Department of Technology
Savitribai Phule Pune University

Syllabus for
Diploma in Animation & Game Design Technology (Technical)

Diploma in Animation & Game Design Technology

Academic year 2023-2024

Duration: 24 Months

Intake: 30

Eligibility: Minimum 10th pass and Above

Savitribai Phule Pune University
(Formerly University of Pune)

Department of Technology
Board of Studies, Diploma in Animation & Game Design Technology
Curriculum Structure for Diploma in Animation Game Design Technology

Sr. No.	Subject Code	Subject Name	Credits	Teaching Scheme (Theory)	Teaching Scheme (Lab)
Semester (I)					
1	DAGT1	**Principles of Drawing andSketching**	4	2	2
2	DAGT2	**Principles of Design and Color theory**	4	2	2
3	DAGT3	**Graphics: Illustrator**	4	2	2
4	DAGT4	**Script writing principles**	2	2	
5	DAGT5	**Graphics: Photoshop**	4	2	2
6	DAGT6	**Camera fundamentals/Layout and Background design**	4	2	2
			22		
Semester (II)					
7	DAGT7	**Object and Character design**	4	2	2
8	DAGT8	**Storyboarding principles**	4	2	2
9	DAGT9	**Principles of Animation**	4	2	2
10	DAGT10	**Human/animalAnatomy**	2	2	
11	DAGT11	**Introduction to 2d Animation software**	4	2	2
12	DAGT12	**2D Animation**	4	2	2
			22		
Semester (III)					
13	DAGT13	**Acting for Animation**	2		2
14	DAGT14	**3D Modeling**	4	2	2
15	DAGT15	**Texturing Lighting & Rendering**	4	2	2
16	DAGT16	**Rigging**	4	2	2
17	DAGT17	**Story-writing forAnimation**	2	2	
18	DAGT18	**Motion Graphics: After Effects**	4	2	2
			20		

Semester IV					
Sr. No.	**Subject Code**	**Subject Name**	**Credits**	**Teaching Scheme (Theory)**	**Teaching Scheme (Lab)**
19	DAGT19	**3d Animation**	4	2	2
20	DAGT20	**Character animation**	4	2	2
21	DAGT21	**Intro to Character effects (Cloth, fur & hair) & Dynamics**	4	2	2
22	DAGT22	**Introduction to AR/VR**	2	2	
23	DAGT23	**Video Editing**	4	2	2
24	DAGT24	**Portfolio Development**	6	2	4
			24		
Total Credits			**88**		

Semester I

DAGT1**:**

Principles of Drawing and Sketching

Total Contact Hours: 30 **Credit : 2** **Total Marks : 100**

Introduction to Drawing: Understanding the importance of drawing in art and design, Overview of different drawing techniques and materials

Basic Elements of Drawing: Line and contour drawing, Shape, form, and volume, Value and shading techniques

Perspective Drawing: One-point perspective, Two-point perspective, Three-point perspective

Proportions and Scale: Understanding human proportions, Scale and measurements in drawing, Foreshortening and distortion.

Composition and Design: Principles of composition, Creating balanced and dynamic compositions, Rule of thirds and focal points

Still Life Drawing: Observational drawing of objects, Capturing textures, reflections, and surfaces, Exploring light and shadow in still life compositions

Figure Drawing: Drawing the human figure, Gesture drawing and capturing movement, Understanding anatomy and proportion in figure drawing,

Nature and Landscape Drawing: Drawing natural objects and landscapes, Depicting trees, flowers, skies, and other elements of nature, Creating depth and atmosphere in landscape drawings

Experimental Approaches: Exploring different styles and techniques in drawing, Mixed media drawing, Abstract and expressive drawing

Critique and Portfolio Development: Participating in group critiques and discussions, Refining and developing drawing skills, Building a portfolio of artwork

Semester I

DAGT2 **:**

Principles of Design and Color theory

Total Contact Hours: 60 **Credit : 4** **Total Marks : 100**

Introduction to Design: Understanding the fundamentals of design, Elements of design: line, shape, form, texture, space, and color, Principles of design: balance, contrast, emphasis, movement, pattern, rhythm, and unity

Color Theory: Color properties: hue, value, and saturation, Color schemes: monochromatic, analogous, complementary, split-complementary, triadic, and tetradic, Color harmonies and relationships, Color psychology and symbolism.

Composition and Layout: Designing effective layouts and compositions, Rule of thirds and other composition techniques, Visual hierarchy and focal points, Grid systems and typography in design

Typography: Introduction to typography and its role in design, Typeface classification and selection, Typographic hierarchy and readability, Kerning, tracking, leading, and other typographic adjustments.

Visual Communication: Visual storytelling and narrative in design, Using images, icons, and symbols for effective communication, Creating visual hierarchy and flow, Gestalt principles and their application in design

Design Principles in Practice: Applying design principles to various design projects, Designing for different mediums: print, digital, web, mobile, etc, Designing for branding, advertising, packaging, and editorial contexts Design thinking and problem-solving approaches.

Color Application and Manipulation: Color mixing and color schemes in practice, Color application in design projects, Color manipulation techniques using software tools, Color management and considerations for different output mediums

Critique and Portfolio Development: Participating in group critiques and discussions, Evaluating design work based on principles and concepts learned, Refining and developing design skills, Building a portfolio of design projects

Semester I

DAGT3

Graphics: Illustrator

Total Contact Hours: 30 **Credit : 2** **Total Marks : 100**

Introduction to Adobe Illustrator: Understanding the interface and workspace of Adobe Illustrator, Navigating and organizing artboards and panels, Utilizing tools and palettes for efficient workflow

Basic Shapes and Paths: Creating and manipulating basic geometric shapes, Using the Pen Tool for creating and editing paths, Applying stroke and fill attributes to shapes and paths

Working with Objects and Layers: Selecting and transforming objects, Arranging and aligning objects using layers, Applying transparency and blending modes to objects

Typography and Text Effects: Creating and formatting text using various type tools, Applying text styles and effects, Creating and editing text on paths

Drawing and Painting Techniques: Freehand drawing with the Pencil and Brush tools,

Applying and manipulating brush strokes, Working with Live Paint and the Shape Builder tool

Color and Swatches: Understanding color models and color modes, Creating and using color swatches, Applying gradients and patterns to objects,

Working with Images and Effects: Importing and placing raster images, Tracing and converting images to vector artwork, Applying effects and filters to objects,

Creative Projects: Designing logos and branding materials, Creating illustrations and icons, Developing info graphics and vector artwork,

Output and Exporting: Preparing artwork for print and digital output, Exporting files in various formats, Understanding file formats and compatibility,

Semester I

DAGT4

Script Writing Principles

Total Contact Hours: 60 **Credit: 4** **Total Marks: 100**

Introduction to Script Writing: Understanding the role and importance of script writing in various media forms, Exploring different types of scripts, such as film scripts, TV scripts, and stage plays, Studying the elements and structure of a script

Story Development: Exploring various storytelling techniques and narrative structures, Developing compelling characters and their arcs, Creating engaging plots and subplots

Script Formatting and Industry Standards: Learning the proper formatting guidelines for scripts, Understanding industry-standard scriptwriting software, Familiarizing with scriptwriting terminology and conventions

Dialogue Writing: Crafting authentic and effective dialogue, Understanding the role of dialogue in character development and storytelling, Exploring techniques for writing engaging and impactful conversations

Scene Construction: Understanding scene structure and its importance in scriptwriting, Studying the elements of a scene, such as location, time, and conflict, Learning to write effective action and description within scenes

Character Development: Creating fully realized and relatable characters, Exploring character backgrounds, motivations, and relationships, Studying character arcs and growth throughout the script

Visual Storytelling: Understanding the use of visual elements to enhance storytelling, Incorporating visual cues and imagery in the script, Learning techniques for conveying mood, tone, and atmosphere through visuals

Adaptation and Research: Exploring the process of adapting source material into a script, Conducting research for accurate and authentic scriptwriting, Understanding the legal and ethical considerations in adapting existing works

Critique and Feedback: Participating in peer reviews and script workshops, Providing constructive criticism and receiving feedback from instructors and classmates, Developing skills for revising and improving scripts based on feedback

Professional Practices: Exploring the business side of scriptwriting, including industry trends and market demands, Understanding the role of the scriptwriter in collaboration with directors, producers, and other stakeholders, Learning about script submission and pitching processes

Semester I

DAGT5

Graphics: Photoshop

Total Contact Hours: 30 **Credit : 2** **Total Marks : 100**

Introduction to Adobe Photoshop: Overview of the Photoshop interface and tools, Understanding different file formats and color modes, Navigating and customizing the workspace

Image Editing Basics: Resizing, cropping, and straightening images, Adjusting brightness, contrast, and color levels, Applying filters and effects

Selections and Layers: Creating and modifying selections, Working with layers and layer masks, Blending and compositing multiple images

Retouching and Restoration: Removing blemishes and imperfections, Repairing damaged or old photographs Enhancing portraits and landscapes

Typography and Text Effects: Working with text layers and formatting options, Applying text effects and styles, Creating custom typography designs

Graphic Design Elements: Using shapes, paths, and vector tools, Creating logos, icons, and illustrations, Applying gradients, patterns, and textures

Photo Manipulation and Compositing: Combining multiple images into a cohesive composition, Creating surreal or fantasy scenes, Applying advanced blending and masking techniques

Filters and Special Effects: Exploring artistic and creative filters, Adding motion blur, lens flare, and other effects, Creating custom filter presets

Image Export and Optimization: Saving and exporting images for various platforms and purposes, Understanding different file formats and their uses, Optimizing images for web and print

Project Work and Practical Applications: Applying Photoshop skills to real-world design projects, Developing a portfolio of graphic design works, Exploring advanced techniques and trends in graphic design

Semester I

DAGT6

Camera Fundamentals/Layout and Background design

Total Contact Hours: 60 **Credit: 4** **Total Marks: 100**

Introduction to Cameras: Types of cameras and their features, Understanding camera components and functions, Exploring different camera formats and lenses

Camera Settings and Controls: Aperture, shutter speed, and ISO settings, White balance and exposure compensation, Focus modes and metering techniques

Composition and Framing: Rule of thirds and other composition guidelines, Framing techniques and perspectives, Exploring different camera angles and viewpoints

Lighting and Exposure: Natural and artificial lighting techniques, Controlling exposure and managing dynamic range, Using flash and other lighting accessories

Depth of Field and Motion: Understanding depth of field and selective focus, Freezing and

blurring motion, Creating intentional camera effects

Digital Workflow and Post-Processing: Importing and managing digital images, Basic image editing and enhancement techniques, RAW processing and file formats

Layout and Background Design:

Principles of Layout Design: Introduction to layout design principles, Visual hierarchy and composition techniques, Grid systems and alignment

Understanding Color and Typography: Color theory and its application in layout design, Choosing and combining fonts for effective communication, Typography hierarchy and readability considerations

Creating Visual Harmony: Balance, symmetry, and asymmetry in layout design, Proximity and grouping of elements, Creating focal points and visual flow

Background Design Techniques: Creating appealing and suitable backgrounds, Using textures, patterns, and gradients, Incorporating illustrations and imagery

Layout for Different Media: Print layout design considerations, Web and digital layout design techniques, Layout design for multimedia and interactive platforms

Application of Layout Design Principles: Applying layout design principles to real-world projects, Exploring industry trends and best practices, Critiquing and refining layout designs

Semester II
DAGT7
Object and Character design
Total Contact Hours: 30 **Credit : 2** **Total Marks : 100**

Introduction to Object and Character Design: Understanding the role of object and character design in various industries, Exploring the principles and elements of design in relation to objects and characters, Analysing and discussing examples of effective object and character designs

Concept Development: Brainstorming and ideation techniques for object and character design, Sketching and thumbnailing ideas for objects and characters, Researching and gathering references for design inspiration

Shape Language and Form: Exploring the use of shapes and forms to convey meaning and personality, Understanding the psychology of shapes and their impact on design, Applying shape language principles to object and character design

Proportions and Anatomy: Studying human and animal anatomy for character design, understanding proportions and proportions variations, applying anatomical knowledge to create realistic and stylized characters

Character Personality and Expression: Developing unique personalities for characters through visual design, Exploring facial expressions, body language, and poses to convey emotions, Creating consistent and expressive character designs

Object and Environment Design: Designing objects and props that complement and enhance the character designs, Creating cohesive and immersive environments for characters, Applying principles of perspective, scale, and composition to object and environment design

Digital Tools and Techniques: Introduction to digital software for object and character design (e.g., Adobe Illustrator, Photoshop), Exploring digital drawing techniques and workflows, Using digital tools to refine and finalize object and character designs

Iterative Design Process: Implementing an iterative design process for object and character design projects, gathering feedback and incorporating revisions, Presenting final object and character designs in a professional manner

Semester II
DAGT8
Storyboarding principles
Total Contact Hours: 60 **Credit : 4** **Total Marks : 100**

Introduction to Storyboarding: Understanding the role and importance of storyboarding in visual storytelling, Exploring the workflow and purpose of storyboards in various industries (e.g., film, animation, advertising), Analysing and discussing examples of effective storyboards from different mediums.
Storytelling Techniques: Studying the principles of narrative structure and storytelling, learning how to develop compelling characters and engaging storylines, Understanding the basics of plot development, conflict, and resolution.
Shot Composition and Framing: Exploring the principles of visual composition and framing in storyboarding, learning different shot types and their storytelling functions (e.g., establishing shot, close-up, over-the-shoulder), Understanding the use of camera angles, perspectives, and depth of field in storyboarding.
Pacing and Timing: Understanding the concept of pacing and how it affects storytelling, Learning techniques for controlling the timing of scenes and shots, Exploring the use of shot duration, transitions, and visual cues to enhance storytelling.
Action and Movement: Studying the principles of action and movement in storyboarding, learning how to depict dynamic and fluid motions through sequential drawings, Understanding the use of staging, gestures, and poses to convey character actions and emotions.
Visual Storytelling Techniques: Exploring the use of visual elements (e.g., lighting, color, texture) to enhance storytelling, learning how to create visual hierarchy and focus in storyboards, Understanding the importance of visual continuity and consistency in sequential storytelling.
Collaboration and Communication: Developing effective communication skills to collaborate with directors, animators, and other team members Learning how to present and pitch storyboards to convey the intended vision, Understanding the iterative process of receiving feedback and making revisions.
Digital Tools and Software: Introduction to digital storyboarding tools and software (e.g., Adobe Photoshop, Storyboard Pro), Learning digital drawing techniques and workflows for creating storyboards, Using digital tools to refine and finalize storyboards.

Semester II
DAGT9
Principles of Animation
Total Contact Hours: 60 **Credit: 4** **Total Marks : 100**

Introduction to Animation: Understanding the history and evolution of animation as an art form, Exploring the different types of animation techniques and styles, Analysing and discussing examples of iconic animated works and their impact.
Animation Principles: Learning the foundational principles of animation, including squash and stretch, anticipation, staging, timing, and exaggeration, Understanding the principles of secondary action, follow-through, and overlapping action, Exploring the concept of arcs and trajectories in character movement.
Character Design and Development: Studying the process of creating and developing animated characters, Understanding the importance of character anatomy, proportions, and gesture, Learning how to convey character personalities and emotions through movement and

expressions.
Acting and Performance: Exploring the principles of acting and performance in animation, Learning how to create convincing and expressive character performances, Understanding the use of dialogue, facial expressions, body language, and timing to bring characters to life.
Motion and Timing: Studying the principles of motion and timing in animation, Learning how to create believable movements and gestures, Understanding the use of spacing, easing in and out, and weight distribution to enhance animation quality.
Lip Sync and Facial Animation: Exploring the techniques for synchronizing lip movements with dialogue, Learning the principles of facial animation and expressions, understanding how to convey character emotions and lip-sync accurately.
Animation Workflow and Software: Introduction to animation software and tools (e.g., Autodesk Maya, Adobe Animate), Learning the basics of the animation workflow, including keyframing, in-betweening, and editing, Understanding the use of timeline, layers, and animation curves to refine and polish animations.
Portfolio Development: Engaging in animation exercises and projects to apply the learned principles, creating a portfolio of animated works that showcase skills and creativity, receiving feedback and making revisions to improve animation techniques.

Semester II
DAGT10
Human/animal Anatomy
Total Contact Hours: 30 **Credit : 2** **Total Marks : 100**

Introduction to Anatomy: Overview of the importance of anatomy in art and illustration, Understanding the basic terminology and concepts related to human and animal anatomy, Exploring the skeletal structure, muscular system, and major body landmarks.
Skeletal Anatomy: Study of the human and animal skeletal structure, including bones, joints, and proportions, Learning the names and functions of major bones in the body, Understanding the skeletal differences between different species and how they influence form and movement.
Muscular Anatomy: Exploration of the muscular system and its role in shaping the body, Learning the major muscle groups and their functions in human and animal anatomy, understanding how muscles affect the surface forms and movements of the body.
Proportions and Measurements: Techniques for accurately measuring and proportioning the human and animal figure, Understanding the ideal proportions and variations based on age, gender, and species, practicing drawing figures with correct proportions and capturing the unique characteristics of different subjects.
Surface Anatomy: Observation and analysis of surface features, such as skin, wrinkles, and hair, Study of anatomical details specific to different body parts, such as hands, feet, and facial features, learning how to represent surface textures and details realistically in drawings.
Gesture and Movement: Exploring the concept of gesture and its importance in capturing the dynamic qualities of the human and animal form, studying movement and motion in relation to anatomy, practicing drawing figures in different poses and capturing their gestures and actions.
Artistic Anatomy: Application of anatomical knowledge in artistic figure drawing, understanding how to stylize and simplify anatomy for different art styles, Exploring the works of master artists and their approaches to depicting anatomy.
Life Drawing and Observation: Drawing from live models and reference materials to enhance observational skills, Practicing quick sketches and longer poses to develop accuracy and understanding of anatomy, Analysing and critiquing artwork to improve anatomical knowledge and drawing techniques.

Semester II
DAGT11
Introduction to 2D Animation software
Total Contact Hours: 30 **Credit : 2** **Total Marks : 100**

Introduction to Animation: Understanding the principles of animation, including timing, spacing, squash and stretch, and anticipation, Exploring the history and evolution of 2D animation techniques and styles, Studying the basic concepts of storytelling and character development in animation.
Introduction to 2D Animation Software: Familiarization with popular 2D animation software, such as Adobe Animate, Toon Boom Harmony, or Moho (Anime Studio), Overview of the software interface and key features, Learning the different tools and their functions for creating and manipulating 2D animations.
Creating and Editing Keyframes: Understanding the concept of keyframes and their role in animation, Learning how to create and manipulate keyframes to define the timing and movement of animated elements, Exploring techniques for editing and refining keyframes to achieve smooth animation.
Timing and Spacing: Studying the principles of timing and spacing in animation, Practicing techniques for adjusting timing and spacing to create various animation effects, such as slow-in and slow-out, arcs, and easing.
Working with Layers and Hierarchies: Understanding the use of layers for organizing and managing different elements of an animation, Learning how to create and manipulate layer hierarchies to control the stacking order and depth of animated objects,Exploring techniques for working with layer properties, such as opacity, blending modes, and masks.
Character Animation: Introduction to character rigging and bone systems, Learning how to create and control character movements using rigging tools, Exploring techniques for animating characters with walk cycles, facial expressions, and gestures.
Special Effects and Transitions: Exploring techniques for creating special effects, such as particle systems, explosions, and smoke, Learning how to create smooth transitions between scenes and shots, Experimenting with different visual effects and transitions to enhance the overall animation.
Exporting and Publishing: Understanding the process of exporting animations in different file formats, Learning how to optimize and compress animations for web or video platforms, Exploring options for publishing animations online or sharing them with others.

Semester II
DAGT12
2D Animation
Total Contact Hours: 30 **Credit: 2** **Total Marks: 100**
Introduction to 2D Animation: Understanding the principles of animation, including timing, spacing, squash and stretch, and anticipation, Exploring the history and evolution of 2D animation techniques and styles, Studying the basic concepts of storytelling and character development in animation.
Traditional Animation Techniques: Learning the traditional hand-drawn animation techniques, Understanding the use of keyframes and in-between frames to create smooth animation, Practicing techniques for creating walk cycles, facial expressions, and other character movements.
Digital Animation Tools: Familiarization with industry-standard 2D animation software, such as Adobe Animate, Toon Boom Harmony, or Moho (Anime Studio), Exploring the software interface and key features, Learning the different tools and their functions for

creating and manipulating 2D animations.
Character Design and Development: Understanding the principles of character design, including anatomy, proportion, and stylization, Exploring techniques for creating appealing and expressive characters, Developing a character's personality, backstory, and visual design.
Storyboarding and Layout: Learning how to create storyboards to visualize the sequence of shots in an animation, Understanding the importance of composition, camera angles, and staging in storytelling, Exploring techniques for creating effective layouts and backgrounds for 2D animations.
Timing and Spacing: Studying the principles of timing and spacing in animation, Practicing techniques for adjusting timing and spacing to create various animation effects, such as slow-in and slow-out, arcs, and easing.
Lip Sync and Dialogue Animation: Understanding the process of lip syncing characters to dialogue or sound effects. Learning techniques for matching the timing and expression of the character's mouth movements to the audio.
Effects and Special Techniques: Exploring techniques for creating special effects, such as particle systems, explosions, and smoke, Learning how to animate secondary elements like hair, clothing, and environmental effects, Experimenting with different visual effects and techniques to enhance the overall animation.
Project-Based Assignments: Engaging in practical exercises and projects to apply the learned techniques and principles, Creating short animated sequences or scenes that demonstrate storytelling, character animation, and technical skills.

Semester III
DAGT13
Acting for Animation
Total Contact Hours: 60 **Credit: 4** **Total Marks: 100**
Introduction to Acting for Animation: Understanding the role of acting in animated films and characters, Exploring the differences between live-action acting and acting for animation, Studying the importance of expressing emotions and conveying storytelling through animated characters.
Fundamentals of Acting: Learning the basic principles of acting, including character motivation, objectives, and obstacles, Exploring different acting techniques, such as method acting, improvisation, and physicality, Studying body language, facial expressions, and voice modulation for effective character performance.
Character Analysis and Development: Understanding the process of analyzing and developing a character for animation, Exploring techniques for creating believable and engaging character performances. Studying character archetypes, personality traits, and psychological aspects to inform the acting choices.
Emotion and Expression: Learning how to portray various emotions and expressions through animated characters, Understanding the nuances of physical gestures, facial expressions, and vocal delivery to convey emotions effectively. Practicing techniques for expressing subtle emotions and capturing the essence of a character's personality.
Vocal Performance and Dialogue: Studying the art of voice acting for animation, Exploring techniques for delivering dialogue, matching lip sync, and conveying emotions through voice, Practicing voice modulation, diction, and pacing for different character types and situations.
Physicality and Movement: Understanding the importance of body language and movement in character animation, Exploring techniques for creating dynamic and expressive poses and gestures, Practicing physical acting exercises to develop an understanding of weight, balance, and timing.
Acting in Context: Learning how to analyze and interpret a script or scene to inform the

character's performance, Understanding the importance of understanding the story, setting, and relationships in shaping the character's behavior, Exploring techniques for adapting acting choices based on the context of the scene and the overall narrative.
Acting Exercises and Scene Study: Engaging in practical exercises and scene studies to apply the learned acting techniques, Collaborating with other students to perform and analyze scenes, focusing on character interaction and storytelling, Receiving feedback and guidance from instructors to refine and enhance acting performances.

Semester III
DAGT14
3D Modeling
Total Contact Hours: 30 Credit: 2 Total Marks: 100
Introduction to 3D Modeling: Understanding the fundamentals of 3D modeling and its applications in various industries, Exploring different types of 3D modeling software and their features.
Modeling Techniques: Learning various modeling techniques, such as polygonal modeling, NURBS modeling, and subdivision surface modelling, Studying different tools and workflows used in 3D modeling software, Practicing the creation of basic geometric shapes and objects.
Organic Modeling: Understanding the principles of organic modeling and anatomy, Learning to create realistic human and animal characters using reference images and anatomical studies, Exploring techniques for sculpting and detailing organic forms.
Hard Surface Modeling: Learning to create and detail hard surface objects, such as vehicles, architecture, and props, Understanding techniques for creating clean topology and efficient mesh structures, Practicing the creation of complex shapes and forms using advanced modeling tools.
Character Modeling: Studying character design principles and concept art, Learning to model characters with proper proportions, topology, and rigging considerations, Exploring techniques for creating facial expressions and body deformations for animation purposes.
Environmental and Prop Modeling: Understanding the process of creating environments, landscapes, and props for various applications, such as games or visual effects, Learning to design and model detailed and realistic environments, Exploring techniques for optimizing models for real-time rendering and efficient scene management.
Texturing and UV Mapping: Learning the principles of texturing and UV mapping for 3D models, Understanding different types of texture maps, such as color, specular, normal, and displacement maps,Exploring UV unwrapping techniques to efficiently apply textures to 3D models.
Lighting and Rendering: Understanding the basics of lighting and shading in 3D environments, Learning to set up different types of lights and control their properties, Exploring rendering techniques to produce high-quality images and animations.
Workflow and Optimization: Understanding the importance of efficient workflow and optimization in 3D modelling, Learning to manage assets, organize scenes, and collaborate with other team members, Exploring techniques for optimizing models for better performance and faster rendering.

Semester III
DAGT15
Texturing Lighting & Rendering
Total Contact Hours: 30 Credit: 2 Total Marks: 100
Introduction to Texturing, Lighting, and Rendering: Understanding the role of texturing, lighting, and rendering in creating realistic and visually appealing 3D scenes, Exploring the importance of proper texturing, lighting, and rendering techniques in different industries, such as animation, games, and visual effects.
Fundamentals of Texturing: Learning the basics of texture mapping and its application in 3D scenes, Understanding different types of texture maps, such as color, specular, normal, and displacement maps, Exploring techniques for creating and applying textures to 3D models using industry-standard software.
UV Mapping and Unwrapping: Studying UV mapping techniques to efficiently unwrap 3D models for texture application, Understanding the principles of UV layout and distortion minimization, Learning to optimize UV maps for better texturing results and reduced texture distortion.
Shading and Material Creation: Exploring different shading models and material properties, Learning to create realistic materials using shaders and material editors, Understanding the principles of physically-based rendering (PBR) and its implementation in 3D software.
Lighting Techniques: Understanding the basics of lighting and its role in creating mood, atmosphere, and emphasis in 3D scenes, Learning different lighting techniques, such as ambient lighting, directional lighting, point lighting, and area lighting, Exploring advanced lighting setups, including global illumination and image-based lighting.
Render Engines and Settings: Studying various render engines and their features, Learning to set up rendering parameters, such as resolution, aspect ratio, anti-aliasing, and render passes, Exploring render settings and optimization techniques to achieve desired visual results.
Advanced Rendering: Understanding advanced rendering techniques, such as ray tracing, caustics, and depth of field, Exploring the use of render passes for compositing and post-processing effects, Learning to troubleshoot rendering issues and optimize rendering times.
Image-based Lighting and HDRI: Studying the use of high dynamic range imaging (HDRI) for realistic lighting and reflections, Learning to capture and utilize HDR images for accurate lighting and environmental effects, Exploring techniques for integrating HDRI into 3D scenes and achieving photorealistic results.
Rendering for Animation and Compositing: Understanding the requirements and techniques for rendering animation sequences, Exploring rendering setups for different animation styles, such as character animation and motion graphics, Learning to render and output image sequences for further compositing and post-production.

Semester III
DAGT16
Rigging
Total Contact Hours: 30 Credit: 2 Total Marks: 100
Introduction to Rigging: Understanding the role of rigging in 3D animation and its importance in character movement, Exploring the concepts of joints, bones, and control systems in rigging.
Skeleton Setup: Learning to create joint hierarchies for characters or objects, Understanding the principles of creating efficient and flexible joint structures, Exploring techniques for joint placement, orientation, and naming conventions.
Character Skinning: Understanding the process of binding a character's geometry to the rig, Learning different skinning techniques, such as smooth skinning and rigid binding, Exploring

methods for adjusting skin weights to achieve desired deformation results.
Control Systems: Learning to create custom control objects for character animation, Understanding the use of constraints and expressions to control the rig, Exploring techniques for creating intuitive and animator-friendly control setups.
Advanced Rigging Techniques: Studying advanced rigging techniques, such as inverse kinematics (IK) and forward kinematics (FK), Understanding the use of blend shapes and morph targets for facial animation, Exploring techniques for rigging complex deformations, such as muscles and cloth.
Rigging for Animation: Understanding the requirements for rigging characters for different types of animation, such as biped, quadruped, and creatures, Learning to create control setups for character posing and animation, Exploring techniques for rigging props and mechanical objects.
Rigging for Game Development: Understanding the principles of rigging for real-time engines, Learning to optimize rigs for performance and efficiency in game environments, Exploring techniques for creating rigging systems compatible with game development pipelines.
Rigging Tools and Plugins: Introduction to rigging tools and plugins available in industry-standard software, Exploring the use of pre-built rigging templates and scripts to speed up the rigging process, Understanding the workflow for integrating custom rigging tools into the production pipeline.

Semester III
DAGT17:
Story-writing for Animation
Total Contact Hours: 60 Credit: 4 Total Marks: 100

Introduction to Story Writing: Understanding the importance of storytelling in animation, Exploring the elements of a compelling story, such as plot, characters, conflict, and resolution.
Story Structure: Learning the fundamentals of story structure, including the three-act structure and the hero's journey, Studying different narrative techniques and storytelling formats used in animation.
Character Development: Exploring techniques for creating believable and engaging characters, Learning to develop character backstories, motivations, and arcs, Understanding the relationship between character and story development.
Plot Development: Understanding the process of creating a coherent and engaging plot, Learning to develop strong story concepts and premises, Exploring techniques for building tension, suspense, and emotional impact in storytelling.
Dialogue and Scriptwriting: Studying the principles of writing effective dialogue for animated characters, Learning formatting and structure for writing scripts for animation, Exploring techniques for conveying character personalities and emotions through dialogue.
Visual Storytelling: Understanding the use of visual elements, such as composition, staging, and cinematography, in storytelling, Learning to convey story beats and emotions through visual storytelling techniques, Exploring storyboarding as a visual storytelling tool.
Genre and Audience Considerations: Studying different animation genres and their storytelling conventions, Understanding the importance of identifying target audiences and tailoring the story accordingly, Exploring storytelling techniques specific to different animation styles and mediums.
Collaborative Story Development: Learning to work collaboratively in a team environment to develop story concepts, Participating in group exercises and critiques to refine storytelling skills, Understanding the iterative process of story development and incorporating feedback.

Semester III
DAGT18:
Motion Graphics: After Effects
Total Contact Hours: 30 Credit: 2 Total Marks: 100

Introduction to Motion Graphics: Understanding the role of motion graphics in various media platforms, Exploring the applications and industry trends of motion graphics, Introduction to the principles of animation and visual communication.
Introduction to After Effects: Overview of the After Effects interface and workspace, Understanding project organization, compositions, and layers, Importing and organizing assets for motion graphics projects.
Animation Techniques: Keyframe animation and interpolation methods, Working with motion paths and manipulating animations, Exploring easing and timing effects for smooth motion.
Text and Typography Animation: Creating dynamic text animations and kinetic typography, Applying text effects, transitions, and motion presets, Exploring advanced typography techniques and text animation styles.
Shape Layers and Vector Graphics: Working with shape layers to create and animate vector graphics, Exploring shape layer properties and path manipulation, Using shape layer effects and expressions for advanced animations.
Effects and Transitions: Applying visual effects and filters to enhance motion graphics, Creating seamless transitions and wipes between scenes, Exploring various special effects and creative techniques.
Compositing and Masking: Working with alpha channels and transparency, Understanding compositing techniques and layer blending modes, Utilizing masks and track mattes for targeted effects and animations.
3D and Camera Animation: Introduction to 3D space in After Effects, Working with cameras and creating virtual camera movements, Applying depth and perspective to motion graphics.
Motion Tracking and Green Screen: Tracking motion and applying graphics to moving objects, Chroma keying and working with green screen footage, Creating realistic visual effects and integrating elements into scenes.
Project Workflow and Rendering: Optimizing project organization and workflow efficiency, Understanding render settings and output formats, Exporting motion graphics for various media platforms.

Semester IV
DAGT21:
Intro to Character effects (Cloth, fur & hair) & Dynamics
Total Contact Hours: 30 Credit: 2 Total Marks: 100

Introduction to Character Effects: Understanding the role of character effects in enhancing the realism and believability of animated characters, Exploring the various elements of character effects, including cloth simulation, fur and hair simulation, and dynamics.
Cloth Simulation: Understanding the principles of cloth simulation and dynamics. Learning techniques to create realistic cloth movement, draping, and interaction with the character. Exploring parameters such as stiffness, friction, and collision handling for cloth simulation.
Fur and Hair Simulation: Understanding the physics and dynamics of fur and hair. Learning to create realistic fur and hair styles for characters. Exploring techniques for grooming, styling, and controlling the behavior of fur and hair.
Particle Systems and Dynamics: Introduction to particle systems and their role in character

effects. Learning techniques to simulate natural phenomena like fire, smoke, water, and explosions. Understanding how to control and manipulate particle behavior using dynamics.
Simulating Secondary Motion: Understanding the importance of secondary motion in character animation. Exploring techniques to simulate secondary motion, such as cloth movement, hair swaying, and jiggle effects. Learning to incorporate secondary motion to enhance the realism and expressiveness of character animations.
Collision Detection and Reaction: Understanding the principles of collision detection and response in character effects. Exploring techniques to handle collisions between character elements, such as cloth and body, hair and objects, etc. Learning to create realistic collision reactions and interactions.
Integration with Character Animation: Understanding the integration of character effects with the overall character animation. Learning techniques to synchronize character movement with cloth, fur, and hair simulation. Exploring methods to ensure seamless interaction between character effects and character rigging.
Optimization and Rendering: Understanding optimization techniques to improve the performance of character effects simulations. Exploring methods to optimize simulation parameters and reduce computational overhead. Learning to render and showcase character effects using appropriate rendering techniques and shaders.
Project-based Assignments: Engaging in hands-on projects to apply the concepts learned in class. Creating character effects simulations for various scenarios and character types. Building a portfolio of character effects work to showcase skills and abilities.

Semester IV
DAGT22:
Introduction to AR/VR
Total Contact Hours: 30 **Credit: 2** **Total Marks: 100**

Introduction to AR and VR: Understanding the fundamentals of AR and VR technologies, Exploring the differences between AR and VR and their applications in various industries.
History and Evolution of AR and VR: Tracing the development and milestones of AR and VR technologies, Examining the advancements and breakthroughs that have shaped the field.
AR and VR Hardware: Exploring the different types of AR and VR devices and their functionalities, Understanding the features and capabilities of headsets, controllers, sensors, and other related equipment.
AR and VR Software Development: Introduction to software development tools and platforms for AR and VR applications, Learning the basics of programming languages and frameworks used in AR and VR development.
User Interaction in AR and VR: Understanding the principles of user interaction and user interface design in AR and VR environments, Exploring techniques for gesture-based interactions, spatial tracking, and immersive user experiences.
Creating AR Experiences: Learning the process of creating AR experiences using marker-based and markerless AR techniques, Understanding image recognition, tracking, and overlaying digital content on real-world objects.
Creating VR Environments: Exploring the process of designing and building immersive VR environments, Learning about 3D modeling, texturing, lighting, and sound design for VR experiences.
Application Development for AR and VR: Developing practical applications and projects using AR and VR technologies, Exploring different use cases such as gaming, education, training, and visualization.
Ethical and Social Implications: Discussing the ethical considerations and challenges related to AR and VR technologies, Examining the impact of AR and VR on society, privacy, and human interactions.
Industry Trends and Future Directions: Keeping up with the latest trends and advancements

in the field of AR and VR, Exploring emerging technologies and potential applications in various industries.

Semester IV
DAGT23:
Video Editing
Total Contact Hours: 30 **Credit: 2** **Total Marks: 100**

Introduction to Video Editing: Understanding the basics of video editing and its role in the post-production process, Exploring different video formats, resolutions, and aspect ratios.
Video Editing Software: Introduction to popular video editing software such as Adobe Premiere Pro, Final Cut Pro, or DaVinci Resolve, Learning the interface, tools, and functionalities of the chosen software.
Editing Techniques and Terminology: Understanding the fundamental principles of video editing, including continuity, pacing, and storytelling, Exploring different editing techniques such as cuts, transitions, effects, and color grading.
Importing and Organizing Footage: Learning how to import and manage video files, audio files, and other media assets, Organizing and labeling footage using bins, folders, and metadata.
Timeline Editing: Mastering the timeline editing process, including trimming, splitting, and rearranging clips, Understanding the use of different tracks for video, audio, and effects.
Adding Effects and Transitions: Exploring various video and audio effects to enhance the visual and auditory aspects of the footage, Adding transitions, overlays, titles, and graphics to create professional-looking videos.
Audio Editing: Learning techniques for adjusting audio levels, removing background noise, and adding sound effects or music, Understanding the importance of audio synchronization and maintaining good audio quality.
Color Correction and Grading: Understanding color correction and grading techniques to achieve a consistent and visually appealing look, Adjusting brightness, contrast, saturation, and color balance to enhance the overall visual quality.
Exporting and Delivery: Learning how to export edited videos in different formats and settings for various platforms and devices, Understanding the considerations for video compression, resolution, and file formats.
Advanced Editing Techniques (Optional): Exploring advanced editing techniques such as multicam editing, green screen (chroma key) compositing, and motion graphics, Incorporating advanced effects and techniques to push the boundaries of creativity.

Semester IV
DAGTPRO:
Portfolio Development
Total Contact Hours: 30 Credit: 2 Total Marks: 100

Introduction to Portfolio Development: Understanding the importance of a well-crafted portfolio in showcasing your skills and abilities, Exploring the purpose and goals of building a portfolio for creative professionals.
Identifying Your Target Audience: Defining your target audience and understanding their preferences and expectations, Analyzing industry trends and requirements to tailor your portfolio accordingly.
Selection of Artwork and Projects: Reviewing and selecting your best artwork and projects to include in your portfolio, Assessing the quality, diversity, and relevance of the chosen works.
Presentation and Organization: Learning effective techniques for presenting your artwork in a visually appealing and professional manner, Creating a cohesive and well-organized layout to

showcase your work.
Writing Artist Statements and Project Descriptions: Developing clear and concise artist statements and project descriptions that provide context and insight into your work, Highlighting the concept, process, and intention behind each project.
Digital Portfolio Creation: Exploring different digital portfolio platforms and tools for creating an online presence, Learning how to design and build a user-friendly and visually appealing digital portfolio website.
Portfolio Critique and Feedback: Participating in portfolio reviews and critiques to receive constructive feedback from instructors and peers, Using feedback to improve and refine your portfolio.
Industry Standards and Best Practices: Understanding industry standards and best practices for portfolio development in your chosen field, Keeping up-to-date with current trends and expectations in portfolio presentation.
Self-Promotion and Networking: Exploring strategies for self-promotion, networking, and leveraging your portfolio to create professional opportunities, Developing effective communication skills to showcase your work and engage with potential clients or employers.
Portfolio Updates and Maintenance: Learning the importance of regularly updating and maintaining your portfolio to reflect your growth and new projects, Developing strategies for ongoing portfolio development and enhancement.