**ADIKAVI NANNAYA UNIVERSITY**
**B.Sc. Animation Under CBCS with effect from 2017-18 Admiited Batch**

## SEMESTER – II

| Sno | Course | Total Marks | Mid Sem Exam* | Sem End Exam | Teaching Hours | Credits |
|---|---|---|---|---|---|---|
| 1 | First Language English | 100 | 25 | 75 | 4 | 3 |
| 2 | Foundation course – 3 Idea & Research | 50 | 0 | 50 | 2 | 2 |
| 3 | Design Theory | 50 | 0 | 50 | 3 | 2 |
| 4 | Object Oriented Programming using Java Theory | 50 | 0 | 50 | 3 | 2 |
| 5 | Java Lab | 100 | 25 | 75 | 4 | 3 |
| 6 | Web Technologies Theory | 50 | 0 | 50 | 2 | 2 |
| 7 | Web Publishing Lab | 100 | 25 | 75 | 4 | 3 |
| 8 | Layout Design Theory | 50 | 0 | 50 | 2 | 2 |
| 9 | Design Theory & Layout Design Lab | 100 | 25 | 75 | 4 | 3 |
| | Total | 650 | 100 | 550 | 28 | 22 |

### Semester – II
### IDEA and RESEARCH (Theory)

**Unit – I:** Creative thinking and problem solving, what is creative thinking, How to think out of the box. Creative thinking vs. Critical thinking, Divergent thinking, Convergent thinking, Six Thinking Hats, Lateral Thinking

**Unit – II:** Brain storming, Idea generation techniques, Mind map, Group discussions, inspirations, Idea management, Experiments, Dealing with subconscious mind etc...

**Unit – III:** Iteration techniques, defining design problems, Generate ideas, Evaluation of ideas by filtering process. (Key questions like feasibility, uniqueness, relevance etc...) Risk assessment and prototyping. Risk mitigation

**Unit – IV:** Research methodology, Problem analysis, Planning, Qualitative research, Quantitative research, Hypotheses, Culture and Communication – Culture as Communication – Inter-cultural Communication – Values, World view and perception – Values in Culture –Values and Communication – From ethnocentrism to Ethno relativism

**Unit – V:** Marketing Research Process, Fundamentals concepts, Research Designs, objectives & hypothesis, Data Collection, Market-Geomorphic Distribution-Segments, Nature and Scope of Marketing, Research in relation to:-- Graphic designing- Animation Industry (TV advt Film and animated film)☐ Challenge in Business Market surveys, planning Significance of Research Media Management : concept, need and scope☐ Operations and structure of news media companies Media business and new technology New trends in media business☐ Legal issues in media business

**References:**

1. Lateral Thinking: Creativity Step by Step by Edward de bono

2. Six thinking hats by Edward de bono

3. Start with Why: How Great Leaders Inspire Everyone To Take Action by Simon Sinek

4. The Shape of Ideas: An Illustrated Exploration of Creativity by Grant Snider (Author)

5. Research Methodology: A Step-by-Step Guide for Beginners Paperback by Ranjit Kumar (Author) Art of game design

## DESIGN (Theory)

**Unit – I:** Color balance -Properties of color –Hue -Reflective Value –Tint –Shade –Color tone - Intensity -Colour in terms of weight –Sub ordinate color -Color scheme - Color domination - Colours for elements - Exterior paint colours - Cool colours -Warm  colours -Colour personality-Proportion, contrast and effects with colour.

**Unit – II:** Colour swatches – Colour Charts & Color Books - Safety Colours & Industrial Identification -Additive Colour System (RGB) -Subtractive Colour System (CMYK).

**Unit – III:** Making Colour Wheel - Making composition with colors  - Color Journal  -- Interactions of Gradation and contrast - Warm and cool Colour - Color symbolism  - Mixing of primary, Secondary, Tertiary Colors, Tints, Tones and Shades.

**Unit – IV: BALANCE** – Balance in design is similar to balance in physics. **PROXIMITY** – Proximity creates relationship between elements. **ALIGNMENT** – Allows us to create order and organization. **REPETITION** – Repetition strengthens a design by tying together individual elements. **CONTRAST** – Contrast is the juxtaposition of opposing elements (opposite colors on the color wheel, or value light / dark, or direction – horizontal / vertical). **SPACE** – Space in art refers to the distance or area between, around, above, below, or within elements. Both positive and negative space is important factors to be considered in every design

**Unit – V:** Copy Preparation, Design and Layout - The Printers' Point System, Principles of Design, Margins, Layouts for DTP & Printing, Type Faces - Classification of Types, Type Setting, Proof Reading

**Reference**

1. Color Psychology and Color Therapy Faber Birren

2. The Color Revolution Regina Lee Blaszczyk

3. Color and Space Sandu Cultural Media

4. Historical Color Guide: Primitive to Modern Times with Thirty Plates in Color Elizabeth Burris-Meyer

5. Logo Modernism by Jens Müller

6. Two-Dimensional Man by Paul Sahre

### OBJECT ORIENTED PROGRAMMING USING JAVA (Theory)

**Unit –I : FUNDAMENTALS OF OBJECT ORIENTED PROGRAMMING :**Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Java features, Java Environment. **OVERVIEW OF JAVA LANGUAGE**: Introduction, Simple Java program structure, Java tokens, Implementing a Java Program, Java Virtual Machine, Command line arguments.

**Unit – II: CONSTANTS, VARIABLES & DATA TYPES:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, operators & expressions. **DECISION MAKING & BRANCHING:** Introduction, Decision making with if statement, Simple if statement, if. Else statement, Nesting of if Else statements, the else if ladder, the switch statement, the conditional operator. **LOOPING**: Introduction, The While statement, the do-while statement, the for statement.

**Unit – III: CLASSES, OBJECTS & METHODS**: Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading **INHERITANCE**: Types of Inheritance, Extending a class, Overriding methods, Final variables and methods, Final classes **INTERFACES:** MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces

**Unit – IV: MULTITHREADED PROGRAMMING:** Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface. **MANAGING ERRORS AND EXCEPTIONS:** Types of errors: Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements

**Unit – V: APPLET PROGRAMMING:** local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, running state, idle or stopped state, dead state, Display state.

**Reference:**

1. E. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.
2. Java Programming: From Problem Analysis to Program Design- D.S Mallik
3. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

## JAVA Lab

1.  Write a program to perform various string Operations

2.  Write a program to perform various Operations on Array

3.  Write a program to illustrate Overloading & Overriding methods in Java

4.  Write a program to implement Exception handling

5.  Write a program to write Applets to draw the various polygons

6.  Write a program to print prime number up to the specific integer value

7.  Write a program to print $n^{th}$ Element of Fibonacci series

8.  Write a program to illustrate the implementation of abstract class

9.  Write a program to create packages in Java

10. Write a program to Create Multiple Threads in Java

11. Write a program which illustrates the implementation of multiple Inheritance using Interfaces in Java

12. Write a program to illustrate the run time polymorphism

13. Write a program to store book record details in a file using streams and performs all Operations such as search delete and modify a record

## WEB TECHNOLOGIES (Theory)

**Unit – 1: (WEB DESIGNING)** Designing the Page – Aligning the page – Defining a Site – Creating a Page with Text – Format Text with CSS – Animate Text – Adding Images and Hyper links to the web page – Creating Tables – Working with layers – Frames & Frame Sets – Forms – Rollovers – Publishing the Web Site.

**Unit – II: (WEB PROGRAMMING)** Introduction HTML – Structure of HTML program – Commonly used HTML tags – Text Formatting – Text Styles – Other Text Effects – Lists – Tables – Frames – Adding Graphics to HTML Document – Cascading Style Sheets – Font Attributes – Color and Background Attributes – Text Attributes – Border Attributes – Margin Attributes – List Attributes.

**Unit – III: (WEB DEVELOPMENT)** Introduction to JavaScript – Writing JavaScript into HTML – Data Types – Creating Variables – Incorporating variables in a script – Operators and Expressions in JavaScript – JavaScript Programming Constructs – Functions in JavaScript styles – Managing styles sheets – Dynamic Content – Changing HTML content – Adding Document content – Positioning – Absolute position – Relative position – Filters and Transitions.

**Unit – IV: (INTERNET CONCEPTS)**Basic Internet concepts – Communicating on the Internet – Overview of TCP/IP and its Services –Web Servers – Web Clients/Browsers.

**Unit – V: (WEB HOSTING)** Introduction to Protocols – About FTP – Web Hosting – Hosting through DOS- Hosting through Character Interface & Graphics Interface.

**Reference:**

1. DAVID, RHONDA – Web Design with HTML/Flash/Java Script Bible.

2.  RON WODASKI – Web Graphics Bible.

3. WEST – Complete Reference.

4. MATHEWS – FrontPage 2002: The complete reference.

5. JOHN DUCKETT – Beginning Web Programming

6. BRYAN PFAFFENBERGER, STEVEN SCHAFTER – HTML, XHTML, AND CSS bible.

## WEB PUBLISHING LAB

**Unit – I (PHOTOSHOP & FLASH)**
1. Designing Web Layouts
2. Designing Web Pages
3. Publishing Flash Intros with Links
4. Publishing the Web site

**Unit – II (HTML)**
1. HTML Page Layouts
2. HTML Page Development
3. Adding Graphics to HTML Document

**Unit – III (DHTML & JAVASCRIPT)**
1. Creating Dynamic Styles
2. Managing Style Sheets
3. Positioning
4. JavaScript Operators & Expressions

**Unit – IV (DREAMWEAVER)**
1. Creating Web Pages and aligning through Dreamweaver
2. Creating web page college/institution
3. Any Brand of Product/Services web page;
4. Fashion Design/Creative studio web pag
5. Create web page software company
6. Forms web page
7. Flash web page
8. Incorporating Audio & Video Files
9. Database Linking
10. Web Hosting

## LAYOUT DESIGN (Theory)

**Unit - I:** Introduction of workspace; Tools & Menus; Working with panels; Using context menus; Page setup; Baseline Grid – Baseline Grid; Units & Increments; Document Grid

**Unit - II:** Creative visualization of newspapers and magazines; Newspaper Terminology; Newspaper size; Columns; Gutter size; Category of newspapers and magazines; Categories of newspapers – Main page, Editorial Pages, City pages; Back page, Supplementary pages; Special Supplementary pages; Images; Font & Size; Caption and sub caption; Basics of newspaper photo journalism; Process of collecting content of newspapers, Editing by Editors, Press Photographers; Layout and Design pages; Printing and delivery

**Unit - III:** Working with pages; Working with text; Master Pages; Left and Right Master pages; Pages – Add page; Delete Page; Duplicate spread; Working with objects – Placing text, Flowing test; Resizing test automatically; Editing text

**Unit - IV:** Working with typography; Intends and Tabs; Changing fonts and styles; Fine-tuning columns; Changing paragraph alignments; Creating Drop Cap; Text Wrap; Working with styles – Paragraph styles; Character styles; Object styles

**Unit - V:** Working with color; Creating and applying colors; Applying advanced gradient techniques; Import images; Links; Working with alpha channels; Working with clipping paths; Working with transparency; Creating Tables; Working with long documents (Books) – Header; Footer; Synchronizing the book; Generating of Table of Contents

**Reference:**
1. Adobe InDesign CC Classroom in a Book (2017 release) 1st , Kindle Edition
2. The Non-Designer's InDesign Book 1st, Kindle Edition
3. Adobe InDesign CS6 on Demand 2nd, Kindle Edition
4. Adobe InDesign CC Classroom in a Book 1st Edition (English, Paperback, Adobe Creative Team)
5. Adobe InDesign CS6 Classroom in a Book by Adobe Creative Team
6. Adobe InDesign CS5 Classroom in a Book: The Official Training Workbook from Adobe Systems by Adobe Creative Team|author;-English-Pearson Adobe Press-Paperback
7. Indesign CC Creative Classroom Paperback – by Bone Peter (Author, Photographer)
8. Adobe Indesign Creative Cloud Revealed (English, Paperback, Chris Botello)

## DESIGN & LAYOUT DESIGN (Lab)

1. Draw a color wheel
2. Primary color and secondary color
3. Tint and shade color
4. Cool colors and warm color
5. Exterior background color or interior color
6. Additive color system or tertiary color tints color
7. Color symbolism - Mixing of primary, Secondary, Tertiary Colors, Tints, Tones and Shades.

### (Typography Lab)

8. Identify and mark the typography content key points in the given newspapers
9. Create typography concept artwork of wall paper in adobe paper work
10. Make craftwork of typography in drawing model
11. Collect different publications of newspaper and magazines and make you own layout design by observing
12. Using typography content prepare Danglers/ Oblers in any exhibition

### (Adobe In Design Practical)

1. Magazine A4 size
2. Magazine Centre Spread
3. Legal size Magazine
4. Legal size Magazine centre spread
5. Newspaper first page (newspaper size)
6. Newspaper first page (centre spread)
7. Special Supplement
8. Different categories of Books
9. Info Graphics
10. Caricatures
11. Newspaper advertisements
12. Special Supplement (Centre Spread)

13. Books layout design - general

14. Books layout design – science and mathematics

15. New paper layout design – fine arts

## 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.