Course Matrix

Semester IV

Course No.	Course Type	Course Code	Course Title	Course Credit
18	DSE4	21VBB16E302	Concepts of 2D Animation*	4
19	DSE5	21VBB16D403	Web Designing Concepts*	4
20	DSE6	21VBB16D404	Application of 2D Animation Principles*	4
21	DSE7	21VBB16E304	Storyboarding and Animatics*	4
22			Applied Learning I	4
Total Credit				**20**

* Courses which include Practical's (Lab Programs and Exercise)

Syllabus: Semester IV

Course: Concepts of 2D Animation　　　　**Course Code: 21VBB16E302**
Course Credits: 4　　　　**Learning Hours: 120**

Course Outcomes:
CO1: Understand the basic concepts & history of animation.
CO2: Demonstrate different character styles with gesture and postures.
CO3: Explain principles of design & perspectives in composition.
CO4: Identify the principles for character animation.
CO5: Summarizing 2D-animation through techniques of storyboarding & finally converting an idea into a final project.

Unit 1: Types of Animation & History and Evolution:
Historical Perception and various stage of development in Animation, Evolution, Requirement in early stage of Animation, Categories of Animation & its application, Classical animation, Traditional animation, 3D animation, Experimental Animation (Clay, Sand, Stop motion, Light etc.)
Learning outcome: *Acknowledge the basic concepts and hands on practice of Introduction to digital animation and History of Animation.*

Unit 2: Introduction to Animation,
Fundamentals of design and animating perspective, Describing the process of creating concept art, character styles, study on various drawing methods and

techniques, drawing character poses, key poses for sequential drawings and Classical Animation, Perception of vision, Understanding the illusion of the moving image
Learning outcome: *Understanding of animation evolution and various developing stage in the History of Animation.*

Unit 3: Composition for Scene Development:
Concepts of visual communication, Understanding of the dynamics of composition, Various exercise based on color shape balance shape and forms, Apply principles of composition such as the principle of threes, placement properties in positioning, line and movement, depth of field for clarity and impact, Spatial relations of surface division, subliminal lead flow, and direction of lines
Learning outcome: *Demonstrate the compositional skills and principles of Design.*

Unit 4: Perspective Composition Methods:
Understanding of perspective to draw dimensionally, Foreground, Midground and Background elements, One-, two-, and three-point perspective, grids, three-point curved perspective, 360° rotation, and Inserting Lights and shadows in perspective
Learning outcome: *Grasp the knowledge of Drawing Perspective by understanding the need of perspective in Composition.*

Unit 5: Character Composition:
Placing and merging the characters within the backgrounds, Principles that range from the basic, traditional perspective to the more complex, Pertains specifically to animation **Learning outcome:** *Awareness of Scene composition with various elements and to impart practice-based assignments along with studio and class exercises.*

Unit 6: Fundamentals of Character Design
Introduction to character anatomy, using basic shapes, Analyse design styles material study and patterns, Fundamentals of creating prop accessories for animation
Learning outcome: *Identify the fundamental and principles for drawing character and concepts to prepare for final character animation.*

Unit 7: Character creation process for Animation
Study of expressions posture and shapes using a mirror and Creating model sheet and expression sheets for characters, creating a production model pack – a series of drawings showing their Final Film Project characters in various poses and expressions
Learning outcome: *Describe the character creating process from idea and concept development and documentation required for final character animation.*

Unit 8: Script Writing & Storyboarding
Basic of writing scripts for animation Projects, Creating Blocking and staging and fundamentals of Storyboards, Storyboarding techniques, transitions and markers

Learning outcome: *Visually express an idea for 2D-animation through techniques of storyboarding.*

Unit 9: Character Enhancement

Writing Characterization, Creating Character Design and future Development, Study of Timing and weight for Animation, Key poses and time stretch, facial expressions and Walk cycles. Traditional animation, key frame animation

Learning outcome: *Can describe the character designing and animation through various techniques.*

Unit 10: Previsualization, Storytelling & Editing

Animation Pre visualization Concept to understanding the story format, Art of Acting and Direction fundaments for Animation, Storytelling Techniques based on Culture and genre, Concept Design and Development for Storyboarding and Animatics, Audio and Video Streaming and Editing

Learning outcome: *Recognize the Animation process through ideation and concept development to final Project.*

Course: Web Designing Concepts   **Course Code:**
21VBB16D403
Course Credits: 4   **Learning Hours: 120**

Course Outcomes:
CO1: Understand the basic concepts behind effective web design process, its importance, and function and information architecture.
CO2: Recognising & getting familiar with graphic design principles in context to web design and can implement essential theories into practice.
CO3: Analyzing the usability of a design concepts for website.
CO4: Understand how to plan and conduct user research related to web usability.
CO5: Demonstrate the skills of the web languages: HTML and CSS.

Unit 1: Introduction to Web Design
Overview of web design, Linear vs. non-linear (interactive) design Process. Introduction to web pages, their importance purpose and utility, understanding the function of different web browser Analyzing different kinds of website designs
Learning outcome: Knowledge the creative uses of web site and interface design through analysis and critique of existing web-based design, and understand original web-based visual communication designs.

Unit 2: Fundamentals of web page design
How webpage works, Basic Function and purpose of every page, Content required for each webpage, planning for the Visuals, Understanding Interface design working on the Interactivity of Page, understanding user experience
Learning Outcome: Acquire the fundamental skill of designing and necessary re-equipment for web layouts and gain introductory techniques to plan, design and develop web sites.

Unit 3: Web design process
Understanding HTML, advantages, comparison with DHTML Define content, Time line, basic tags and doc types, understanding banners intro, adding facilities in a web page, working with   Budget and collecting necessary resources
Learning Outcome: Communicate visual concepts through the appropriate choice and application of composition, type styles, images, interface design, and interactively.

Unit 4: Visual Design
Introduction to visual design, conceptualize the interface of web site, working with various image size formats and types, scanning and downloading images, Using photographs ,understanding the concepts of vector art for web layouts working with text, fonts types facing, size, basic theory of colors, different color scheme, importance of colors and its uses

Learning Outcome: *Demonstrate the development of visual and conceptual skills required to create a successful design solution through the process of idea development, refinement, and assessment in the creation of website design projects.*

Unit 5: Interface and interaction

Cascading Style Sheet, CSS selectors and there Properties, Organizing and grouping content, understanding header body footer, creating tables and other Screen layout, custom CSS layout design, adding more interactivity, creating Menus buttons links and other navigations

Learning Outcome: *Understand different layouts of a web page and organizing the website structure for better performances and will grasp the concepts of different web design theories and understand web terminology.*

Unit 6: Learning WordPress

WordPress intro and overview, WordPress interface. WordPress settings, Site design, Platform adaptation, Themes and templates, Widgets and plugins, Website content, Menus, Media, Customize a WordPress theme

Learning Outcome: *Acquire skills in the use of the tools and techniques available in a web design software program — WordPress, so as to be able to and create original, visually engaging, and functional web site designs from concept, through storyboard, to finished design.*

Unit 7: Process of updating a website

Review current content and design, Check your website's data, Evaluate trending websites, Gather inspiration, Add updating multimedia elements, Align your design to current trends, Perform simple A/B testing, Optimize your SEO

Learning Outcome: *Acquainted with various trends and updating required in current web pages and able to update as per the market requirements.*

Unit 8: Creating web page images and graphics

Using Photoshop, functions and techniques specific to web page design Illustrator functions and techniques specific to web page design. Image scanning

Learning Outcome: *Effectively communicate an understanding of design concepts, processes, and techniques, using the "language" of design.*

Unit 9: Copyright laws and how they apply to art and design

Understanding copywriting, laws of copywriting, Identify licensing contents, and Fair means of use of the content, concept of royalty, Creative Commons license, and Privacy concern issues. How to resolve them, public domain

Learning Outcome: *Awareness of ethical uses of artwork content, articles and how to deal with the copyright issues related to websites.*

Unit 10: Portfolio presentation

Weekly in class design reviews for each student -Further Theme editing technics for better design and coding -Content preparation and authoring -Publishing student websites -Maintenance guide for websites

Learning outcome: *Present a portfolio of work showing knowledge and application of concepts, processes, and techniques presented during the course.*

Course: Application of 2D Animation Principles   Course Code: 21VBB16D404

Course Credits: 4   Learning Hours: 120

Course Outcomes
CO1: Identify and apply animation principles.
CO2: Assessing the skills required for creating animated projects and using digital software.
CO3: Understanding & applying the concepts of Animate CC.
CO4: Identifying character, background & environment techniques.
CO5: Recognising advanced animation techniques & skills to be used in live projects.

Unit 1: The Principles of animation, Types and its Applications
Animation trends methods and its application in various sectors, the rules of animation e anticipation, timing – squash and stretch – exaggeration – staging – motivation – secondary action – overlap – follow through – balance – rhythm, Understanding Scene Shot and camera movement applying the rules, Understanding Frames and Key frames – tweening – interpolation – velocity – motion path, Concepts of straight-ahead animation and pose to pose animation
Learning outcome: *To make students understand various Animation trends methods and application in different section along with the types of animation and their importance.*

Unit 2: Computer Generated Animation Techniques
Basics of Computer-generated animation, Understanding the laws of physics – mass – gravity – weight, Concept of Forces in Animation, directional force – damping force – acceleration – deceleration – resistance, technical animation process – text animation – sound effects – panning and zooming – time remapping
Learning outcome: *To make students understand Identify the principles used in creating 2D animation.*

Unit 3: Character Designing Principles
Understanding the concepts of Raster and vector drawings and preparing digital art for an Animation Project, Working on Character design, character styles, drawing methods Props, character accessories and other fore ground and background elements, Understanding the importance and uses of different hardware and software available for 2d animation
Learning outcome: *Awareness of the resources and skills requirement for creating animated projects.*

Unit 4: 2D animation Creation Process
Planning for a project. Creating and opening projects, organizing your work, user interface language, setting up the location, Drawing and design, Using Pen tool and

brush tool, concept of Filling colors, how to paint in Adobe animate, how to import bitmap images, converting raster image into vector art, Understanding exposure, Brightness, hue, tint and Alpha Properties

Learning outcome: *Acquainted with tools and methodologies to understand the concepts of 2d Animation using Digital software's.*

Unit 5: Understanding software interface - Animate CC

Resolution and dimension of Project, Conapts of Frame rate, length or duration of an Animation, Concepts of, layers and timing, Properties, Libraries, grouping objects and break apart Symbols, types of symbols, and their properties

Learning outcome: *Grasp over the concepts of creating and managing Animation Projects.*

Unit 6: 2D Digital Animation - Animate CC

Types of Tweening method for animation, like Classic tweening motion tweening shape tweening, Masking effect, how to apply Masking in animation, using nested masking effect, Creating Guided layers and creating an illusion of depth with the new blur effect, Looping the animation for seamless 2d animation effects

Learning outcome: *Thorough understanding and hands on Practice sessions to impart practice-based assignments along with studio and class projects.*

Unit 7: Preparing Character for animation

Creating illusion of 3D animation effect, using 3-dimensional rotating and movements, Understanding Dependencies in 2d animation. and its uses, Concepts of Parenting the artwork, Various Character rigging techniques, using bone tools and asset warp effects,
Creating walk cycles, and run cycle and body mechanics

Learning outcome: *Acquainted with Character animation Process and practices for 2d Animation using Digital software's.*

Unit 8: Animating Background and environment techniques

Concepts of voice, dialogues and narration, Crating Facial expressions, Effects animation, create a dramatic atmosphere by casting shadows – mask, cut and shave anything using the clipping effect, Creating Project of sun rise sun set, spaceship animation or to set animate effects of color transition using color transform effect

Learning outcome: *Able to identify and create scene, environments for 2D animation scene development.*

Unit 9: Dynamic animation techniques

Concepts of Dynamics, Creating Dynamic animation effects like rain and Study on different fire smoke & water droplets, creating, re use and applying special effects, understanding the concepts of creating managing new Scene and re-useable Symbols

Learning outcome: *Thorough understanding and hands on Practice on advance animation techniques that impart practice-based assignments along with classes.*

Unit 10: Applying Concepts of Animation in Projects
Understanding Animation Project description and scope of work, Creating Draft animation to analyze the outcome and duration of Animation, Tweaking the projects to handle errors and to remove Bugs, Finalizing the project for execution and distribution
Learning outcome: *Able to understand the process of working on live projects to understand the professional ethics and work culture.*

Course: Storyboarding and Animatics   Course Code:
21VBB16E304 Course Credits: 4   Learning
Hours: 120

Course Outcomes:
CO1: Understand the concept and progress of storyboarding.
CO2: Summarize directors' point of view for Storyboarding.
CO3: Appraise tools & techniques and principles of good storyboarding.
CO4: Describing & translating gestures and emotions into still digital images. CO5:
Formulate the actions of each board to complement the digital image.

Unit 1: Introduction to storyboarding
What is Storyboarding, Origins of Storyboards, Anatomy of Storyboards. The
Storyboarding process - Thumbnail, Basic, Light and Color key, Film language -
Reverse Storyboarding
*Learning outcome: Identify various storytelling with convincing character attitudes
and acting that visually support the narrative.*

Unit 2: Camera, Composition, Story structure
Understanding story structure, Visualizing scene and shots, various representation
methods of storyboarding, Formats of storyboarding, Compositional elements,
importance of camera, and understanding scene shot and moments, defining
perspectives and depts in scene, understanding the use of grid lines, concept design
- Review reverse storyboards
*Learning outcome: Describe all concepts of storyboarding into a clear format for an
animated film, in which all visual aspects are working together.*

Unit 3: Setting Up the First storyboard
Understanding the Concept, extracting elements form the story, detailed working on
each shot, Drawing the components of the storyboard, Indicating motion in the
storyboard, Increased reality- perspective and lighting. Working with character
performance - concepts of Staging and blocking
*Learning outcome: The student will demonstrate how to construct storyboards as a
brief form of storytelling by translating gestures and emotions into still digital images.*

Unit 4: Defining Directors point of view
Terminology of Shots scenes and angles, Discussion on Camera Framing,
comparative study of camera Angles and Movements. -Camera angles -Continuity -
Composition - Close-ups -Cutting study on various Film examples
*Learning outcome: Acquainted with the vocabulary of film language, types of shots,
transitions, and narrative structure.*

Unit 5: Writing for Storyboarding

Roles and responsibilities of storyboarding artist. Interaction with different departments, understanding various script formats, analyzing and extracting Key elements to draw, Discuss with various examples of the writing planning process. Writing detailed information on each scene and shot

Learning outcome: *Grasp the vocabulary of film language, departments hierarchy, and how to interact within the department for better understanding of shots.*

Unit 6: Composition, Perspective & Lighting

Compositional Elements, Line-shape-contrast, creating meaning within image, Creation of depth through lens choice and linear, atmospheric and size perspective, High- Key
Lighting, Low key Lighting, 3-point Lighting, Tonal quality of lighting

Learning outcome *Awareness of composing visually dynamic shots, with good lighting, showing cinematic depth.*

Unit 7: Continuity in Storyboarding

Understanding continuity and its importance, Basic Rules of continuity, 180 – Degree rule, Screen direction, Cutaways & Cut-ins

Learning outcome: *Understand conventional cinematic structure of shot progression, staging, and screen direction.*

Unit 8: Story Boards for Different Media

Structure of animation films, Special effects breakdown, Creating the environment, Structure of commercials, Elements of brand building to be implemented, Special color scheme for brands and products

Learning outcome: *Able to identify and create scene, environments for 2D animation scene development.*

Unit 9: Animatics

Basics of Animatics, LEICA Reel, origin and importance Drawing storyboards in TV format, from storyboard to story reel using, working with editing software's, integrating sound into the story reel using, editing techniques I: beats and timing, editing techniques II:
transitions and effects, Finalizing the story reels

Learning outcome: *Combine storyboards with sound to create 'Animatics'.*

Unit 10: Final project presentation and evaluation

Understanding different Storyboarding Project description and scope of work, Creating Draft Storyboard to analyze the outcome and duration of Project, Tweaking the storyboard to handle errors, Finalizing the project Evaluation

Learning outcome: *Able to understand the process of working on live projects to understand the professional ethics and work culture.*

Course: Applied Learning I - Substance Painter   **Course Code:**
Course Credits: 4   **Learning Hours:**
120

Course Outcomes:
CO1: Exporting 3D mesh maps from ZBrush to Substance 3D Painter.
CO2: Preparing 3D model for texturing.
CO3: Making custom materials inside Substance 3D Painter.
CO4: Exporting textures.
CO5: assets inside Substance 3D Painter.

Unit 1: Introduction to Substance Painter - Interface
Learn about the main *interface* of *Substance* 3D *Painter* and how to navigate it.
Learning outcome*: Assets overview, navigation, customizing the layout.*

Unit 2: Working with Layers & Material in Substance Painter
We will learn about *layers* inside Adobe *Substance* 3D *Painter*. While *Painter* is more about textures and *materials*
Learning outcome: *Use Substance Painter's material layering feature.*

Unit 3: Substance Painter: Texturing a Background - BG
Controls how sharp or blurry the environment *texture* will appear in the *background* of the viewport
Learning outcome: *Option to change the background colors.*

Unit 4: Substance Painter: Texturing a character –Face
Learn how to *texture* Realistic 3D *Characters* in *Substance Painter*
Learning outcome: *Texturing an advanced character.*

Unit 5: Substance Painter: Texturing a character - Body
Learn to get high quality skin on a real time character
Learning outcome: *Character* skin *texturing*.

Unit 6: Substance Painter: Texturing a character-Clothing & Accessories
You will dive into the process of painting textures for a multi-materialclothing & accessories
Learning outcome: *Decided to texture all clothes/accessories.*