ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

University of Mysore
(Estd.1916)

M. S. ANIMATION

Choice Based Credit System (CBCS)

Programme Details

UNIVERSITY OF MYSORE
Centre for Information Science and Technology
Manasagangotri, Mysuru-570006

Regulations and Syllabus
Master of Science in Animation (M.S.)
(Two-year semester scheme)

Under
Choice Based Credit System

UNIVERSITY OF MYSORE

GUIDELINES AND REGULATIONS
LEADING TO
MASTER OF SCIENCE IN ANIMATION
(TWO -YEAR SEMESTER SCHEME UNDER CBCS)

Programme Details

Name of the Department	: Center for Information Science and Technology (CIST)
Subject	: Animation
Faculty	: Science and Technology
Name of the Programme	: M.S. in Animation
Duration of the Programme	: 2 years divided into 4 semesters

Preamble:

Media and Entertainment are the most emerging and fast-growing industries in India and the whole world is taking notice of the efficiency, skill, and talent available in the country in these fields. To aid further growth of these industries, formal and professional level training programmes and courses must be introduced at University and College levels to create highly skilled and trained professionals for this Industry. Animation is an important segment in this industry and this course is being introduced to train people in the field of animation that is an inherent part of a variety of industries today and find applications in industries even beyond Media and Entertainment

The data from NASSCOM (Animation & Gaming Report 2007) states that there are approximately 16000 animators in India and the majority of these animators are employed gainfully in Mumbai, Chennai, Bangalore, Hyderabad, Pune, etc. The lack of skilled people is badly affecting the animation industry. Most studios have projects lined up for the coming years with tight deadlines to keep as most of these projects are from the international market. This situation has forced the industry to look for animation professionals from international markets and many studios are recruiting foreign hands. The animation business is sidelining the animation education and even after 15 years of existence in India, the field is not understood. The existing animation education lacks professional training methodologies, which are only available at Higher Education levels, and comprises of Private training institutes that are cashing the visible boom in the industry. Some of these establishments can only provide ill-trained and insecure artists and technicians, which will only compound the problem. A lot needs to be done, at a very fast pace if we have to maintain our competitive edge and deliver content be it films, serials, or games. There is a huge market for it as India has yet to discover its appetite for animation, and the world is still hungry for more!

Programme Outcomes

- Be aware of various concepts of Animation and its relevance as a distinct discipline.
- Know the conceptual and functional/practical knowledge in the field of Animation, including various theories/ techniques/tools related to modern development.
- Have an in-depth understanding of various aspects of this subject and acquire mastery of course contents by utilizing the popular literature sources.
- Work ethically and professionally individually or as a part of a team by complying with the information resources efficiently and effectively.

Programme Specific Outcome (PSO)

1. Create animated sequences from the development of the original concept through design to final film or video production.
2. Communicate ideas, believable action, and emotion effectively by employing principles of animation and performance in all aspects of drawing.
3. Integrate the concepts, principles, and theories involved in the physics of animation in all aspects of drawing.
4. Refine personal narrative voice that holistically integrates the elements of storytelling and performance to actively engage the audience.
5. Create 2D and 3D characters and environments that reflect the integration of graphic clarity, design principles, performance principles, and theoretical constructs.
6. Design layouts and backgrounds that incorporate principles of composition, perspective, and colour, with speed, accuracy, and dexterity, using a variety of media.
7. Create an animated film incorporating a range of artistic styles and techniques, reflecting the principle that form follows function.
8. Coordinate and manage the production of a student film, including the aspects of cinematography, art direction, and editing.
9. Collaborate effectively with peers on film projects.
10. Use critical thinking skills and problem-solving strategies in all dimensions of development and production.
11. Manage targets within the production schedule to effectively achieve completion of required tasks.
12. Communicate ideas, emotions, and intent effectively in visual, oral, and written forms.
13. Generate work that reflects initiative, creativity, adaptability, and personal style.
14. Create an animation that incorporates the basic principles of constructive anatomy and drawing using the economy of expression.
15. Incorporate technology effectively in the development of animation projects.

Programme Pedagogy

- Involves meaningful incorporation of teaching and learning materials in addition to the use of textbooks and reference works.
- Standardized curriculum with a centralized examination under an excellent CBCS regulation influences the teacher to help students to learn almost all aspects of the subject.

- The teaching learning involves three components.
- Lectures with intellectual inputs form the first component.
- This method provides Receptive Instructions to students.
- The second component is the tutorials.
- This method provides Directive Instruction to students.
- The third major component is the practical orientation with skills and participatory learning works.
- This method involves Exploratory Instructions.

Programme Structure

FIRST SEMESTER

Sl. No.	Code	Title	HC/SC	L	T	P	Credits
1	40751	Introduction to Animation	HC	3	1	0	4
2	40752	Principles of Anatomy and Drawing	HC	3	1	0	4
3	40753	Art of Film Making	HC	3	1	0	4
4	40754	Visual Communication	SC	3	1	0	4
5	40755	Basics of 3D Designing	SC	3	1	0	4
		SC-choose any one either 4th or 5th paper					
6		Digital Graphics Tools and Techniques Practical's	SC	0	0	2	2
7		3D Animation Software's and Tools - Practical's	HC	0	0	2	2

SECOND SEMESTER

Sl. No.	Code	Title	HC/SC	L	T	P	Credits
1	40761	3D Modeling and Animation	HC	3	1	0	4
2	40762	Script Writing and Story Board Designing	HC	3	1	0	4
3	40763	Character setup, 3D Lighting, Rendering	HC	3	1	0	4
4	40764	Digital Editing	SC	3	1	0	4
5		Open Elective					
6		3D Modeling and Texturing- Practical's	HC	0	0	2	2
7		3D Animation- Practical's	HC	0	0	2	2

THIRD SEMESTER

Sl. No.	Code	Title	HC/SC	L	T	P	Credits
1	40771	Dynamics of Animation	HC	3	1	0	4
2	40772	VFX, Compositing and Editing	HC	3	1	0	4
3	40773	Web Technology	SC	3	1	0	4
4	40774	Cartoon Animation	SC	3	1	0	4
5	40775	Game Design and Development	SC	3	1	0	4
6		VFX, Compositing and Editing (compulsory practical)	HC	0	0	2	2
7		Web Technology And Practical Based On Elective Paper Selected Either Cartoon Animation Or /Game Development		0	0	2	2

FOURTH SEMESTER

Sl. No.	Code	Title	HC/SC	L	T	P	Credits
1		Internship		0	4	4	8
2		Project, Project Report, Presentation and Viva		0	4	4	8

OPEN ELECTIVE PAPERS FOR OTHER THAN CIST

Sl. No.	Code	Title	HC/SC	L	T	P	Credits
1	40715	Digital Image Editing Using Photoshop	OE	3	1	0	4
2	40727	Audio-Video Editing Tools & Technology	OE	3	1	0	4
3	40731	2D Animation And Special Effects	OE	3	1	0	4

FIRST SEMESTER

HARDCORE

COURSE –I: INTRODUCTION TO ANIMATION

COURSE OUTCOME:

1. To get familiarized with the basic principles of animation.
2. To know about the tools of animation.
3. To provide an understanding of 3D Animation Pipeline.

Course Content

UNIT-I

Introduction to animation, Heritage of Animation, Dawn of Digital Animation, Digital effects of 3D Animation, Rot scope to Motion Capture, Becoming an Animator, Becoming an Actor, Becoming a Storyteller, Becoming a Creative Practitioner, Applications of Animation-Entertainment, Advertisement, Education, Medical Practice and Engineering.

UNIT-II

Basic Principles in animation, Squash and Stretch, Anticipation, Staging, Straight ahead and pose to pose, Follow through and overlapping action, Slow in and slow out, Arcs, Secondary action, Timing, Exaggeration, Solid drawing, Appeal, Mass and weight, Character acting, Volume, Line of action, Path of action, Walk cycles-animal and human.

UNIT-III: Tools of Animation

The use of Live Action in Animation Humans and Animals-Quick Studies from real life, Sequential movement drawing, Caricaturing the Action, Thumbnails, Drama and psychological effect, Motion Studies, Drawing for motion, The Body language, Facial expressions, and Lip sync, Introduction to traditional and digital equipment- The animator's drawing tools, The animation table (lightbox, Field charts, Exercises and warm-ups on pegging sheet, Line tests, The exposure sheet ("X" sheet),.

UNIT-IV: 3D Animation Pipeline

Preproduction- Idea, Story, R&D, Script to screenplay, Storyboards. Production- Layout, 3D Model, Texturing(Surfacing), Rigging/setup, Animation, 3D Visual effects, Lighting and Rendering, and Post-production – Colour Correction, Audio Video Editing, Final Output.

References:

1. Illusion of Life, Frank Thomas by Ollie Johnston
2. Animators Survival Kit by Richard Williams
3. Timing for Animation by Harold Whitaker & John Halas
4. The Complete Animation Course by Chris Patmore.
5. The Animator's Workbook by Tony White.
6. The Animator's Survival Kit. A Manual of Methods, Principles, and Formulas for Classical, Computer, Games, Stop Motion, and Internet Animators by Richard Williams.
7. Treasure of Disney Animation Art John Cane maker, Robert E. Abrams, Disney Studios
8. Character Animation Crash Course! by Eric Goldberg
9. The Animation Book: A Complete Guide to Animated Filmmaking-From Flip-Books to Sound Cartoons to 3-D Animation" by Kit Laybourne.

10. Handbook Of Multimedia & Animation, By Shukla A.S

COURSE –II : PRINCIPLES OF ANATOMY AND DRAWING

COURSE OUTCOME:

1. To get familiarized with anatomy and drawing for animation.
2. To know about Color Theory & Color Composition.
3. To provide an understanding of perspectives.

Course Content

UNIT-I: Anatomy and Drawing for Animation

Introduction: To Sketching and Drawing- Introduction to basic drawing techniques including proportions and Line, Using Pencils for shading, Sketching of Moving Objects
- People And Animals, Proportion in portrait drawing, Highlighting and shadows, Drawings with the help of basic shapes, Understanding of the relationship of bones and muscles at rest and in a movement to able to translate and maintaining correct volumes.

UNIT-II: Perspective

Introduction to Perspectives: Perspective in 1 point, Perspective in 2 points, Perspective in 3 points, Eye levels, Vanishing point, Significance of Perspective in animation and composition, Humans and animal forms in perspective, Perspective- blocks, boxes and shapes, Scale diagrams in perspective, Different viewpoints, Importance of eye level.

UNIT-III: Color Theory & Color Composition

The first steps in color drawing, Understanding the Colour theory by studying the color wheel, Illusion drawings, communicating with color, Colour and mood, Colour and painting styles, Colour and compositions, Colour in action, Realism, immersion, and believability in color scheme, Digital color correction.

UNIT-IV

Studying Human and animal movement through sequential drawings, gesture drawing, Caricaturing – fundamentals, Exaggeration, Attitude, Silhouettes, Boundary breaking exercises, and warm-ups, gesture drawing, Line drawing, and quick sketches, Drawing from observation, memory, and imagination.

References:

1. Drawn to Life: 20 Golden Years of Disney Master Classes: Volume 1: The Walt Stanchfield Lectures"
2. "Drawn to Life: 20 Golden Years of Disney Master Classes: Volume 2: The Walt Stanchfield Lectures"
3. "Manwatching" Desmond Morris
4. "Teach Yourself Body Language" Gordon Wainwright
5. "Drawing on the Right Side of the Brain" Betty Edwards
6. "The Natural Way to Draw" Kimon Nicolaides

COURSE –III: ART OF FILM MAKING

COURSE OUTCOME:

1. To get familiarized with basics of filmmaking.

2. To know about Digital Video Equipments.
3. To provide an understanding on production and post-production.

Course Content

UNIT-I: Basics

Basic art of filmmaking, Types of Film Production, Development- Selection of concept, Film budget justification, Green-light. Pre-production- Area of research, Script development -types, Draft preparation. Shot, scene, Storyboard, Copyright (Law/Ethics), Hiring actors or models, Crew members Role of Director & procedures. Art Director, Cinematographer, Director of Lighting, Floor Manager, Production Manager. Preparing Production board/Management, Planning, and Budgeting for Production, Location scouting. Set direction & color correction, Equipment required and tests, Finalizing props, shooting schedule, Script breakdown,

UNIT – II: Digital Video Equipments

Introduction to Digital Video Equipments: Digital Video Camera- Types – Format- Major Components - Operation and Functions. Lens – Types – Aperture- Shutter. Focusing Methods. Focal Length. Depth of Field. Video signal- Types and Functions. Tripod- Types. Clapboard-Usage. Light meter. Other Useful Accessories. Digital Camera- Movements-Composition-Shots-Angles. Single & multi-camera operations.

UNIT – III: Production

Production: Shooting on location, Shooting script, Visualization, Selection of Dialogue, Rehearsing, Basic, and Special Lighting Usage. Setup-Atmospheric Lighting, Cinematography, Principal photography, Mic arrangements. Camera placement. Tool and techniques. Online, offline, recorded & live programs. Schedule alterations. Changes in relation to artists date/location problems. Daily call sheet, Daily progress report, Cost report.

UNIT – IV: Post-production

Post-production- Video Capturing and Footage review. Final scripting. Basic software & hardware. Editing, Video Editing-types. EDL Preparations, Editing Techniques- Continuity-Sequence-Dynamic. Linear and Non-Linear Editing. A-B roll & its advantage, Method of Video Effects and Video Transition, Chromo-Keying. Re-recording Video. Voice-over, Sync sound, audio mixing, Role of audio & effects, Mix and composite, Finding Music. Special effect. (Sound, Visual, Graphics and Animation), Titles, Film Screening, FT (Fit for Telecast) certificate, Certificate Approving, Marketing-getting sponsors. Publicity, Film Releasing. VIDEO & AUDIO CODECS

Definition and use of codec's. Codec formats & types. Storage Devices CD/DVD/BD (Blue-ray Disc). Montage, promos, special promos.

References:

1. Television Production – Gerald Millerson, Focal press, 1999. London.
2. The Technique of Television Production 2001 by Gerald Millerson. Focal press. London.
3. Digital Cinematography 2001– Paul Wheeler, Focal Press,. London. First edition.
4. The Essential of TV Director's Handbook 1996 – Peter Jarvis, Focal Press. III-Edition, London.

5. An Introduction to digital Video (1994) – John Watkinson, Focal Press, London.
6. Video Production – Disciplines & Techniques by Thomas D. Burrows, Lynne S. Gross – MaC Graw hill.
7. Lighting Techniques For Video Production – Tom Letourneau.1996.Mc will publications. Tanzania. First edition.
8. Digital Non-Linear Editing 1998. – Second edition, Thomas A. Ohanian, Focal Press. London.

Sixth edition

<div align="center">

SOFTCORE

</div>

COURSE –IV : VISUAL COMMUNICATION

COURSE OUTCOME:

1. To get familiarized with Human and Visual Communication.
2. To know about Fundamentals of Design.
3. To provide an understanding on Basics of Graphic Design.

Course Content

UNIT-I

Need for and the Importance of Human and Visual Communication. Communication a expression, skill and process, Understanding Communication: SMRC-Model. Types of Media – Traditional media, Print media, Electronic media and any other new media.

UNIT-II

Communication as a process. Message, Meaning, Connotation, Denotation Culture/Codes etc Levels of communication: Technical, Semantic, and Pragmatic. The semiotic landscape: language and visual communication, narrative representation. Principles of Visual and other Sensory Perceptions. Colour psychology and theory (some aspects) Definition,

UNIT-III

Fundamentals of Design: Definition. Approaches to Design, Centrality of Design, Elements/Elements of Design: Line, Shape, Space, Colour, Texture. Form Etc. Principles of Design: Symmetry. Rhythm, Contrast, Balance Mass/Scale etc. Design and Designers (Need, role, process, methodologies etc.)

UNIT-IV

Basics of Graphic Design: Definition, Elements of GD, Design process-research, a source of concept, the process of developing ideas-verbal, visual, combination & thematic, visual thinking, associative techniques, materials, tools (precision instruments etc.) design execution, and presentation.

References:

1. Lester, E (2000) Visual Communications: Images with Messages. Thomson Learning
2. Schildgen, T (1998). Pocket Guide to color with digital applications. Thomsom Learning
3. Picture this: Media Representation of Visual Arts and artists. University of Luton Press
4. Palmer, Frederic: Visual Elements of Art and Design,1989, Longman.
5. Porter, Tom and Goodman, Sue: Manual of Graphic Technique 2: For Architects, Graphic Designers, and Artists,1982, Astragal Books. London.
6. Palmer. F: Visual Awareness (Batsford, 1972)

SOFTCORE

COURSE –V : BASICS OF 3D DESIGNING

COURSE OUTCOME:

1. To get familiarized with basics of 3D.
2. To know about Fundamentals of 3D Design.
3. To provide an understanding on Basics of 3D Modeling.

Course Content

UNIT-I

The Workspace-User Interface Elements-Menu Sets, menus, status bar, shelf, view compass, toolbox, channel box, layers, quick layout buttons, time sliders, range slider, helpline, command line, characters, playback controls,   Hotkeys, Common Menus, Panel Menus, Marking Menus, Recent Commands, Menu Sets, Hotbox Controls, Mouse Buttons

UNIT-II

Creating primitive objects, Moving Objects in the 3D Space, Maya View Tools, Layouts, Saved Layouts, Channel Box and Manipulators, Grouping and Parenting, Spline Modelling, About Nurbs (Non-uniform rational B-spline), Creating Curve and Surfaces, Attaching and closing Surfaces, Duplicating curves, Lofting and revolving surfaces, Fast work of importing Adobe Illustrator files into Maya for text and Logo treatments.

UNIT-III

Type of lights – usage of each, techniques for each, Light Linking, New linking to Objects (and sets) workflow, Reason for light linking – matching live footage lighting, Light attributes – adjusting and show manipulators, Light Fog, Intensity Curves

UNIT-IV

Rendering Overview, Maya renders, Shader Networks, Shading Groups, Materials, Lights, Maya architecture, Nodes and Attributes, HyperGraph, IPR (Interactive Photorealistic Rendering), Motion Blur-OptiFX Techniques and Tips-Occlusion – as applies to light glow, Auto – exposure – as applies to Shader Glow.

References:

1. Mastering Autodesk Maya 2016, Todd Palamar, 2015
2. Introducing Autodesk Maya 2016, Dariush Derakhshani, 2016.
3. Autodesk Maya 2016, Basics guide.
4. Autodesk Maya 2015 A Comprehensive Guide, ePub eBook Kindle PDF, 2015.

PRACTICALS

Digital Graphics Tools & Techniques Software's and Tools:

1. Corel DRAW
2. Adobe Photoshop

Weeks I	Photoshop
Practicals 1	Simple text effects
Practicals 2	Image restoration
Practicals 3	Image manipulation in Photoshop
Practicals 4	Movie poster concept (
Practicals 5	Creating storyboard
Practicals 6	Digital scenery creation
Practicals 7	UI Design, smart objects, actions, batch
Practicals 8	Creating a website layout
Practicals 9	Set extension in Photoshop
Practicals 10	Digital Matte painting
Corel draw	
Practicals 11	Symbols, Icons in Corel draw
Practicals 12	Business Card
Practicals 14	Logo/Identity design
Practicals 15	Creating Graphs
Practicals 16	Brochure design
Practicals 17	Product packaging design
Practicals 18	Infographics

Digital Animation Software's and Tools:

1. Blender 3D
2. Autodesk Maya

Practicals1	Pendulum
Practicals2	Bouncing Ball(Light & Heavy)
Practicals3	Vanilla walk
Practicals4	Personality walk(3D space)- Planning
Practicals5	Personality walk- Blocking
Practicals6	Personality walk- Max Blocking
Practicals7	Personality walk- Polish and Finish pass
Practicals8	Body Mechanics-Planning & Layout pass
Practicals9	Body Mechanics-Blocking pass
Practicals10	Body Mechanics-Max Blocking pass
Practicals11	Body Mechanics-Polish and finish pass
Practicals12	Polish and portfolio development

SECOND SEMESTER

HARDCORE

COURSE –I : 3D MODELLING AND ANIMATION

COURSE OUTCOME:

1. To get familiarized with 3D modeling.
2. To know about texturing and Applying textures
3. To provide an understanding on Body mechanics, Weight and balance.

Course Content

UNIT -I: 3D Modeling

Introduction to various 3D modeling, working with symmetry, Editing components in orthographic view, editing components in perspective view, Poly editing techniques-Extruding, Bridging, Adding polygon to mesh, Split polygon faces, edge loops, Mirror copying a mesh, Creasing and hardening edges on mesh, Sculpt a polygon mesh Poly Normal, Edge & bevel, Separating & combining geometry, NURBS, sub-D's.

UNIT-II: 3D Modeling techniques

Using 2D reference sketches to model, Image Planes, Sculpting, Retopology and poly modeling workflow, Polygon primitives, Modeling in shaded mode, Model symmetry, Drawing a polygon, Quads, Tris and nGons, Low Poly/High Poly modeling, Exporting the models from scene to scene for facilitating faster production flow

UNIT-III : Texturing

Introduction to texturing, Unfolding/Unwrapping UV mesh, Smoothing and relaxing a mesh interactively, Fixing problem areas, Applying textures, Introduction to Maya Hyper shade, Texturing, Materials, Normal mapping, Baking maps.

UNIT-IV : Animation

Introduction to Walks with Personality, Locomotion, Body mechanic- Weight and balance, Techniques behind Planning and blocking methods, Understanding Hips, In- depth look of principles of animation, Spilling and Polishing methods, Phrasing or bets in shot, Force and forms, Animating Physicality workflow.

References:

1. ISBN: 8131502546, INTRODUCTION TO 3D GRAPHICS & ANIMATION USING MAYAW/CD,ADAM WATKINS, INTERNATIONAL THOMSON COMPUTER PRES, 2007.
2. ISBN: 0764123998, COMPLETE ANIMATION COURSE, CHRIS PATMORE, BARRONS EDUCATIONAL SERIES INC, 2003.
3. Adam Watkins : Maya A Professional Guide, Published by dream tech, first edition- 2003.
4. Danish Derakhshevi : Introducing Maya 8 3D for Beginners 2006 Wiley Publishing Inc.
5. Tom Meade and Shinsaka Anima : The Complete Reference Maya 6
6. Published by Tata MC.Graw –Hill Publishing Company Limited edition-2004.
7. Autodesk Getting Stat with Maya 2015 URL: docs.autodesk.com/mayaul/ 2015/enu/gettingstarted

COURSE –II : SCRIPT WRITING & STORY BOARD DESIGNING

COURSE OUTCOME:

1. To get familiarized with basics of story.
2. To know about Scriptwriting terminology
3. To provide an understanding on Story boarding.

Course Content

UNIT-1: Basics of story:

Exploring ideas, Concept, Plot, Structure, Character Theme, Conflicts, Storytelling outline, Building a character, delivering a precise message through the story, Story pacing. Animation story for Children, Adults, Basics of story and Basics of Scriptwriting Action, Scene Headings, Character Name, Screenplay, Titles and End Credits.

UNIT-II : Scriptwriting terminology

Action, Angle, BG close up, Exterior, Fade in fade out, Pan, Parenthetical, POV, Scene Heading, Slug line, SFX, Sotto voce, Track with, Voice over, Character name, Cast List, Dialogue, Script Length, Action Description, Extension, Dual- Column Dialogue, Act numbers, Scene Numbers, short lines, dialogue paragraphs, Character Arc.

UNIT-III : Story boarding

Introduction to storyboards, Steps of creating a storyboard, Beat board, Story boarding overview, Contents, Pose, Scenes, Camera, colour scheme, Sound, Lighting, Special fx, Applications, Focus the story and the timing in several key frames, Animatics -Lica reel.

UNIT-IV: Intellectual property and copyrights

Public domain material, Protecting the idea, Proof of ownership, Confidentiality agreement, Piracy, Animation Industry in India, Case Study.

References:

1. ISBN:9788177226645 ,CHARACTER ANIMATION & FILM PRODUCTION PROJECTS USIN 3DS MAX W/CD, CHRIS NEUHAHN, WILEY INDIA PVT.LTD, 2006
2. ISBN: 9788126512287, INTRODUCING CHARACTER ANIMATION WITH BLENDER W/CD, TONY MULLEN, WILEY INDIA PVT.LTD, 2007.
3. COMPUTER GRAPHICS & ANIMATION, PRAJAPATI AK, PRAGATI PRAKASHAN, 2005.
4. ISBN: 9788131208977, TIMING FOR ANIMATION, HAROLD WHITAKER / JOHN HALAS, FOCAL PRESS, 2009.
5. ISBN: 9781903047463, ANIMATION, MARK WHITEHEAD, POCKET ESSENTIALS, 2004.
6. ISBN: 9780240805828, WRITING FOR ANIMATION COMICS & GAMES, CHRISTY MARX, ELSEVIER INDIA P LTD, 2007.
7. Inspired 3D Short Film Production" Pepe Valencia & Jeremy Cantor
8. "Simplified Drawing for Planning Animation" Wayne Gilbert
9. "Illusion of Life" Frank Thomas, Ollie Johnston

COURSE –III : CHARACTER SETUP, 3D LIGHTING, RENDERING

COURSE OUTCOME:

1. To get familiarized with character setup.
2. To know about 3D lighting
3. To provide an understanding on 3D rendering.

Course Content

UNIT-I: Introduction to Character Setup

Introduction to Character setup, Riggers role, Criteria for a good rig, Joints and skeletons, Creating skeleton hierarchy, Constraints, Forward(FK) and Inverse kinematics(IK), FK, IK joint structures, Animation controllers, Blend shapes, Clusters, Biped Rig- Analyzing reference, Anatomy of human body, Bone placements, Setting up Torso, Biped Arms, Fingers, Legs/Foot controls, Skinning, Facial Rig- Anatomy of a face, The Facial Action Coding System(FACS), Mouth shapes, Phonemes, Animation controllers for Face, Character GUI.

UNIT -II: Muscle systems

Introduction to 3D Muscle system, Components of Muscle, Capsules, , Spline based muscle system, Stretch based muscle systems, Muscle Objects and skins, Assigning weights to Muscle skin, Muscle Builder, Muscle Parameters, Custom muscle systems, Wrinkles, fold, jiggle, Slide, Collide, Muscle control.

UNIT-III: 3D Lighting

Introduction, Directional lights, Spotlights, Types of lights in 3D space, Light attributes, 3 Point lighting, 2 Point lighting, Shadows, Creating photo real environmental lighting.

UNIT-IV: Rendering

Introduction to 3D rendering, Introduction to advance lighting effects, Shading material for objects: Anisotropic, Blinn, Lambert, Pong, Pong E, Layer Shader, Ocean Shader, Hair tube shader, Ramp shader, Shading Map, Surface shader, Refining shading materials, Mental ray rendering and Toon shade rendering. IPR rendering, Software, Hardware rendering, Batch rendering, Creating various output as per the end-user requirements and maintaining the resolution.

References:

1. Inspired 3D Advanced Rigging and Deformations by Brad Clark (Author), John Hood (Author), Joe Harkins (Author)
2. Inspired 3D Character Setup von Michael Ford (Autor), Alan Lehman (Autor)
3. Maya Character Creation: Modeling and Animation Controls by Chris Maraffi (Author)
4. Rig it Right! Maya Animation Rigging Concepts (Computers and People) by Tina O'Hailey (Author)
5. Painting With Light by John Alton
6. Digital Lighting and Rendering By Jeremy Birn
7. http://www.nationalgallery.org.uk
8. Real-Time Rendering by Tomas Akenine-Moller
9. 3D Math Primer for Graphics and Game Development by Fletcher Dunn (Author), Ian Parberry (Author)
10. Computer Graphics: Principles and Practice by John F. Hughes (Author), Andries van Dam (Author), Morgan McGuire (Author), David
11. Sklar (Author), James D. Foley (Author), Steven K. Feiner (Author), Kurt Akeley (Author)
12. Light for Visual Artists: Understanding & Using Light in Art & Design by Richard Yot (Author)
13. Physically Based Rendering, Second Edition: From Theory To Implementation

SOFTCORE

COURSE –IV : DIGITAL EDITING

COURSE OUTCOME:

1. To get familiarized with fundamentals of editing.

2. To know about fundamentals of transition effects
3. To provide an understanding on sound editing

Course Content

UNIT-I: The fundamentals of editing

Basics of editing technology, Types of editing, Editing equipment – recorder, player, Video Switcher, audio mixer, monitor, speaker, special effect generator, Setting Up a Project, DV-PAL, DV-NTSC, HDV, Digitizing from raw storage. Pal Video for windows, Using Project Window, Video Settings, Audio Settings, Compressor, Depth, Frame Size, Frame Rate, Importing still images, Importing video, Narration & adding music & effects. using the monitor window, Video track Adding Video Track Deleting Video Track, use of editing tools selection tool, uses of track select uses of razor tool

UNIT-II: The fundamentals of transition effects

Creating Video Effects, Applying Video Effects, Creating Transitions, Transition Settings, Image Mask Transition, Applying Transitions, viewing transitions, Control Panel Setting. Advantages of AB roll editing, Creating Titles, Types of Title, Default still default role, crawl, using template. **Finishing & the future:** Making movie, finalizing sound and effects, rendering, Video File Formats, Export to AVI, MPEG, Adobe Flash video, making video CD.

UNIT-III : Sound Editing: Introduction to sound

Sound, Digital sound files, different sound formats, Midi & digital audio, creating digital audio files, sound-producing, sound extracting, Advantages and disadvantages of midi &digital, choosing between midi and digital audio. **Linking files:** Sound for the World Wide Web, adding the sound to your multimedia project, production tips, audio recording, keeping track of your sound, testing and evaluation. **Record clips & editing:** Sound recording, editing digital recording, trimming, splicing and assembly, volume adjustments, format conversion, re-sampling or downloading, fade-ins and fade-outs, Equalization, time-stretching, digital signal processing, reverting sound, making midi audio, Audio file formats.

UNIT-IV : Special effects

Adding effect automation enveloping, adding a volume envelope, adding a panning envelop, previewing effect automation, applying effect automation, adjusting envelope, adding envelop points, flipping a envelope points, setting fade properties, cutting, copying, pasting, envelope points, adding mirror and wave hammer, pan to left, pan to right, dry out, wet out, convert mono to stereo, looping.

Finalize files: Burning the audio CD, MP3, making the remix soundtrack with using all the special FX from the software. Exporting the files in diff formats, save in wav, mp3 etc.

References

1. On Directing Film David Mamet
2. Visual Story Bruce Block
3. 5 C's of Cinematography Joseph Mascelli
4. Story Robert Mckee
5. Cinematic Storytelling Jennifer Van Sijll
6. Cinematography: Theory and Practice Blain Brown Shot by Shot Steven D. Katz
7. Cinematic Motion Steven D. Katz
8. Painting with Light John Alton
9. In the Blink of an Eye Walter Murch

10. Editing Digital video by Rober M Goodman, Patrick Mcgrath
11. Transition: Voices on the Craft of Digital editing by Erik Andersen and Stuart Bass
12. Color correction look book: Creative grading technique for film and video by Alexis Van Hukman
13. Digital audio workstation by Colby Leider.

List of Practical

3D MODELING

Practical 01	Apple
Practical 02	Strawberry
Practical 03	Coca-Cola Can
Practical 04	Treasure box
Practical 05	Human Nose sculpt
Practical 06	Human Eyes Sculpt
Practical 07	Human Mouth Sculpt
Practical 08	Human Ears Sculpt
Practical 09	Biological organ planning(Heart)
Practical 10	Any Biological organ Finishing
Practical 11	Human Character planning
Practical 12	Human Character blocking
Practical 13	Human Character body sculpting
Practical 14	Human Character Face sculpting
Practical 15	Human Character Polish & finish

List of Practical

3D ANIMATION

Practical 1	Advance Body Mechanics-Planning & Layout pass
Practical 2	Advance Body Mechanics-Blocking pass
Practical 3	Advance Body Mechanics-Max Blocking pass
Practical 4	Advance Body Mechanics-Polish and finish pass
Practical 5	Pantomime Shot- Planning & Layout pass
Practical 6	Pantomime Shot- Blocking pass
Practical 7	Pantomime Shot- Max Blocking pass
Practical 8	Pantomime Shot- Polish and finish pass
Practical 9	Dialogue shot- Planning & Layout pass
Practical 10	Dialogue shot- Blocking pass
Practical 11	Dialogue shot- Facial animation & lipsync
Practical 12	Dialogue shot- Polish and finish pass

THIRD SEMESTER

HARDCORE

COURSE –I : DYNAMICS OF ANIMATION

COURSE OUTCOME:

1. To get familiarized with dynamics of animation.
2. To know about fluid effects

3. To provide an understanding on Fur and Hair systems

Course Content

UNIT – I

Introduction to Dynamics, and Dyna motive solver, Particles, Emitters, Fields: Air, Drag, Gravity, Newton, Turbulence, Vortex, Volume, Particle collisions, Particle cache, Goals, Soft bodies, Springs, Rigid bodies, Constraints, Effect: Fire, Smoke, Fireworks, Lightning, Shatter, Curve flow, Surface flow, Rendering particles and effects, Maya Paint Effects, Baking simulations, Render types.

UNIT –II: Fluid Effects

Introduction to Fluids, Fluid field interaction, Fluid attributes, , Creating a non- dynamic 3d fluid effects, Creating dynamic 3D effect, Creating fire and smoke using Fluid dynamics, creating a ocean.

UNIT –III: Fur and Hair systems

Introduction to Fur, Procedural textures, Inclination, roll and polar, Fur volume and Noise, Painting fur attributes, modifying fur direction, Modifying color of fur descriptions, Creating nCloth collision, Constraints, Hair System: Artisan, Hair system components, Modify curve tools, Paintfx with hair, Hair collision, Hair system caching, Hairstyles.

UNIT –IV: Dynamics

Introduction to nParticles and Nucleus solver, Nucleus node, Nucleus forces, Nucleus plane, Nucleus attributes, nParticles interaction, nConstraints, nCloth: simulations, nCloth dynamics properties, Working with nConstraints, Tearing cloth, Dynamic Property maps, Simulating cloth on moving character, nParticle caching, nConstraints, Creating Smoke simulations in nParticles, Creating liquid simulations in nParticles, Introduction to nHair, Creating Basic hairstyle, Creating a dynamic curve simulation.

References:

1. ISBN:9788183340040, ELEMENTS OF STATICS & DYNAMICS PART 2 DYNAMICS, LONEY SL,2005
2. Zerouni, Craig. Houdini On the Spot. Focal Press, 2007
3. Maya Studio Projects: Dynamics by Todd Palamar (Author)
4. Maya Visual Effects The Innovator's Guide: Autodesk Official Press by Eric Keller (Author)

5. Autodesk Getting Started with Maya 2015
   URL:docs.autodesk.com/mayaul/2015/enu/gettingstarted

COURSE –II : VFX, COMPOSITING AND EDITING

COURSE OUTCOME:

1. To get familiarized with the dynamics of animation.
2. To know about Designing Different glass reflection
3. To provide an understanding on Compositing Techniques

Course Content

UNIT-I: VFX

Converting images from 2D to 3D. Differentiation 2D effects and 3D effects. Visual Effects-Description- Types- Particles – Analysis- Size- Sand Effects –Smoke Effects- Fire Effects – Cloud Effects – Snow Effects. designing Clouds Background – Designing Fog Effects – Explosion Effects– Fire Effects with flames - Space Effects and designs- Designing, Thick Smoke Designing, Paint Effects.

UNIT-II

Designing Glass image –Designing Different glass reflection- Designing Glow Effects – Liquid Effects and reflection design Designing Special Effects Visual Effects Tool and advanced functions–Pictures. Matte painting, Designing Trees and green effects – Designing Weather and seasons –Effects on seasons.

UNIT-III : Compositing Techniques

Introduction to advanced 2D animation compositing and Ink paint techniques. Creating color models as per the model sheets. Creating color pallets as required paint and ink fields. Understand the dope sheets / X- sheets in production level. Arranging and adjusting the layers as per X- sheet. Advanced panning of camera and background, multiple cameras for showing depth in-between background, overlay and character layers. Introduction to compositing special effects into a scene using 3d graphics and 3d special effects in 2d layers. Concepts for Broadcast animation for logos, channel IDs and montages. Multi-Layer Compositing, Special Effects, Superimposition and Titling. Exporting various file format outputs as per the end-user requirements.

UNIT-IV: Post-production

Post-production, Video editing (re)recording, and editing the soundtrack. SFX Sound design, Sound effects, ADR, Foley and Music, Transfer of Color motion picture film to Video or DPX with a telecine and color grading (correction) in a color suite. Titles, Credits, and Combining Picture with Sound. Exporting to different platforms.

References:

1. The Art and Science of Digital Compositing, Second Edition: Techniques for Visual Effects, Animation and Motion Graphics (The Morgan Kaufmann Series in Computer Graphics) by Ron Brinkmann (Author)
2. The Digital Matte Painting Handbook by David B. Mattingly (Author)
3. The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures by Susan Zwerman (Editor), Jeffrey A. Okun (Editor)
4. The Green Screen Handbook: Real-World Production Techniques by Jeff Foster (Author)

SOFTCORE

COURSE –III : WEB TECHNOLOGY

COURSE OUTCOME.

1. To get familiarized with web technology.

2. To know about WEB publishing
3. To provide an understanding on DREAM WEAVER

Course Content

UNIT-I

Introduction to computer networks, Basics of computer networks, LAN, WAN, Concepts of Internet, services on Internet, WWW, Browser, URL , IP address? TCP/ IP basics, Principles of design and composition, Web pages, Hyperlinks, Web server. Planning a website-How to plan a website- importance of good web content. Structuring & site navigation, browser compatibility issues, domains and hosting, Dynamic and static websites

UNIT-II

Introduction, WEB publishing. HTML tag concept , <head><body> , URL, hyperlinks <link> href,<A> tags, Image basics, <img> alt attribute, Hspace, Vspace , Height, Width, Image as buttons, Presentation and layout , Text alignment, Center, left, right , Multicol, Color settings , bgcolor , Foreground color

UNIT-III

Tables, TD, TR, Rowspan, Colspan, cell padding, Table within table , Lists, Ordered lists, Types of order list , Unordered lists, Types of unordered list, Nested Lists, Frames, Frameset, Row, Col. % split up of row, col, Frame targeting, Horizontal splitting, Vertical splitting.

UNIT-IV

DREAM WEAVER: Form, Input fields, Text box, Password, Button, Dropdown list box, Radio button, Checkboxes, Submit /reset button, Methods post/get, Style sheet, Setting background, Setting background Repeating background, Setting background image, Setting text color, Align the text, Text decoration, Font, Setting the Font , Size, boldness of font, Border, Style of four order, Different borders on each side, Width setting, Margin, Padding, List, List-item marker, Positioning, Vertical alignment of an image, Placing an element behind another.

References

1. www.w3schools.com
2. www.htmlcoretutorial.com
3. www.echoecho.com
4. HTML & CSS: The complete reference by Thomas Powell
5. HTML and CSS: Design and Build Websites by Jon Duckett
6. HTML: A beginner's guide by Wendy Willard

COURSE IV: CARTOON ANIMATION

COURSE OUTCOME:

1. To get familiarized with dialogue acting.
2. To know about animation of non-human characters
3. To provide an understanding of Advanced Creature animations

Course Content

UNIT-I: Dialogue acting

Multi character: Generating ideas for acting, Cliche, Planning multi character shot, Storytelling, Camera placement, staging, Hands: Appeal, Secondary action, Meaningful and Believable hand poses, Facial expression, Subtext, Emotions In depth look on Eyes and blink

UNIT-II: Creature animation

Introduction to animate non-human characters, Animals and creature basics, Animating quadrupeds(Four legged creatures), Animal locomotion, Animal High speed and low speed GAIT, Solid posing and Body mechanics of quadrupeds.

UNIT –III: Advance Creature animations

Four legged walks in depth- Weight, Physicality, Exaggeration, Animal interaction, Hunting behaviour, Performance, Introduction to Bird flight, Applying to fantasy creatures, Creature Interaction.

UNIT-IV: Match Move

Integrating to Live Background plate, Shooting BG plates, Basic composition and framing for creature integration, tracking techniques: Tracking, Calibration, Point cloud projection, Ground plane determination, Reconstruction, Automatic vs interactive tracking, Tracking mattes, 2d and 3d tracking

References:

1. Illusion of Life, Frank Thomas, Ollie Johnston
2. Animators Survival Kit, Richard Williams
3. Timing for Animation" Harold Whitaker & John Halas
4. The Complete Animation Course" by Chris Patmore.
5. The Animator's Workbook" by Tony White.
6. The Animator's Survival Kit: A Manual of Methods, Principles, and Formulas for Classical, Computer, Games, Stop Motion, and Internet Animators" by Richard Williams.
7. Facial Expressions: A Visual Reference for Artists" Mark Simon
8. The Male and Female Figure in Motion Edward Muybridge
9. Animals in Motion Edward Muybridge
10. The Artist's Complete Guide to Facial Expression by Gary Faigin
11. Acting for Animators by Ed Hooks
12. A Practical Handbook for the Actor Bruder et al.
13. Drawn to Life: 20 Golden Years of Disney Master Classes: Volume 2: The Walt Stanch Field Lectures Walt Stanch field

COURSE-V : GAME DESIGN AND DEVELOPMENT

COURSE OUTCOME:

1. To get familiarized with game art.
2. To know about game design
3. To provide an understanding of game programming

Course Content

UNIT –I: Game Art

Introduction to Game industry and Game production, Game theory, Game design document, Concept and design level-1, Pre-Production, Storytelling, Level design, Game assets, Game content for mobile, Handheld devices, PC, Consoles and Social media games, Game cinematic, Programming for Mini-games.

UNIT –II: Game Design

Concept and design level2, Game mission design, Environment, Lighting, 3DModelling for games, 3D game animation, Texturing, Introduction to Game engine, Mocap, Designing front end interfaces, Sound effects, Game engine Assembly.

UNIT-III: Introduction to Game Programming

Introduction to game programming, Variables and Manipulating Variables, Comparison and logical operators, Logic with If statements, Creating Switch statements, Creating custom functions, Working with loops, Understanding arrays, Introduction to Artificial intelligence, Prefab, Character, Joysticks mapping.

UNIT-IV: Advance Game programming

Way around Game engine, Artificial intelligence in-depth, Level design, Waypoints, While loops, Infinite loops, Switch statements, Character scripting, Saving Game states, Data and high scores, GUI Notification, Colliders, Game Testing

References:

1. Game Engine Architecture, Second Edition Jason Gregory (Author)
2. Game Engine Architecture by Jason Gregory (Author), Jeff Lander (Foreword), Matt Whiting (Foreword)
3. Programming Game AI By Example (Wordware Game Developers Library) by Mat Buckland (Author)
4. Artificial Intelligence for Games by Ian Millington (Author)
5. Building JavaScript Games: for Phones, Tablets, and Desktop by Arjan Egges (Author)
6. Learn OpenGL ES: for Mobile Game and Graphics Development (Learn Apress) by Prateek Mehta (Author)
7. The Art of Game Design: A book of lenses by Jesse Schell (Author)
8. The Ultimate History of Video Games: From Pong to Pokemon--The Story Behind the Craze That Touched Our Lives and Changed the World by Steven Kent (Author)
9. Fundamentals of Game Design by Ernest Adams (Author)

PRACTICAL

VFX, Compositing and editing (compulsory practical)

Software Package: Autodesk Maya, After effects, Adobe Premier, Real flow

List of Practical

	DYNAMICS
Practical - 01	Cloth Simulation
Practical - 02	Particle emitter, Particle types & Simulation
Practical - 03	Cloud smoke and Explosion
Practical - 04	Surface materials and Rupture
Practical - 05	Dynamic path animation
Practical - 06	Sprites

Practical - 07	Dynamic effects
Practical - 08	Dynamic fields
Practical - 09	Shatter and Collisions
	VFX
Practical - 10	Video stabilization & tracking
Practical - 11	Keying & Matte
Practical - 12	Z-depth, camera & lights
Practical - 13	Sure target
	Compositing
Practical - 14	Slide show
Practical - 15	Video transitions & cuts

MSA.P 3.2: WEB TECHNOLOGY AND PRACTICAL BASED ON ELECTIVE PAPER SELECTED EITHER CARTOON ANIMATION or /GAME DEVELOPMENT

Software Packages: Unity 3D | Autodesk Maya

List of Practical

Weeks	Game Programming	Game Design
Practical 1	Damage point Game(3D game engine setup)	
Practical 2	Damage point Game(Colliders & scripting)	
Practical 3- Practical 6	**Hopscotch game**	
Practical 3	-Planning and Building layout	Hopscotch Animation Cycle
Practical 4	-Scripting & Player controller	Hopscotch Sprite
Practical 5	-GUI Menus	
Practical 6	-Player Scorecard	
Practical 8- Practical 12	**Single Player with Enemy Artificial intelligence(AI)**	
Practical 9	-Planning and Layout Setup	Enemy attack cycle Animation
Practical 10	-Way points and enemy AI	Set /Prop prep
Practical 11	-Creating a finite state machine(FSM)	
Practical 12	-Notification and functional entity	

CARTOON ANIMATION

Software/tool requirements: Autodesk Maya | Tracking Suite (Blender, PF Track)

Weeks	Creature Animation
Practical 1	Multi character Dialogue shot-Planning and Layout
Practical 2	Multi character Dialogue shot-Blocking
Practical 3	Multi character Dialogue shot-Max Block
Practical 4	Multi character Dialogue shot-Max Block, Facial animation
Practical 5	Multi character Dialogue shot- Polish and finish pass
Practical 6	Quadruped Walk cycle Stationary walk Planning and Blocking Pass

Practical 7	Quadruped Walk cycle- Stationary walk Polish and finish pass
Practical 8	Animate Ogre, integrating with live BG plate-Planning, Shooting for Match move
Practical 9	Animate Ogre, integrating with live BG plate- Camera tracking & Animation Layout pass
Practical 10	Animate Ogre, integrating with live BG plate-Blocking pass
Practical 11	Animate Ogre, integrating with live BG plate-Max Block pass
Practical 12	Animate Ogre, integrating with live BG plate-Polish and Finish Pass

SECOND SEMESTER

OPEN ELECTIVES

COURSE-VI : DIGITAL IMAGE EDITING USING PHOTOSHOP

COURSE OUTCOME:

1. To get familiarized with Photoshop.

Course Content

UNIT-I: Introduction of Photoshop

Creating a New File, Main Selections, Picking color, Filling a selection with color, More ways to choose colors and fill selections,

UNIT-II

Painting with the paintbrush tool, Using the magic wand tool and applying a filter, Saving your document Color Mode, GrayScale Color Mode, RGB Color Mode, CMYK Color Mode, Bitmap Mode, Open a file, Preference

UNIT-III

Foreground & background, Changing Foreground and Background colors, Using the Large color selection Boxes and small color swathes, Using the Eyedropper tool to sample Image color, Changing the Foreground Color While using a Painting Tool, Using Brushes, Selecting the Brush Shape.

UNIT-IV

Drawing a vertical and Horizontal Straight line with any brush, Drawing connecting Straight Lines (at any angle) with any brush, Creating a New Brush, Saving Brushes, Loading Brushes, Creating a Custom Brushes, Using the Painting Modes, Fade, Airbrush Options, Pencil Options

References

1. Anil madan, multimedia systems design
2. Learning multimedia
3. Barstow Bruce & Martin tony, photoshop 7 - the ultimate reference
4. Burke daronthy & Clabria jane, multimedia systems
5. Chapra steven.c & Canale raymond.p., digital multimedia
6. David matthew, multimedia technology application

7. Muley.d.s., fundamentals of computers graphics and multimedia
8. Pender Thomas p, multimedia - a hands on introduction

THIRD SEMESTER

OPEN ELECTIVES

COURSE-VII : AUDIO-VIDEO EDITING TOOLS & TECHNOLOGY
COURSE OUTCOME:
1. To get familiarized with Basic art of filmmaking.
2. To know about various editing Softwares
3. To understand preproduction and postproduction activities

Course Content

UNIT-I : DIGITAL TELEVISION PRODUCTION

Basic art of filmmaking using currently available digital software/hardware tools. Overview of preproduction planning- program ideas, production models.

UNIT-II

Preproduction & Post-Production activities – Writing the program proposal, preparing a budget, presenting the proposal, Writing the script, Director's roles & procedures, Visualization & sequencing, Shooting, Aesthetics of Editing, Role of audio & effects, Mix and composite, source material into a finished fine edit product.

UNIT-III

Digitization, AV data from tape to computer hard disk. Understanding the playback deck, understanding signal processing of S-video, fire wire and composite video. Editing Work Station management – disk space & speed requirement. Broadband and streaming video technology.

UNIT-IV

Using Editing Software – editing basics and implementation of various techniques used in non-linear editing. Mastering final edit line – audio levels, colour correction, audio mixing, mixed and un-mixed versions, importing and applying compatible graphics files. Understanding compression and its affects along with various methods

References

FOURTH SEMESTER

OPEN ELECTIVES

COURSE-VIII : 2D ANIMATION AND SPECIAL EFFECTS

COURSE OUTCOME:
1. To get familiarized with 2D animation and special effects.
2. To know about various types of graphics

Course Content

UNIT- I

Timeline construction and management, Keyframe animation, Motion and shape tweeting, Working with symbols, Importing from Illustrator and Photoshop, ,Basic scripting in Action script 3.0, Delivery and file formats, Flash Video examples.

UNIT- II

Types of graphics, animation types, overview of the animation (flash), 2D animation and its features, Drawing tools, types of panels, transformation, property panel, working with objects, group, bitmap, Controlling Movie Clips with code, Working with Dynamic Text fields and Input Text Fields, Loading external content and other flash movies, Dynamic freeloaders, Interactivity with code.

UNIT- III

Text box Font, style, hyperlink, property panel, Working with symbols, Planning the development process, Working with XML and dynamically generated content.

UNIT- IV
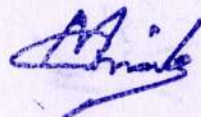
Grid and guidelines, Onion-skinning, Difference between 2D and 3D animation, Animation in flash, Twinning and motion along a path, Controlling movie playback, Text and hyperlink, adding sound and movie, File format in flash, test movie, Testing the movies.

References

1. Anderson Richard, Homer Alex & Simon Robinson, Flash In A Flash Web Development
2. Learning Flash 5
3. Learning Flash Mx 2004
4. Crumlish Christian, Web Design With Html/Flash/Java Script & E-Commerce
5. Leigh Ronald.W., Flash 5 For Dummies Sahni Sartaj, Flash Mx Actionscript For Designers The Non Programmers Guide To Maximum To Flash - The Non- Programers

Additional Reference Books:

1. Storyboards: Motion in Art, Mark Simon, 2000, Focal Press, ISBN: 0-240- 80329-9
2. Mastering Maya 2009, Sybex , ISBN-13: 978-0470128459
3. The art of Rigging, Alias Conductors program | CG Toolkit, Vol. 1, 2, and 3, 2005
4. Rick Parent. Computer Animation: Algorithms and Techniques. Morgan Kaufmann, 2005, ISBN 1-55860-579-7
5. Kyle Clark. Inspired 3D character animation. Premier Press, 2003, ISBN 1- 931841-48-9
6. Mark R. Wilkins, Chris Kazmier. MEL Scripting for Maya Animators, Second Edition (The Morgan Kaufmann Series in Computer Graphics) (Paperback), 2005, ISBN 0-12-088793-2
7. David Gould. Complete Maya Programming: An Extensive Guide to MEL and C++ API (The Morgan Kaufmann Series in Computer Graphics) (Paperback), 2003, ISBN 1-55860-835-4
8. Chris Webster. Animation. The Mechanics of Motion. Focal Press, 2005, ISBN 0 240 51666 4
9. Richard Williams. The Animator's Survival Kit. Faber and Faber, London- New York, 2001, ISBN 0 571 20228 4
10. Alberto Menache. Understanding Motion Capture for Computer Animation and Video Games (Paperback). Academic Press, 2000, ISBN 0-12-490630-3
11. Matt Liverman. The Animator's Motion Capture Guide: Organizing, Managing, Editing (Paperback). CHARLES RIVER MEDIA, INC., 2004, ISBN 1- 58450-291-6

12. Eadweard Muybridge. Animals in motion. Dover Pictorial Archive Series, 1957, ISBN 0 486 20203 8
13. Eadweard Muybridge. The Human Figure in motion. Dover Pictorial Archive Series, 1951, ISBN
14. Catherine Winder, Zahra Dowlatabadi. Producing Animation. Focal Press Visual Effects and Animation (Paperback), 2001, ISBN 0-240-80412-0
15. Brad Clark, John Hood, Joe Harkins. 3D Advanced Rigging and Deformations. Thomson Course Technology, 2005, ISBN 1-59200-116-5

Journals

1. ACM Transactions on Graphics, ACM
2. Computer Animation and Virtual Worlds, John Wiley & Sons
3. Computer Graphics Forum, Blackwell Publishing
4. IEEE Computer Graphics and Applications, IEEE
5. The Visual Computer, Springer-Verlag
6. Journal of Visualization and Computer Animation, John Wiley & Sons
7. Animation: An Interdisciplinary Journal, SAGE Publications

Web resources

1. The ACM Digital Library (http://portal.acm.org/dl.cfm)
2. IEEE Xplore (http://ieeexplore.ieee.org/Xplore/guesthome.jsp)
3. Animation Arena (http://www.animationarena.com/)
4. The Animation Guild, Local 839 IATSE and The American Animation Institute (http://www.mpsc839.org/_Home/home_FRM1.html)
5. The Animation Magazine: the business, technology, and art of animation (http://www.animationmagazine.net/)
6. Animation Journal (refereed) (http://www.animationjournal.com/)
7. Highend3D (http://www.highend3D.com/)
8. Fry, Ben and Casey Reas. "Processing", http://processing.org
9. Hodgin, Robert. "Flight404", http://www.flight404.com
10. Prudence, Paul. "Data is Nature", http://www.dataisnature.com
11. Side Effects Software. "Houdini", http://www.sidefx.com
12. Universal Everything. "Advanced Beauty", http://advancedbeauty.org
13. Watz, Marius. "Generator.x", http://www.generatorx.no

****