SEMESTER – III

Sno	Course	Total Marks	Mid Sem Exam*	Sem End Exam	Teaching Hours	Credits
1	First Language English	100	25	75	4	4
2	Foundation course -2B Communication & Soft Skills	50	0	50	2	2
3	Story Board Theory	50	0	50	2	2
4	Anatomy Study & Character Designing	50	0	50	3	2
5	Anatomy Study & Character Designing Lab	100	25	75	4	3
6	Principals of Animation & 2D Theory	50	0	50	3	3
7	2D Lab	100	25	75	4	3
8	Introduction to 3D – I Theory	50	0	50	2	2
9	Introduction to 3D – I Lab	100	25	75	4	3
Total		650	100	550	28	24

SEMESTER – III

STORY BOARD (Theory)

Unit – I: Introduction What is Storyboard, Importance of Story Board, the difference between storyboard and Graphic Comic, Difference between Storyboard and Presentation Board. Advantages of Storyboard in Animation, Anatomy of a Storyboard, Thumbnail Storyboard, Preparing Storyboards using Digital software. Advanced Storyboard Techniques, Various Camera Shots and Camera Moves and their meaning, Transitions, Aspects of the storyboard.

Unit – II: Film Grammar Types of Shot, Scene, sequence, 180 degree rule, 30 degree rule, jump cuts, intercuts, cuts always and cut ins, editing and direction, aesthetics of cinematography. Kula shove effect, vertigo effect, Camera angles and camera movement

Unit - III: Posing Understanding the scene and emotion, Character behavior, space and elements in scene. Posing, for shorting, drawing in different angles. Matching with the layout.

Unit – IV: Perspective and Layout design Visualization dramatization of space exaggerated perspectives. Laying out a scene - Space and time, framing, camera, and other kinds of spaces and timing. Aspect Ratio, field guides. Laying out the Animation. Camera movement calculation to animation – matching speeds. Multiplan Colour Notations Combining action of the character within the layout.

Unit – V: Composition The appeal, Golden mean, Center stage, pyramid, circular composition, Dutch angle, weight, balance, rhythm, directing the eye. Color, theme, and sound. Shot timing Dialogue, tracks, and animatics.

Reference:

1. Storyboards: Motion in Art Book by Mark Simon
2. Exploring Storyboarding Book by Wendy Tumminello
3. Directing the story Book by Francis Glebas
4. Don Bluth's the Art of Storyboard Textbook by Don Bluth
5. The Art of the Storyboard: Storyboarding for Film, TV, and Animation Book by John M. Hart

ANATOMY STUDY & CHARACTER DESIGN (Theory)

Unit – I: Character Bible Biography of character – Visualizing the Character – Creating Characters from life study. Story and the role of characters. The roles and significance of all sorts of characters in animated films – human, imaginary – fantasy, Creating Characters from Life. **Character Design** Elements of Character Design, - personality, attitude, role, function. Character Bible and model sheets, Stereotypes**.** Characters in animated films – models, drawing etc…

Unit - II: Anthropomorphic Character Design of Anthropomorphic Animals and Objects Anthropomorphic and alien characters, animals, birds, objects etc…Examples from films. **Costume and Properties** Costume with character – Costume and colour - Character Inspiration from costume – Imaginative design. Pets and props - Character styles - Anime Style – Aesthetics in anime characters (2D Character Animation) Introduction - Key Animation/ straight ahead Animation - Character Action -Volume and weight - Acting and attitude - Run, Jump, walk, push and pull In betweening techniques - Cleanup techniques - Time grid - registration - Trace back - Breakdown drawings - Line quality - Line consistency - Facial expression -Mouth chart - Lip sync - Eye expression - Eye blink - Water - Dust - Fire - Smoke - Rain - Explosion.

Unit - III: Skeleton Structure Introduction to skeletal structure – basic shapes and forms of Skelton – masses connected to spinal cord- Big Structure of the Spine- Common Structure of the Vertebrae- Motion- lumbar- thoracic- cervical spine- Atlas and Axis-skull-rig cage – torso – pelvis – limbs- hands-Anatomical terminology - basic skeleton structure with shapes and forms-understanding

Unit IV: weight and balance in movement-anatomical terminology-Superior - toward the head-Inferior - toward the feet-Anterior - toward the front of the body-Posterior - toward the back of the body-Medial - toward the midline of the body-Lateral - away from the midline of the body-structure to the body-points of attachment for muscles-levers making movement possible

Unit V: Muscle Structure

Muscles Guide- Muscle Behavior- movement a given muscle is associated-active (contracted) muscle Inactive (relaxed) muscle- muscle can only pull-not push- antagonistic pairs- Abdominal-Stomach-Biceps- Front of upper arm- Deltoids- Top of shoulder- Erector Spine Low back-Gastronomies & Soleus- Back of lower leg- Gluteus- Buttocks- Hamstrings- Thigh – back-Latissimus Doris & Rhomboids- Back – Last are the large triangular muscle in the mid back-Rhomboids are between the shoulder blades- Obliques- Side of body- Pectorals- Front of upper chest-Quadriceps- Thigh – front- Trapezius- Large muscle in upper and mid-back- Triceps- Back of upper arm Irregular Bone complex and irregularly shaped bone, i.e. vertebrae-Long Bone longer than it is wide, i.e. hummers, radius, and femur

Reference:

1. Various Elements of Handouts, Model Sheet, Turnaround Sheet, Proportion Chart, Scale Sheet, Expression and Mouth Chart, Color Reference Sheet, Prop Sheet**.**
2. Modeling the Figure in Clay, 30th Anniversary Edition: A Sculptor's Guide to Anatomy (Practical Craft Books) by Bruno Lucchesi (Author), Margit Malmstrom (Author)
3. Modeling and Sculpting the Human Figure (Dover Art Instruction) by Edouard Lanteri (Author)
4. Portrait Sculpting: Anatomy & Expressions in Clay Hardcover – 2004 by Philippe & Charisse Faraut (Author)

ANATOMY STUDY & CHARACTER DESIGN (Lab)

1. Draw faces of the male and female in detail adhering to the standard facial properties.
2. Draw three different poses of the hand.
3. Draw three different poses of the leg.
4. Draw Costume and Period design
5. Character line-up
6. Draw a detail of the Muscle Structure
7. Basic shapes and forms of Skelton

PRINCIPLES of ANIMATION & 2D (Theory)

Unit – I: What is Animation: Its definition, early examples of Animation. History of Animation: Stop Motion Photo Animation, Zoetrope, Thaumatrope, Cell and Paper Animation, Types of Animation: Cell Animation, Stop Motion Animation facial expressions, Basic Principles of Animation: pose to pose Timing, Exaggeration, Squash and Stretch, Anticipation, staging, follow through and overlapping action, Arcs, Solid Drawing, Appeal, slow in and slow out, Secondary Action. Shapes and forms, Exaggeration, Attitude, Silhouettes, gesture drawing, Line drawing

Unit - II: Various Terms: Animation Drawings/Cels, Rough Drawings, Clean ups, Color reference, Drawings, Layout, Model Sheet, Key Drawings and in Betweens, Master Background, Concept Piece, Character drawing, Story Board.

Unit – III: Flash Overview – Flash movies content; Flash Vector Graphics; Interactivity; animated logos, long-form animations with synchronized sound; Flash player; File name extension - .fla; Artwork in Flash; Import vector graphics; bitmap graphics; and video from other applications; Animation in Flash - animate objects to make them appear to move across the Stage; Stage and workspace; Viewing stage; Moving view of stage; Grid, Guides & Rulers; Creating new document; Property Inspector; Scenes & Scenes Panel; Timeline; Display of frames in Timeline

Unit – IV: Using Layers: Creating layers; Viewing layers and layer folders; Show & hide layers; Layers as outline; Change layer height; Select two more layers; Rename the layers; Lock & Unlock layers; Copy layer; Paste layer; Delete Layer; Using Guide layers; etc. **Working with Flash Assets:** Symbols & Instances; Using Tool Box; Using contest menus; Using Library; Finding and unused library items; Updated imported files; etc **Working with Color:** Using the stroke color and fill color; Gradient; Ink Bottle Tool; Bitmap fill with Paint Bucket Tool;

Unit – V: Drawing in Flash: Drawing with the Pencil tool; Painting with the Brush tool; Reshaping using the Arrow tool; Straightening and smoothing lines; Optimizing curves; Erasing; Modifying shapes; Applying solid, gradient, and bitmap fills with the Paint Bucket tool etc. **Animation Overview** - About twined animation; About frame-by-frame animation; About layers in animation; Creating key frames; Tweening motion along a path; Creating frame-by-frame animations; Editing animation; Using mask layers; Onion skinning; **Interactivity – Action Script:** Adding Behaviors to a Movie; Communicate with symbol instances; Creating a target Movie Clip; Action Script to Create Simple Interactivity; Navigating the Timeline with Action Script.

References:

1. The complete animation course by Chris Patmore -Baron's Educational Series.(New York)
2. Animation Unleashed by Ellen Bessen, Michael Weise Productions, 2008(U.S.A)
3. The Animator's Survival Kit by Richard Williams, Arrar Straus & Giroux Pub. (U.S.A)
4. Draw Animation by Paul Hardman.

2D (Lab)

1. Web Banners
2. Web Intro
3. Logo Animation
4. Frame by Frame animation;
5. Walk cycle;
6. Using filters & Special effects
7. Mask layers animation
8. Product Info
9. Corporate info
10. Cartoon Animation
11. Social Awareness Concept Movies
12. Flash Action Script
13. Electronic Presentations
14. Application Development
15. Interactive Gaming
16. Video & Audio Controlling

INTRODUCTION to 3D – I (Theory)

Unit – I: (3D Modeling) Interface and Introduction on Modeling (Theory): Fundamentals of modeling, Different Primitives and usage, Transformation tools, modeling by basic geometrical primitives- Standard and Extended Primitives Working with Modifiers (extrude, Bevel, Lathe, Bevel profile) Spline Modeling – (Head Phone / Flight) -Compound Objects (Connect, Boolean and Loft) - Object Modeling using Edit Poly tools – Probe Modeling Introduction to Character Modeling Basic with Polygon (Face, Torso, Hands and Legs etc,)- High Resolution Character continuation of Basic for Production - Applying Mesh Smooth - Explanation of Material Editor and Applying Materials. - Explanation of Textures and UVW Mapping. Texture mapping, Wrapping of texture on a 2D surface, multi-layer texturing. SHADING Definition of shading and its uses, different shading materials, no shadow shading, HDRI

Unit – II: (Interiors Designing) Introduction to Designing and Unit setup, Understanding Blue Print and working with Measurement Controllers - Creating Interiors and Furniture (Top down and living room with at least one asset)- Applying Materials and Maps - Cameras - Assigning Controllers - Walkthroughs - Working with Environmental Effects.

Unit – III: (Animation and Rendering) Animation definition, explaining key poses and extremes, ball bounce, normal walk, quadruped walk and run, jump. Explaining the usage of graph sheet, dope sheet. Facial animation will be discussed in detail Introduction - Animating using time line - Materials - Auto Key - Set Key - key Animation- Explanation of Animation Principles - Dope Sheet - Curve Editor - Advanced Animations using Track View - Working with Controllers for Animation- **Rendering Introduction** –Explanation of Tools in rendering editor.(Scan line and Mental ray) - Rendering a Scene - Max Render Engine - Anti - Aliasing - Virtual Frame – Buffer - Video Post Rendering - Rendering for Animations.

Unit – IV:(Character Studio) Introduction - Layers - Freedom Animation - Human Anatomy - Modeling Biped as per the character - Assigning Character to a Biped - Behavior Files - Applying Physique- Motion Capture

Unit – V: Rigging & Lighting: Applying Bone, IK, joints, weights painting, skinning.**:** Understand lighting, using various lights in a 3D environment to add artificial light, Understanding shadows, experimenting with shadows to provide art work with real time real life set models Introduction –Rigging and Bones - Inverse Kinematics - Bone Parameters - Restricting the access of the bone - Assigning a Model to bones - Rigging Methodologies -Controlling the Character.

References:

1. Kelly L. Murdock- 3DS Max 6 Bible.
2. Peter Ratner-3D Human Modeling and Animation.

3. David Kalwick -How to do everything with 3DS Max 6.

4. Sham Tikkoo - 3DS Max for Animators, interior decorators and Architects.

5. Fox- 3DS Max

6. Animation: CG Film making from concepts to completion.

INTRODUCTION to 3D - I (Lab)

Unit – I: (Modeling)

1. Creating a model (Basic Probe)
2. Creating a polygon model (Car or Bicycle)
3. Creating a subdivision model (Mobile or Computer Keyboard)
4. Character Modeling (Face)

Unit – II: (Interiors Designing)

1. Creating a Landscape
2. Creating Residential House Living room and Living room couch with side lamp
3. Creating Walk through with render

Unit – III: (Biped and Character Studio)

1. Biped rig binding with Character model

Unit — IV (Character Animations)

1. Animating a Character walk and Run
2. Motion Graphics using Video post.