda Brathwaite
4. Game Design Workshop: A Play centric Approach to Creating Innovative Games, 3rd Edition by Tracy Fullerton

PRACTICAL 1 – SKETCHING

COURSE OUTLINE

Study of various objects in pencil & color, Study of drapery, pots, jugs, glass, random objects. Animating Still life. Draw a still life of random objects. Draw another still life of the same objects but altering the still life showing what would happen if the objects come to life or if an external force acts upon them like wind, water, etc.

Mannequin with Proportions – Male & Female, Front, Profile & Back View, Human Gestures, 2d to 3d Visualization Exercises, Life Drawing – with model & scenes from daily life.

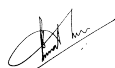
Fundamentals of perspective, one point, Two Point & Three Point Perspective, Eye Level & Vanishing Point, Make free hand sketches of room interiors, etc.

Color Study – Basic Terms & Scales, Complementary Colors, Warm Colors & Cool Colors.

Creative Compositions with natural & manmade forms. Landscapes in Monochrome (grayscale, warm colors & cool colors) & Multichrome.

PRACTICAL SUBMISSION

1. Still Life – 5 (2 in pencil shading & 3 in color)
2. Nature Study – 5 (2 in pencil shading & 3 in color)
3. Animated Still Life - 1 (pencil shading only)
4. Mannequin for animation - 2 (1 Male & 1 Female)
5. Front, Front $\frac{3}{4}$, Profile, Back $\frac{3}{4}$ & Back View – 2 (1 Male & 1 Female)



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6. Human Gestures - 30
7. Life Drawing - 30
8. One Point – 2
9. Two Point – 2
10. Three Point – 2
11. Vanishing Point - 2
12. Composition – 4
13. Landscape – 5 (grayscale, warm colors, cool colors, monochrome, multichrome) + 1 (All Colors)

Suggested Reading

1. Light, Shade and Shadow (Dover Art Instruction) by E. L. Koller
2. How to Draw What You See (Practical Art Books) by Rudy De Reyna

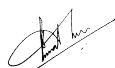
PRACTICAL II - PRINCIPLES OF ANIMATION

COURSE OUTLINE (To be done on light box)

Twelve Principles of Animation (Timing, Ease In and Out (or Slow In and Out), Arcs, Anticipation, Exaggeration, Squash and Stretch, Secondary Action, Follow Through and Overlapping Action, Straight Ahead Action and Pose-To-Pose Action, Staging, Appeal, Personality). Timing for classical animation, Introduction to Exposure Sheet, Introduction to ladder, Arcs of motion, hook-up & in-between, wave principal, S & C curve, follow through & overlap Action. Posing and Gesture, blocking performance through thumbnails. Different types animation - Rough in-between, key frames, (pose to pose) & straight-ahead animation. Ball & Tail: Rough animation with sense of timing and pushing the emotion in the character design. Principles of the Anthomorphic walking character. Basic Principals of Animation reviewed in relation with walk cycle - Timing, staging, and arc of motion, mass and weight, center of mass, path of action, squash and stretch.

PRACTICAL SUBMISSION

To be submitted on A4 Size blank Paper binded in a book



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- Twelve Principles of Animation (Timing, Ease In and Out (or Slow In and Out), Arcs, Anticipation, Exaggeration, Squash and Stretch, Secondary Action, Follow Through and Overlapping Action, Straight Ahead Action and Pose-To-Pose Action, Staging, Appeal, Personality)
- Rolling Coin Animation
- Bouncing BALL – Parallel, Perspective, Iron Ball, Rubber Ball & Plastic Ball
- Wave Principles – Flag Animation, Follow Through with path of action
- Pendulum with follow through, Canon Ball Animation, Overshoot Animation
- Drag Animation, Water Drop Animation
- Weight Lift & Toss Animation (Bean Bag & Real Character)
- Walk Cycle – Thin Person (Male & Female), Heavy Person (Male & Female)

Suggested Reading

1. The Animators Survival Kit by Richard E. Williams
2. Cartoon Animation (Collector's Series) by Preston Blair

PRACTICAL 3 – PREPRODUCTION I

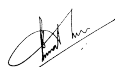
COURSE OUTLINE

❖ CHARACTER DESIGN

Introduction to Character design & Character rotation, Basic shapes and structure lines used in character design, Proportion, Balance, Weight and Silhouette, Construction of character through the structure of forms that build a character proportions, Character Turn Around, Character construction of the eye structure within a socket, eye direction & eye brows with expression. Gesture drawing & life sketching, Character Size Relation for animation. Character Cleanup, Overview - Bones for 2D Animation – Torso, Hands. Legs, Head, Overview - Muscles & Joints for 2D Animation - Torso, Hands. Legs

❖ BG & LAYOUT

Gestural Drawing - Economy of Line. Filling up The Frame- Effective Use of Visual Layers. Introduction to Animation Layout. Composition - Principles of Composition, Formal



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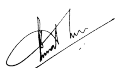
Composition, Technical Aspects of Composition, Framing the Shot, Principles of Staging, Flat Image and Space behind it. Perspective - Types of Perspective, Linear Perspective, Surfaces in Perspective, Perspective and Grids, Freehand, Observational Perspective.

Camera - Position /Angles, From close up to wide shot, Camera Moves: Track in and Track out, Up-shots and Down-shots, Field Guides, Field Charts and Field Positions, "Horizontal, Vert. Pan" (repeat an), Swish Pan. Image + Time, Continuity, (Hook-ups), Storyboard: Exposition, Rising action, Climax (turning point), Falling action, Resolution .Style Explorations, Layout Analysis In Visual Storytelling: An Introduction, Types of Layout: Traditional Layout, Digital layout, Level separation (Foreground, middle ground, background), Layout process, Production Process from Storyboard through Workbook, Rough Layout and Clean Layout to Ready Layout, Layout Clean-up, Adopting given style. Principles from traditional experience into contemporary (modern) digital application. Lighting, Mood Tonal Rendering, Mood development, Strong expression of Story described with stage lighting, Emotions/Atmosphere.

PRACTICAL SUBMISSION

To be submitted on A3, A4 Size sheets

1. Different Mannequin for animation – human & cartoon
2. Design own character with cleanup – Human & Animal
3. Turn around character developed both human & animal
4. Character balance, weight & proportion, Size Relation between characters developed.
5. Character Posing & Gestures Drawing, Character Expressions
6. The students have to develop new layouts adapting the style of these movies – Emperor's New Groove, The Hunchback of Notre Dam, Mulan, Samurai Jack, Leo & Stich
7. Texture & Pattern (color & pencil) – Study texture & patterns of the styles developed in the adopting given style exercise.– 1 sheet on texture (Minimum 6 textures) & 1 sheet on pattern.
8. Camera Angles – Use all camera angles in any one of the styles developed.
9. Lighting & Mood development (In Color) – Using the same area developed in style adaptation develop sheets depicting different moods – Suspense, Happy, Sad, Horror (1 each)



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Suggested Reading

1. Perspective Drawing Handbook by Joseph D Amelio
2. Setting the Scene: The Art & Evolution of Animation Layout by Fraser MacLean
3. Creating Characters with Personality by Tom Bancroft
4. Character Mentor by Tom Bancroft

PRACTICAL 4 – INTRODUCTION TO DIGITAL TOOLS**COURSE OUTLINE**

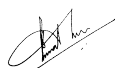
- Introduction to hardware and software - Digital asset management and directory structure, Pros and Cons of Digital Animation, Digital vs Analogue, Screen resolution: NTSC, Wide-screen, PAL
- ADOBE PHOTOSHOP - Introduction to Photoshop, Using Layers, Using the scanner, Raster vs Vector graphics, RGB vs CMYK, Output formats and file compression, Additional tools and work-flows, Using Alpha Channels and Layer Masks, Pixel, Resolution, Render

PRACTICAL SUBMISSION**Output on computer (Photoshop)**

1. Photoshop - Digital Painting: Own character that was developed from Practical 3 to be used
2. Character Concept Art (1), 3. BG Concept (2), 4. Layout Concept (1)

Suggested Reading

1. Adobe Photoshop CS6 Bible by Lina Danae Dayley



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Paper	Time (In Hours)	Size	Ext. Marks	Midterm/CCE	Total
THEORY (SUBJECT)					
1. Cinematography	03	--	70	30	100
2. Art Direction	03	--	70	30	100
3. Storytelling	03	--	70	30	100
PRACTICAL					
1. STORYTELLING & LEVEL DESIGN	6 Hrs.	1/4 Imperial	70	30	100
2. GAME ASSETS (2D GAMES)	3 Hrs.	A4	70	30	100
3. GAME ENGINE (2D GAMES)	6 Hrs	A4, 1/4 Imperial	70	30	100
4. FINAL 2D GAME DESIGN PROJECT	3 Hrs.		70	30	100
TOTAL					700



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PAPER – I (THEORY) – NONLINEAR STORYTELLING

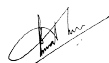
- Telling the story - Once upon a time, bringing the story to life
- Conflict: The fuel of Story
- The hero's Journey & Structure of game story
- Story Flow & Progression, Making Stories Emotional
- Missions & Final Goal
- The three act structure, Monomyths, Characters & arcs
- Dialogues, Exposition, Believability
- Different Type of Stories - Multiple Ending Stories, Branching Path Stories, Open End Stories, Fully Player driven Stories
- What Players Really Want?

Suggested Reading

1. Video Game Storytelling: What Every Developer Needs to Know about Narrative Techniques by Evan Skolnick
2. Interactive Storytelling for Video Games: A Player-Centered Approach to Creating Memorable Characters and Stories by Josiah Lebowitz
3. Game Writing: Narrative Skills for Videogames (Charles River Media Game Development) 1st Edition by Chris Bateman

PAPER – II (THEORY) – LEVEL DESIGN

- Game Design vs Level Design, Level Design Goals & Hierarchies,
- Level Design – levels in different games, level separation, level order, level flow. Who does level design?
- Components of a level – action, exploration, puzzle solving, storytelling, aesthetics.
- Elements of a good level – Players cannot get stuck, Sub goals, landmarks, critical path, limited back tracking, success the first time, navigable areas clearly mark, choices.



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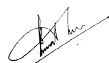
- Level Design Process – Preliminary, Conceptual & sketched outlines, Base architecture, base game play, refining game play, architecture, aesthetics, play testing

Suggested Reading

1. Game Design: Theory and Practice by Richard Rouse III
2. Level Design: Concept, Theory, and Practice 1st Edition by Rudolf Kremers

PAPER – III (THEORY) – GAME ENGINE

- What is a game engine?
- Engine Differences across genres
- Runtime Engine Architecture
- Tools & The Asset Pipeline
- 3d Math for games- solving 3D problems in 2D, points and vectors, Matrices, Quaternions, Comparison of Rotational Representations, Other useful Mathematical Objects.
- Real World Mechanic – Principles of Vectors, Defining 2D & 3D Space, 2D Game in a 3D Game Engine, Local and World Coordinate systems, Laws of Physics, Physics and the principle of Animation,
- 2D & 3D Tricks for Optimizing Game Space, Fog, Moving Textures, Blob Shadows
- Animation Mechanics – Sprites, Texture Atlas, Animated Sprites, Baked 3D Animation , Biomechanics, Single 2D Sprite Actions, Single – Filed 3D Animation, Secondary Animation, Skinning & Matrix Palette Generation, Animation Blending, Post – Processing, Compression Techniques, Animation System Architecture, Animation Pipeline, Action State Machines, Animation Controllers.
- Game Rules and Mechanics – Primary Mechanics – Searching, Matching, Sorting, Chancing, Mixing, Timing, Progressing, Capturing, Conquering, Avoidance, Collecting, Matching & Sorting, Shooting, Hitting, Bouncing, Stacking, Racing, Avoidance & Collecting, Searching, Rewards & Penalties
- Character Mechanics - Line of sight, Graph Theory, Waypoints, Finite State Machine, Flocking, Decision trees, Fuzzy Logic
- Layer Mechanic – User Profiling, Metaphor, Feature Exposure, Coherence, Shortcuts, Layout, Focus, Help, Inventories, Teleportation
- Environment Mechanics – Map Design, Fundamentals, Terrain, Skies, Weather Particles
- Mechanics for External Forces – Gestures and Motion, 3D Viewing, Augmented Reality



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- Low – Level Engine Systems – Engine Support Systems, Subsystem startup & Shutdown, Memory management, Engine configuration
- Game Loop & Real Time Simulation – The Rendering Loop, The Game Loop, Game Loop
- Architectural Styles, Abstract Timelines, Multiprocessor Game Loops, Network Multiplayer Game Loops
- Human Interface Devices (HID) – Types of Human Interface Devices, Interfacing with HID, Types of inputs and outputs, Game Engine HID Systems,
- Tools for Debugging and Development – Logging and Tracing, In Game Menus, In Game Console, Debug Cameras and Pausing the Game, Cheats, Screenshots and movie capture, In Game Profiling
- Rendering Engine – Foundation of Deep Buffered Triangle Rasterization, Advance Lighting & Global Illumination, Visual Effect and Overlays
- Collision and Rigid Body Dynamics – Collision Detection System, Rigid body Dynamics, Integrating a Physics Engine into your Game
- Game Play Systems – Anatomy of a Game World, Implementing Dynamic Elements Game Objects, Data – Driven Game Engines, Game World Editor
- Engine Support Systems – Subsystem Start-up and Shut-Down, Memory Management, Containers, Strings, Engine Configuration
- Human Interface Devices – Types of human interface devices, interfacing with a HID, Types of Inputs, Types of Outputs, Game Engine HID systems, Human interface Devices in practice.
- Introduction to game play systems – Anatomy of a Game World, Implementing Dynamic Elements: Game Objects, Data-Driven Game Engines, Them Game World Editor
- Handling Platform differences – preprocessor directives, getting access to unity, access to platforms

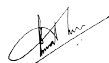
Suggested Reading

1. Game Engine Architecture, Second Edition by Jason Gregory
2. Holistic Game Development with Unity: An All-in-One Guide to Implementing Game Mechanics, Art, Design and Programming by Penny de Byl

PRACTICAL 1 – STORYTELLING & LEVEL DESIGN

COURSE OUTLINE

- Telling the story - Once upon a time, Bringing the story to life



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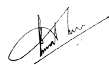


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- Conflict: The fuel of Story
- The hero's Journey & Structure of game story
- Story Flow & Progression
- Making Stories Emotional
- Missions & Final Goal
- The three-act structure
- Monomyths
- Characters & arcs
- Dialogues
- Exposition
- Believability
- Multiple Ending Stories
- Branching Path Stories
- Open End Stories
- Fully Player driven Stories
- What Players Really Want?
- What is game interface design?
- Study game interface of famous 2d games
- Storyboarding for games
- Concept Work
- Building the level
- Game play & Goals
- Structure & Progression
- Flow Control
- Level of Difficulty
- Balance, Puzzles & Problems
- Case study of famous 2D Games of different genres

PRACTICAL SUBMISSION

1. Write your own story for a 2D game.
2. Develop character for your story



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3. Do storyboarding of the story developed from start to conclusion
4. Study levels used in angry birds, zombie dash & hill climb racing. Develop own levels adapting the style from these games – 6.
5. Create 6 levels with increasing difficulty for your own game following the storyboard developed

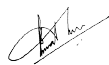
Suggested Reading

1. Video Game Storytelling: What Every Developer Needs to Know about Narrative Techniques by Evan Skolnick
2. Interactive Storytelling for Video Games: A Player-Centered Approach to Creating Memorable Characters and Stories by Josiah Lebowitz
3. Game Writing: Narrative Skills for Videogames (Charles River Media Game Development) by Chris Bateman
4. Game Design: Theory and Practice by Richard Rouse III
5. Level Design: Concept, Theory, and Practice 1st Edition by Rudolf Kremers
6. Level Design for Games: Creating Compelling Game Experiences by Phil Co
7. An Architectural Approach to Level Design by Christopher W. Totten

PRACTICAL 2 – GAME ASSETS (2D GAMES)

COURSE OUTLINE

- What are game assets?
- Different Types of game assets
- Props for games
- Study of props in 2d games
- Animation of assets, effects of assets
- UI/Ux for 2D Games
- Developing Sprite Sheets for developed assets.
- Case study of famous 2D Games of different genres
- What is a concept artist?
- Video Game Production Pipeline for concept artist
- Importance of concept art
- Case Studies of concept art in famous 2d games.



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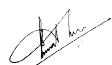


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- Introduction to Adobe Flash
- Intro and Workflow Theory
- Compare differences between Paperless Animation and Traditional Animation - Discuss methods of planning animation to ensure that the student is controlling the performance and not the program.
- Visualize methods to transform a paperless skill from one software package to another
- Introduction to Paperless Animation
- Rough animation methods
- Demonstrate the 'Cleanup process
- Illustrate efficient 'Coloring' methods
- Introduction to Symbol Animation Design and create a character for a cutout character
- Break character down in preparation for rigging
- Construct rig for cutout character
- Pose and Animate cutout character
- Types of movements used in games
- Compositing and Editing
- Introduction to Compositing software
- Visualize a scene with existing animation
- Build scene with imported Animation and created layouts from visualization
- Demonstrate the ability to manipulate a camera through this scene

PRACTICAL SUBMISSION

- Study props used in angry birds, zombie dash, shadow fight, hill climb racing, etc. Develop own props adapting the style from these games – 40 assets
- Develop Sprite Sheets & UI for your own 2D Game developed in Practical I.
- Develop concept art adapting styles from games in case study – 15
- Develop concept art for own 2D game developed in Practical 1.
- Create animation loops for game characters like walking, running, jumping, etc. (minimum 3 characters from different game genres). Export .png sequence of all developed loops to be used in sprite sheets.
- Create effects for game assets & export in .gif or .png image sequence to be used in sprite sheets.



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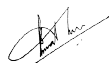
Suggested Reading

1. The Art of Game Design: A Book of Lenses by Jesse Schell
2. Drawing Basics and Video Game Art: Classic to Cutting-Edge Art Techniques for Winning Video Game Design by Chris Solarski
3. Drawing Basics and Video Game Art: Classic to Cutting-Edge Art Techniques for Winning Video Game Design by Chris Solarski
4. The Art of Blizzard Entertainment by Nick Carpenter
5. The Art of Video Games: From Pac-Man to Mass Effect by Chris Melissinos
6. Art of Atari by Tim Lapetino
7. Animation from Pencils to Pixels: Classical Techniques for the Digital Animator by Tony White
8. Adobe Flash Professional CS5 Bible by Todd Perkins

PRACTICAL 3 – GAME ENGINE (2D GAMES)

COURSE OUTLINE

- What is game engine?
- Types of game engines
- Introduction to unity
- Unity for 2D games
- Character Building in Unity, Planning Behaviors
- Introducing the Unity Sprite System – Importing Sprites, Sprites Editor
- Sprite Animation – Setting up animation controllers, setting up animation clips, connecting animation states, Accessing controllers from a script
- The Game – Background & Layers, Building the scene, working with the camera, Transitioning & bounds, Backgrounds & active elements, Shaders
- NPC's & Interaction – Getting the NPC's talking, Building a basic conversation system,
- Types of maps, Screen Space & World Space



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- Adding the map, adding places of interest, Creating MapPoint prefabs for reuse, Updating Navigation Prompt Script, Updating Navigation Manager Script, Travelling by click or touch, Transitions, Updating Build settings to include new screens
- Shop – Building your Shop, Laying out your inventory, getting paid,
- Efficient RPG UI overlays, the battle state manager, starting the battle, Selecting Weapons, GUI
- Leveling Up, Balancing, Preparing the battle manager script, beefing up the enemy, selecting a target, mixing up 2D & 3D, Particle effects & 2D, creating materials for particle effects.
- Events Systems, Exploring Randomness, Basic AI, State Machines, Sensors,
- Building in game menu structures – the screens, the flow
- Working with settings – Using Player Prefs, Serializing your data
- Handling Platform differences – preprocessor directives, getting access to unity, access to platforms

PRACTICAL SUBMISSION

1. Develop at least one of each element mentioned in the course outline on Unity.

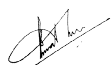
Suggested Reading

1. Game Engine Architecture by Jason Gregory
2. Holistic Game Development with Unity: An All-in-One Guide to Implementing Game Mechanics, Art, Design and Programming by Penny de Byl
3. Mastering Unity 2D Game Development - Building Exceptional 2D Games with Unity by Simon Jackson

PRACTICAL 4 – FINAL 2D GAME DESIGN PROJECT

COURSE OUTLINE

- Creating Storyline & Storyboard for your own game.
- Develop Characters, Environments, Levels & Assets
- Develop Animation Sprites & Assets Sprite Sheets
- Import all to unity, Create Rules & Logic
- Develop the entire functioning game in UNITY
- Rules of game testing
- Being a game tester – Gamers vs testers, Playing games, identifying bugs, amplifying problems
- Why testing is important?



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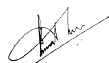
- Software Quality – Game Quality Factors, Game Quality Appraisals, Game Standards, Game Quality Measurements, Quality Plans
- Test Phases – Pre – Production, Planning Tasks, Alpha Testing, Beeta Testing, Gold Testing
- Black Box Testing, White Box, Testing, The Life Cycle of a build
- Combinatorial Testing – Parameters, Values, Constructing Tables, Combinatorial Templates, Combinatorial Test Generation, Combinatorial Economics
- Test Flow Diagrams – TFD Elements, TFD Design Activities, TFD Paths
- Clean room Testing – Usage Probabilities, Clean room Test Generation, Inverted Usage
- Test Trees – Test Case Trees, Tree Feature Tests, Test Tree Diagrams
- Game play Testing- Defect Triggers – Operation Regions, The triggers, Classifying Defects, Defect Triggers & Test Designs, Regression Testing & Test Reuse
- Capture / Playback Testing

PRACTICAL SUBMISSION

1. Following the procedure mentioned in course outline develop your own 2d game in unity
2. Create a trailer for the game developed
3. Following the procedure mentioned in course outline develop your own 2d game in unity
4. Create a trailer for the game developed
5. Do Case Study & game testing of famous 2D games following the testing pipeline & develop reports for the same – 4
6. Do game testing of your own developed game in Final 2D Game Design Project

Suggested Reading

1. Game Engine Architecture by Jason Gregory
2. Holistic Game Development with Unity: An All-in-One Guide to Implementing Game Mechanics, Art, Design and Programming by Penny de Byl
3. Mastering Unity 2D Game Development - Building Exceptional 2D Games with Unity by Simon Jackson
4. Level Up! The Guide to Great Video Game Design by Scott Rogers
5. Game Testing: All in One by Charles P. Schultz
6. Game Development Essentials: Game QA & Testing by Luis Levy



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