FACULTY OF VOCATIONAL STUDIES

SYLLABUS FOR

Master of Vocation (Animation and VFX) (Semester I-IV)

(Under Credit Based Continuous Evaluation Grading System)

Session: 2023-24



The Heritage Institution

KANYA MAHA VIDYALAYA JALANDHAR (Autonomous)

Scheme and Curriculum of Examination of Two-year Degree Programme Master of Vocation (Animation and VFX) Semester-I Session 2023-24

Course code	Course Title	Cou rse	Cred	its			Ma	rks	Examinatio n Time in
		Ty	L-T-P	Total	Tot	F	Ext.		Hours
		e			al	L	Р	CA	
MVAL-	Fundamentals of	C	4-0-0	4	100	80	-	20	3(Theory)
1111	Design and Animation								
MVAM-	Foundation Course on	С	2-0-2	4	100	40	40	20	3(Theory)
1112	Animation								3(Practical)
MVAM-	Basics of Photography	С	2-0-2	4	100	40	40	20	3(Theory)
1113									3(Practical)
MVAP-	Introduction to 2D	S	0-0-4	4	100	-	80	20	3(Practical)
1114	Animation								
MVAP-	3D Modeling in Maya	S	0-0-4	4	100	-	80	20	3(Practical)
1115	- Advanced								
MVAP-	Graphic Designing –	S	0-0-4	4	100	-	80	20	3(Practical)
1116	Advanced								
MVAI-	Assignment and Viva	S	0-0-6	6	100	-	80	20	3(Practical)
1117	(Application of								
	Software Tools and								
	Techniques)								
	Total			30					

Note: C – Compulsory

S – Skill Enhancement

Scheme and Curriculum of Examination of Two-year Degree Programme Master of Vocation (Animation and VFX) Semester II Session 2023-24

Course	Course Title	Cou	Cred	its			Ma	rks	Examinatio
code		е Туре	L-T-P	Total	Tota	E	xt.		n Time in Hours
		турс			1	L	Р	CA	110015
MVAM- 2111	Workplace Health and Safety	C	2-0-2	4	100	40	40	20	3+3
MVAP- 2112	Video Editing	C	0-0-4	4	100	-	80	20	3
MVAP- 2113	Digital Compositing	С	0-0-4	4	100	-	80	20	3
MVAP- 2114	Storyboarding, Animatics and Screenplay	S	0-0-4	4	100	-	80	20	3
MVAP- 2115	2D Digital Animation – Advanced	S	0-0-4	4	100	-	80	20	3
MVAP- 2116	3D Animation	S	0-0-4	4	100	-	80	20	3
MVAI- 2117	Assignment and Viva (Application of Software Tools and Techniques)	S	0-0-6	6	150	-	120	30	3
	Total			30					

QPs at Exit level 1: - Animator (MES/Q 0701)/ Modeller (MES/Q2501)

Note: C – Compulsory S – Skill Enhancement

Scheme and Curriculum of Examination of Two-year Degree Programme Master of Vocation (Animation and VFX) Semester III Session 2023-24

Course code	Course Title	Course Type	Cre	dits			Marks	5	Examinati on Time in
		• •	L-T-P	Total	Total	I	Ext.		Hours
						L	Р	C A	
MVAM- 3111	Experimenting and Research in Animation	C	3-0-1	4	50	25	15	10	3+3
MVAM- 3112	Lighting, Texturing and Rendering	С	3-0-1	4	50	25	15	10	3+3
MVAP- 3113	Advance Digital Sculpting	C	0-0-4	4	50	-	40	10	3+3
MVAP- 3114	Motion Graphics	S	0-0-4	4	100	-	80	20	3
MVAP- 3115	UI/UX Designing	S	0-0-4	4	100	-	80	20	3
MVAP- 3116	Visual Effects (VFX)	S	0-0-4	4	100	-	80	20	3
MVAD- 3117	Minor Project	S	0-0-6	6	100	-	80	20	3
	Total			30					

Note: C – Compulsory S – Skill Enhancement

Scheme and Curriculum of Examination of Two-year Degree Programme Master of Vocation (Animation and VFX) Semester IV Session 2023-24

Course code	Course Title	Course Type	Credi	ts			Mark	S	Examinatio n Time in
			L-T-P	Total	Total	E	xt.		Hours
						L	Р	CA	
MVAM- 4111	Career Management	С	4-0-2	6	75	30	30	15	3+3
MVAM- 4112	Digital Art Copyrights	С	4-0-2	6	75	30	30	15	3+3
MVAI- 4113	Industrial Training and Report	S	0-0-18	18	250	-	250	-	3
				30					

QPs at Exit level 2: - VFX Editor (MES/Q3501)/ Compositor (MES/Q3505)

Note: C – Compulsory S – Skill Enhancement

Master of Vocation (Animation and VFX) SEMESTER I COURSE CODE: MVAL-1111 Fundamentals of Design and Animation

L - T – P	Max. Marks: 100
4-0-0	Theory: 80
Time: 3 Hours	CA: 20

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit - I

Computer Graphics & its applications, Types of Graphics, Different Formats of Video & Images Its Use, Aspect ratio, Resolution (PPI, DPI), Pixel, Color Wheel

Unit - II

Visual Perception and Design - How do we SEE? [Seeing and observing] Visual elements - Line and shape, Form, value, texture, color Principles of Design. Color and composition

Unit - III

History of Animation Introduction to Animation movie process. Different Types of Animation: Traditional Animation - Cell Animation or hand drawn Animation Stop Motion Animation – Puppet Animation, Clay Animation, Cut-out Animation, Silhouette Animation, Object Animation etc. Computer Animation – 2D Animation, 3D Animation Brief introduction to Open-Source Tools for Designing and Animation

Unit - IV

12 principles of animation (The basic rules of animation including Squash and stretch, Anticipation, Staging, Straight Ahead Action and Pose to Pose, Follow Through and Overlapping Action, Slow in and Slow Out, Arc, Secondary Action, Timing, Exaggeration, Solid drawing, Appeal.)

Suggested Readings:

Colin Ware, "Visual Thinking: for Design", Morgan Kaufmann Williams E. Richards, "The Animator's Survival Kit", Faber 3rd Edition Stephen Cavalier, "The World History of Animation", Univ of California Pr

Master of Vocation (Animation and VFX) **SEMESTER I COURSE CODE: MVAM-1112 Foundation Course on Animation**

L - T – P	Max. Marks: 100
2 - 0 - 2	Theory: 40 Practical: 40
Time: 3 Hours	CA: 20

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

Unit I

Introduction with the tools for drawing

Drawing pencils: - (HB, B, 2B, 4B, 6B, 8B, 10B, 12B), Charcoal Pencil, Clutch Pencil. Sheets: - cartridge, Hand Made, Ivory, Art Card, duplex, News Print, Mount board sheet etc. Colors: - Poster color, Water Color, Pastel color, Pencil Color, waterproof ink.

Unit II

Object Drawing, Light & Shade:

Introduction to object drawing.

Introduction of light and shadow on objects and an assessment and representation of the impact of light on simple forms and objects. (Still Life Study)

Unit III

Perspective Drawing:

Perspective Drawing, one point, two-point & Three Point perspective. Perspective as applied to objects, furniture, interior and exteriors of the buildings.

Nature Study:

Drawing from Nature, Location drawing and learning to represent trees, plants, bushes, shrubs, insects, birds, and animals with attention to, proportion.

Unit IV

Human Drawing:

Introduction to human figure drawing –Drawings from Mannequin, quick Sketching of human figure Study of Ideal proportion of male and female figure with different ages, Focus on Head, Hand and Feet. Study of animal and birds with simple proportion. Practical exercises to be implemented:

- Outdoor and indoor study human in action
- Study light and shade using still life,
- Different poses of human, animal and birds
- Perspective Study (One Point, Two Point & Three Point)
- Create Character Design with personality

Suggested Readings:

Bancroft Tom, "Creating Character with Personality", Watson-Guptill Victor Perard, "Anatomy and Drawing", Dover Publications Hart Christopher, "Modern Cartooning: Essential Techniques for Drawing Today's Popular Cartoons", Watson-Guptill

Master of Vocation (Animation and VFX) SEMESTER I COURSE CODE: MVAM-1113 Basics of Photography

L - T – P	Max. Marks: 100
2 - 0 - 2	Theory: 40 Practical: 40
Time: 3 Hours	CA: 20

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit - I

Introduction to photography, Meaning of Photography and its applications Types of Photography: Product Photography, Nature Photography, Event Photography, Travel Photography, Sport photography Different types of Color profiles (Natural, Portrait, Landscape etc.)

Unit - II

Camera Lens and its Types,

Element of Exposure (Aperture, Shutter Speed, Depth of Field, ISO)

Composition: Rule of Thirds, Head room, Frame within a frame, Symmetry Photography golden hours

Unit - III

Image editing: Image editing through image editing software like Adobe Photoshop – Adjustment of Brightness, Contrast, Tonal and Colour Values – Experimenting with Level and Curve.

Digital Retouching & Image Enhancement

Image size, Resolution, Selection tools. Retouching tools, Layers & Incorporation of text into picture.

Unit - IV

Photo Manipulation: Applying Different effects and filters Three Point Lighting

Note for the Practical Examiner:

- a) Practical Exam is based on the syllabus covered in the subject.
- b) The question paper will be set on the spot by the examiner.

Suggested Readings:

How to Create Stunning Digital Photography, "How to Create Stunning Digital Photography", Mason Press

Al Judge, "Mastering Aperture, Shutter Speed, ISO and Exposure", Subtle Visions Media Bryan Peterson, "Understanding Exposure", Amphoto Books

Master of Vocation (Animation and VFX) SEMESTER I COURSE CODE: MVAP-1114 Introduction to 2D Animation

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical Exercises to be implemented:

- 1. Background Design
- 2. 2d Character Design
- 3. A Simple Scene of a Sunrise (with background and the environment)
- 4. A moving car scene on a road (with background)
- 5. A text animation using Mask
- 6. Animating a butterfly moving along a guide.
- 7. Bouncing Ball in place
- 8. Bouncing ball across the scene
- 9. Flag Animation
- 10. Pendulum Animation

Syllabus to be covered for the practical:

Introduction to Adobe Animate, Basics of Animation, Workspace overview, Using the Stage and Tools Panel, understanding timeline tools and their usage, Property panel- Library panel, colour panel, Understanding layers, Methods of Animation.

Technical Animation creation: Drawing in Animate- choosing colours, choosing line style, designing and alignment of elements, drawing panels - Time-line animation, Frame-by - frame Animation, Tweening, using symbols, adding sounds. Working with projects - Importing artwork.

Suggested Readings:

Adobe Creative Team, "Adobe Flash Professional CS6 Classroom in a Book", Adobe Georgenes Chris, "How to Cheat in Adobe Flash CC: The Art of Design and Animation", Focal Press

Master of Vocation (Animation and VFX) SEMESTER I COURSE CODE: MVAP-1115 3D Modeling in Maya- Advanced

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical exercises to be implemented:

1. A 3d character model with blend shapes

2. Any two-inorganic models

3. Interior or Exterior model

Syllabus to be covered for the practical:

Unit – I

Surface Modeling:

NURBS Primitives, Using Curves, CV Curve tool, EP Curve Tool, Bezier Curve Tool, Arc Tools, Attaching and Detaching Curves, Open/Close Curves, Insert Knot, Extending Curves, Rebuild Curves, Surface objects, Revolve, Loft, Planar, Extrude, Bi rail, Boundary, Bevel and Bevel Plus, Attaching and Detaching Surfaces, Sculpt Geometry Tool,

NURBS Modeling - NURBS Product Model.

Unit - II

Polygon Modeling:

Polygon Primitives, Combine, Separate and Extracting functions, Extrude, Bridge, Append Polygon Tool, Inserting Edge loops, merging vertices, Bevel function, Crease tool, Split Polygon Tool, Create Polygon tool.

Unit - III

Creating and understanding topology of inorganic models like Chair, Table, Shelf, PC etc., Creating Complex Objects like Gun, Vehicle etc. Resolving mesh, Manipulating triangular polygon to quad polygon. Smoothing Polygon surface, Combining and Merging Separate Geometries, Grouping and Ungrouping objects

Unit - IV

Cartoon Character Modeling:

Using Image Planes, setting up Images, Maya Display layers, Freezing Reference Images, Modeling Blocking Mesh using Maya Primitives, working with topology, Modeling Torso, Legs, Arm, Hand, Face, Creating Clothing and Props mesh, Using Sculpt Geometry tool, Mirroring Geometry, Creating Blend Shapes.

Suggested Readings:

Kelly Murdoch, "Autodesk Maya 2018 Basics Guide", SDC Publications Prof Sham Tickoo, "Autodesk Maya 2018: A Comprehensive Guide", Cadcim Technologies Chris Legaspi, "Anatomy for 3D Artists: The Essential Guide for CG Professionals",

3dtotal Publishing

Kelly Murdoch, "Autodesk Maya 2018 Basics Guide", SDC Publications

Master of Vocation (Animation and VFX) SEMESTER I COURSE CODE: MVAP-1116 Graphic Designing- Advanced

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical exercises to be implemented: Photoshop

Calendar for an Animation Studio/Office. Magazine/ Newspaper Advertisement ad full page and half page and quarter page Poster Design: Poster for an Animation Movie/ Web Banners Image Manipulation Photo Retouching

Practical exercises to be implemented: Illustrator

Create Objects (Mouse / Fruits/ Glass / bowl etc) Logo design (eg: McDonalds/ Master Card/ Nike etc) Print Design: Visiting Card, Letter Head Trace and Stylize a City Landscape

Syllabus to be covered for the practical:

Unit I

What is Graphic Designing? What is the role of Graphic Designing?

Principles of Design: Understanding the most essential aspect of design, Unity, to achieve through different principles like, Balance, alignment, Emphasis, Proportion. Movement, Repetition, Contrast.

Introduction to Photoshop & its Tools

Bitmap and Vector Images and the difference between them, Image Resolution and Size, Understanding different type of Modes like RGB, CMYK etc.

Understanding Adobe Photoshop Interface, Creating, Saving and Opening documents, Using Workspace and Toolbars, Utilizing Grids and Guides, Using basic navigation tools. Adding Annotations and Setting up preferences.

Basic Image Manipulation: Introduction to Camera raw. Basic Image Editing, Using Marquee and selection Tools, Shapes, Using Pen tool, Using Image editing options like Hue Saturation, Levels, Curves, etc. Tools shortcuts, Brush Tool, Using Color Picker, Background Eraser Tool, and using Creating and saving Brush preset and Pattern. Understanding layers and its properties.

Unit II

Effects and Tools: Using filters, Liquefy, vanishing point, Clipping Mask, Clone tool, Spot healing tool, Patch tool, using Crop and gradient tool, content aware tool, refine edges. Layer Styles, Blending modes,

Tools & Palettes: Text Basics, Understanding Type parameters, Editing text, type selection, character palette and paragraph palette, Type on a path. Text Wrap and adding effects to text, Using transformation properties.

Unit III

Create New file, Selection Tool [Intro] Selection Tool[working], Zoom VS increase size, zoom tool, Hand Tool, Resize objects, Scale Up/Down, Move, Rotate, Copy, Shift usage in creating objects. Direct Selection Path Anchor point Smart Guides Objects as Group Anchor Points Selection, Add joints, Pen Tool- Drawing, Smooth Curve Sharp Corner, Drawing Objects using Pen Tool, Symmetrical Shapes Ruler, Smart Guide Unlock/Lock Guides Reflect an Object Join lines as an Object Hide Guides, Fill/Stroke, Anchor Point Tool, Curvature Tool. Drag/Embed an image Layers Format Average/Join Shortcut key Eye Dropper Tool Shape Builder Tool Directed to selection tool

Unit IV

Drag/Embed an image, Layers Format, Average/Join, Shortcut keys, Eye Dropper Tool, Shape Builder Tool, Directed to selection tool, Gradients, Paint brushes/Stroke, Blob brushes/Fill, Brushes panel, Brush size increase/decrease, Pencil tool, Smooth tool, Path eraser, Shaper tool, Join tool, Eraser tool, Scissor tool, Knife tool, Two options to use rotate tool, Rotate objects on a specific angle, Scale Tool, Shear Tool, Reshape Tool and Free Transform Tool, Masking, kinds of Mask, Draw inside, Clipping mask, clipping mask on image, Embed image, Opacity Mask, Adding Mesh Points, Spreading and Contracting, Mesh, Managing Sharpe lines, at the end of color ,blend/gradient/shade, Outline Mode, Switching between Tools, Rectangle Tool usage, Rotate Tool usage, Rounded Rectangle Tool usage, Offset Path usage, Simple Gradient usage, Scale Tool usage.

Common applications of Graphic design

Identity (logos and branding), Publications (magazines, newspapers, and books), Print advertisements, posters, Website graphics and elements, signs, and product packaging,

Suggested Readings:

Alex W. White, "The Elements of Graphic Design," Allworth Press

Adrian Shaughnessy, "How to Be a Graphic Designer without Losing Your Soul," Princeton Architectural Press

David Sherwin, "Creative Workshop: 80 Challenges to Sharpen Your Design Skills", HOW Books

Ellen Lupton, "Thinking with Type", Princeton Architectural Press Danae Lisa, "Adobe Photoshop CC Bible", Wiley

Faulkner Andrew," Adobe Photoshop CC Classroom in a Book", Pearson Education

Adobe Creative Team, Adobe Illustrator CC Classroom in a Book

Brian wood ,Adobe Illustrator CC Classroom in a Book, Pearson Education https://www.youtube.com/watch?v=ZK86XQ1iFVs

SEMESTER I COURSE CODE: MVAI-1117

Assignment and Viva

(Application of Software Tools and Techniques)

L - T – P	Max. Marks: 100
0-0-6	Practical: 80
Time: 3 Hours	CA: 20

- 1. The students will work on a Graphic Designing/ a basic Animation assignment in their own identified area of interest.
- 2. The student assignment will be evaluated on the following Criteria:
 - a) Technical Quality
 - b) Creative Quality
 - c) Appeal to the Target Audience
 - d) Success in conveying message right.

3. The marks will be given based on the submission of the assignment and viva-voce.

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAM-2111 Workplace Health and Safety

L - T – P	Max. Marks: 100
2 - 0 - 2	Theory: 40 Practical: 40
Time: 3 Hours	CA: 20

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit I

Importance of High Standards of Health and Safety at workplace

Identification of health and Safety hazards

Identification of people responsible for health and safety and mechanisms to reach out to them

Unit II

Ensuring the success of safety and health management system: monitoring, reporting various incidents and revision of plan.

Types of emergencies, Emergency plans, Evacuation and other emergency procedures in case of fire, flood, earthquake etc.

Unit III

Fire safety in the workplace, Different types of fire extinguishers, classification and usage Medical assistance in case of health, symptoms and first aid for different medical conditions like cardiac failure, choking, unconsciousness etc.

Unit IV

Safety guidelines of System/equipment and machines, various safety symbols: meaning and importance.

Governmental norms and regulations regarding Health and Safety at workplace

Practical Exercises:

- 1. Identification of the different types of Fire extinguishers
- 2. A demonstration on using Fire extinguisher in case of any emergency.

Suggested Readings:

Schneid D. Thomas, "Workplace Safety and Health: Assessing Current Practices and Promoting Change in the Profession (Occupational Safety & Health Guide Series)", CRC Press; 1 Edition

Gupta A.K, "Industrial Safety and Environment Paperback", Laxmi Publications; Second edition

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAP-2112 Video Editing

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Exercises to be implemented (Practical)

- 1. Slideshow of images
- 2. Synchronize text with audio
- 3. Create news ticker (lower third)
- 4. Mash up
- 5. Create a video includes shots from different angles
- 6. Create a one-minute short film

Syllabus to be covered:

Unit - I

Introduction to Editing: Introduction to video Editing. Develop an understanding of the digital video production process: pre-production, shooting, editing, and post-production. Understanding importance of editing in the flow of a narrative. Pace and Rhythm in editing. Linear and Non-Linear Film Editing.

Introduction to Editing Tool: Premiere Pro Working with interface. Importing supported files and saving project. Understanding tools and palettes, timeline and project panel. Previewing footages. Managing footages. Use of timeline, source monitor, project monitor, project panel, sequence, Different types of tools effects & transitions in Premiere Pro.

Unit - II

Working with footages

Setting up project, removing frames, naming, finding and deleting footages, learning file size limitations, using markers, In-out points, scaling clips, creating black video, adding transitions. Changing and replacing transitions. Adding Key, Time remapping, video formats and resolutions.

Editing mode, Timeline, changing Frame size, Aspect Ratio, Fields, Audio sample rate, File format, Codec, Export, Multi cam Editing, Color Correction and Grading

Unit - III

Understanding uses of different types CUTs (Matched action, after action, before action, foreground wipe, look off, Dialogue referent, reaction, thought referent, visual linkage,

Dialogue overlap, Audio linkage, loud sound)

Unit - IV

Different types of video editing techniques (Crane shot, establishing shot, Frantic zoom, Steadicam long take, Mirror shot, zoom-out, point of view, Crane shot spin, Time lapse, Pan,

Slow motion, Low angle shot, special effect (VFX), 180-degree rule

Suggested Readings:

1. Adobe "Adobe Premiere Pro CC Classroom in a Book", Pearson Education India

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAP-2113 DIGITAL COMPOSITING

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical Exercises to be implemented

- 1. Creating multiple layers for compositing
- 2. Working with chroma footage
- 3. Masking footage
- 4. Rotoscopy
- 5. Compositing in fusion
- 6. Tracking footage

Unit I

Adobe After Effects, User Interface, Understanding Project, Footage, Composition, Timeline, Basic Animation, Easy Ease and Motion Paths, Motion Sketch and Smoothing.

Layers & Composition, Layers, Blending Modes and Adjustment Layers, Pre Composing, Frame Rate, Time Stretch and Time Remapping, Masking, Parenting.

Unit II

Effects and Rendering, Chroma & keying, Rotoscopy, Color Correction fundamentals, Blur and Sharpen Effects, Using Effects and Presets, Channels and other effects, Fundamental of Rendering, Output formats, Compression.

Unit III

Introduction to fusion, node based compositing, Understanding User Interface, Understanding Nodes, Load and Save Files, Basic Animation. Understanding Footage, Understanding Foreground and Background, Understanding Nodes, Basic Composition, Understanding Mask, Understanding Alpha Channel, Color correction, Sky replacement.

Tracking and keying, Understanding different types of tracking techniques, Understanding Warp and Transform, Understanding Matte (Chroma Keyer, Difference Keyer, LumaKeyer, Matte Control, Ultra keyer.

Unit IV.

Multi-pass compositing, Understanding Render passes, Importing Render passes, Understanding Camera, Understanding channels

Suggested Readings:

1. Adobe Creative cloud After Effects CC by Adobe.

- 2. The eyeon Fusion 6.3L A Tutorial Approach by Prof. Sham Tickoo Purdue Univ, CADCIM Technologies.
- 3. Brinkmann, Ron, (24 May 2008), The Art and Science of Digital compositing, Second Edition: Techniques for Visual Effects, Animation and motion Graphics(The Morgan kaufmann Series in Computer Graphics), Morgan Kaufmann Publishers In; 2nd Revised edition edition.

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAP-2114 Storyboarding, Animatics and Screenplay

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Unit - I

Introduction to Storyboarding

Introduction to Storyboard, different styles of storyboard, difference between storyboard and animatic. Advantages of Storyboard in Animation and Anatomy of a Storyboard. Advantages of an Animatic

Unit - II

Introduction to various shots, Camera angles and used in Storyboard panels. Continuity and Timing, Building a sequence of shots. Use of Perspective, Light & Shadow in Storyboarding.

Unit – III

Camera movements: -Pan, Tilt, Dolly/Track, Zoom in Zoom out, Whip Pan

Unit – IV

Screenplay: Introduction, Script, Three Act Structure, Act One, Act Two, Act Three, Writing Synopsis (Treatment), Dialogue. Basic guidelines for writing a screenplay

Practical Exercises to be implemented:

- Story creation
- Convert story to screenplay using three act structure
- Story-board creation or animatic creation

Suggested Readings:

Hart John "The Art of StoryBoard", Focal Press.

Simon A Mark "Storyboards: Motion in Art", Focal Press.

Field Syd "Screenplay: The Foundations of Screenwriting", RHUS; Revised ed. edition Vinod Chopra Films "3 Idiots: The Original Screenplay", Om Books

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAP-2115 2D Digital Animation - Advanced

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical exercises to be implemented:

- 1. Demonstrate various expressions on a character/Cartoon
- 2. Create a Cartoon character using symbols as building blocks
- 3. Create a Character(realistic/cartoon) with personality
- 4. Create and Animate armatures
- 5. Animate a walk cycle
- 6. Create character using symbols
- 7. Lip syncing a dialogue

Syllabus to be covered for the practical:

UNIT-I

Introduction to Adobe Animate CC, Basics of Animation, Workspace overview, tools and their usage, color panel, understanding layers, Methods of Animation, Understanding the Timeline panel, Organizing layers in a timeline, Using the Properties panel, Using the Tools panel, Adding layer effects, Undoing steps in Animate, Previewing and exporting your movie, Modifying the content and Stage, Saving your movie.

$\mathbf{UNIT}-\mathbf{II}$

Technical Animation creation: Drawing in Animate CC - choosing colors, choosing line style, designing and alignment of elements, Frame-by -frame Animation, Tweening & using symbols, Working with projects - Importing artwork into Animate CC, Graphic symbols for lip-syncing dialogue

UNIT – III

Using the camera, animating shapes, Using classic tweens Creating a shape tween, Creating a looping animation, Previewing animations with onion skinning, Creating and using masks, Animating the mask and masked layers, Easing a shape tween.

UNIT - IV

Using sounds, Understanding video, Using Adobe Media Encoder CC, Understanding encoding options, Playing back of external video in your project, Exporting Final Animation with Audio/Video.

Suggested Readings:

Adobe Creative Team, "Adobe Animate CC Classroom in a Book Book", Russell S. Chun

Beginning Adobe Animate CC: Learn to Efficiently Create and Deploy Animated and Interactive Content

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAP-2116 3D ANIMATION

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical exercises to be implemented:

- 1. A moving toy car with wheel rotation
- 2. A ball hits a brick making it fall
- 3. Bouncing Ball
- 4. Walk cycle
- 5. Run cycle
- 6. Facial Expression Animation
- 7. Lips synchronisation with audio

Syllabus to be covered for the practical:

Unit -I

Introduction to 3D Animation, Understanding of joints and rig of rigged characters, real time animation, graph editor and working with tangents. Basic 3D Animation, posing , basic animation of organic and inorganic models, Bouncing ball animation.

Maya Timeline, frame rate, Manual key & Auto Key, Animation Graph editor, playblast, Principles of Animation in MAYA, Posing, Create a Walk cycle

Unit -II

Creating an interaction between two characters, Creating and Animating grappling hook, Creating Anatomy of expression for facial Animation, Facial expressions' animation

Unit -III

Creating and Animating realistic eyes, Basics of Facial Expressions with different Emotions, Understanding the Gestures and Postures. Understanding the importance of acting in animation,

Unit -IV

Body Language, Pulling, pushing and lifting objects. Creating and Animating a dialogue scene, Incorporate music / audio assets to a character

Suggested Readings:

1. Williams E. Richards, "The Animator's Survival Kit", Faber 3rd edition.

2. Roy Kenny, "How to Cheat in Maya 2014: Tools and Techniques for Character Animation", Focal Press

3. Rodriguez David, "Animation Methods", CreateSpace Independent Publishing Platform

Master of Vocation (Animation and VFX) SEMESTER II COURSE CODE: MVAI-2117 Assignment and Viva

(Application of Software Tools and Techniques)

L - T – P	Max. Marks: 100
0-0-6	Practical: 80
Time: 3 Hours	CA: 20

- 1. The students will work on a 2D Animation assignment in their own identified area of interest.
- 2. The student's assignment will be evaluated on the following Criteria:
 - a) Technical Quality
 - b) Creative Quality
 - c) Appeal to the Target Audience
 - d) Success in conveying message right.
- 3. In the assignment the students need to apply the various principles of animation and techniques learned in the first two semesters to develop a short 2D animation clip (minimum 750 frames) on any topic of choice.
- 4. The marks will be given based on the submission of the assignment and viva-voce.

Master of Vocation (Animation and VFX) SEMESTER III COURSE CODE: MVAM-3111 Experimenting and Research in Animation

L - T – P	Max. Marks: 50
3-0-1	Theory: 25 Practical: 15
Time: 3 Hours	CA: 10

Instructions for Paper Setter –

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit - I

Introduction to Research & documentation:

Research in animation: Definition and importance, types of research, characteristics and the process

Unit -II

Data Collection and Analysis:

Collection of data and its methods, Sampling methods, Data analysis and processing, Types of research data: text, graphics, videos etc.

Unit -III

Citation methods and Referencing systems:

Referencing and Citation: Different methods like Harvard, Owl etc., Citation manuals Bibliography, footnotes

Unit -IV

Copyrights, IPR and patents, Different aspects of IPR, Acknowledgement for references, Plagiarism

Suggested Readings:

Research Methodology: A Step-by-Step Guide for Beginners (Third Edition), Author: Ranjit Kumar, Pub: Sage Publication Ltd.

Research Methodology: Methods and Techniques second edition, Author: C.R Kathori, Pub: New Age International Publishers.

Master of Vocation (Animation and VFX) SEMESTER III Lighting, Texturing and Rendering

L - T – P	Max. Marks: 50
3-0-1	Theory: 25 Practical: 15
Time: 3 Hours	CA: 10

Instructions for Paper Setter –

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit - I

UV Mapping and Texturing: Unfolding Mesh, Cleaning and Adjustment of UV Layout, Exporting UV Map with different file format, Introduction to Hyper shade, Maya Material Lambert, Phong, Blinn, Phong E, Anisotropic Material, Surface Shader, Use Background, understanding 2D textures- Cloth, Applying Ramps, Bitmap, Working with Photoshop for Texture Painting, Difference between Bump map and Normal Map.

Unit - II

Maya lighting: Lighting, Color and Composition, different Maya lights Point Light, Spotlight, Directional Light, Area Light, Ambient Light and its uses in specific areas. Depth map shadows, Raaytraced shadows, creating soft shadows with spotlights, creating glass using refraction.

Unit - III

Arnold Lights: Skydome lights, applying physical light shaders, applying image-based lighting, Photometric lights (IES).

Unit - IV

Rendering: Render Engine Introduction- Maya Software, Maya Hardware, , Arnold Renderer Settings, CPU and GPU render setting, Image Based Lighting, Render Passes -Ambient Occlusion Pass, Creating Reflection, Depth, and Shadow Passes, Batch Rendering.

Render Setup- Choosing a Filename, Image Format, Frame Range, Camera, Setting Resolution, selecting a Render Engine, Render Quality & Sampling (AA, Diffuse, Specular, Transmission, SSS, Volume indirect) Render View Window- Saving/Loading an Image, Keeping/Removing Image, Interactive Photorealistic Rendering (IPR) Render,

Practical Exercises:

Texture a 3D Cartoon character Create a night scene using Maya and mental ray lights Render any 3D product using different Render engine

Suggested Readings:

Todd Palamar, "Mastering Autodesk Maya 2016". Wiley Darakhshani Dariush, "Introduction to Autodesk Maya 2015". Autodesk

Master of Vocation (Animation and VFX) SEMESTER III COURSE CODE: MVAP-3113 ADVANCE DIGITAL SCULPTING

L - T – P	Max. Marks: 50
3-0-1	Practical: 40
Time: 3 Hours	CA: 10

Practical Exercises to be implemented

- 1. Working on basic sculpting
- 2. Creating basic 3d sculpting model
- 3. Creative mesh from zsphere
- 4. Creating final 3d model using zphere

Unit I

Understanding of z-modeler workflows, reverse engineering techniques in Z-brush: Using Q mesh, working with targets, Dynamic subdivision, and Edge loop. Using scanned data for modeling, creating single poly surface, adding thickness, splitting the inner and outer parts.

Unit II

Micro mesh techniques: Micromesh basics, Polygon orientation, creating a tiled mesh, Using Micromesh with Fiber mesh.

Unit III

Fiber techniques: Working with fiber mesh, creating grass, creating human hair, Animal fur, Creating Fibers using Morph targets.

Unit IV

Pipeline integration with Maya: File transfer format, Exporting and importing geometry, transferring textures, changing topology, Updating UVs, Converting fiber mesh into hair and fur.

Suggested Readings: Text Books:

- 1) Spencer, Scott, (12 January 2010), ZBrush Digital Sculpting: Human Anatomy, Sybex; Pap/DVD edition.
- **2**) Spencer, Scott, (4 February 2011), ZBrush Character Cration: Advanced Digital Sculpting, Sybex; 2nd Edition edition.

Master of Vocation (Animation and VFX) SEMESTER III COURSE CODE: MVAP-3114 Motion Graphics

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical Exercises:

Creating an Image Slide show Create any commercial Advertisement for social media. Cinematic Title Animation with sound Creating a text Animation with following the path Shatter effect.

Syllabus to be covered for practical:

Unit I

Introduction to After effects, frame rate, Composition and settings, layers, Key-framing and Transform, Workflow, Exporting and File Formats, Masks, Layer Modes, Basic Effects

Unit II

Understanding Animation basics in after effects, Types of keys, Introduction to graph editor, Layer Properties, 3D Layers, adjustment layer, shy layer &Null, Nesting, Pre-composing, Non-destructive Workflow

Unit III

Color Correction in After Effects, Manipulating Footage, Introduction to tracking (2D and 3D Tracking, Feature Tracking, Four Point Tracking), Text& Title effect, introduction to 3rd party plugins.

Unit IV

Rendering: Fundamentals of rendering and exporting, Using Render Queue. Exporting still images and sequences, Learning output formats.

Suggested Readings:

Adobe "Adobe After Effects CC Classroom in a Book", Pearson Education India Perkins Chad, "How to Cheat in After Effects", Focal Press

Master of Vocation (Animation and VFX) SEMESTER III COURSE CODE: MVAP-3115 UI/UX DESIGNING

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical Exercises:

- 1. Creating elements
- 2. Designing Basic Mobile UI
- 3. Creating UI/UX for Mobile /Tablet

Syllabus to be covered for the practical:

Unit -I

Creating New Files & Designing on Grid, file Setting up artboards, Importing text, Creating colored backgrounds for text, Importing photo as an image fill (crop a photo) Rounding corners, Importing & modifying vector graphics Aligning & distributing layers, Layer opacity vs. fill opacity Reusing colors (color swatches) Adding drop shadow, Creating & Editing Character Styles

Unit -II

Creating Repeat Grid, Customizing content, Creating & editing components, Overriding content in one instance vs. globally updating all components, Detaching component, Linking between art boards, Preview prototype, Creating an overlay, Background blur, Fixing position of elements, Exporting individual assets, Exporting art boards, Sharing XD file, Commenting on shared files, Pinning comment, Updating an existing shared file

Unit -III

Creating Stack & Adjusting Spacing, Responsive Resize, Stacks, & Padding, Keystrokes for Working with Stacks & Padding, Nesting Stacks, Making Links (Scroll Up/Down Page), Making Navbar Fixed to Screen, Adjusting Position & Speed of Scroll, Creating Scrollable Area Within Page, Basics of Auto-Animate, Types of Easing, Adding Timed Animation, Setting Up Parallax Assets, Building Parallax Animation, Adding Hover State to Button, Creating Toggle State

Unit -IV

Adding 3D Transforms, Front to Back versus Z Position, Creating a Working Slideshow Prototype, Adding Tap Interactions, Adding the Ability to Drag, Adding Keystrokes, Adding a Drag Interaction, Adding a Time Interaction, Adding a Sound Effect, Publishing a Library, Using an XD Library

Suggested Readings:

1. Brian Wood, "Adobe XD Classroom in a Book", (1st Edition) Adobe Press

2. Brian Wood, "Adobe XD CC Classroom in a Book", (1st Edition) Adobe Press

Master of Vocation (Animation and VFX) SEMESTER III COURSE CODE: MVAP-3116 Visual Effects (VFX)

L - T – P	Max. Marks: 100
0-0-4	Practical: 80
Time: 3 Hours	CA: 20

Practical Exercises:

- 1. Green screen effect and composting
- 2. 3D Text Animation
- 3. Day to Night Conversion
- 4. Rain scene
- 5. Creating a scene 2D & 3D Tracking

Syllabus to be covered for the practical:

Unit -I

Working with footages: Setting up project, removing frames, naming, finding and deleting footages, learning file size limitations. Changing and replacing transitions.

Compositing: Alpha Channel, Using Blending modes, Blur and Sharpen, Creating, saving and back up of projects, modes and switches. Mask and transparent layers. Pre-composing. Using color depth and HDR colors. Color correction and color adjustment. Using layer markers, composition. Using 3D layers and understanding co-ordinate system in Adobe After Effects. Light Layer, Null Layer and Adjustment Layer.

Unit -II

Effects and Tools: Text effects, Blur and Sharpen effects. Essentials of Chroma and keying. Concept of Garbage matte. Using hold-out matte. Using plug-in effects like CC Snow, CC Rain, CC Blur effects etc. Learning Tracking fundamentals, using trackers and stabilizing footages. Using four corner pins to track, using pen tool to draw custom shapes and masks. Text tool. Eraser, Puppet Pin and 3D camera

Unit -III

3D for VFX: Dynamics Simulation (fire, dust, smoke, blast, Natural Phenomena like rain, Lightning, Volcano etc.),

Unit -IV

Maya Particles: Different types of Emitters and their working, particle collision, colouring particles, animation using per particle attribute, functioning of instance with examples, goal weights, use of particle fields, creating pyro techniques, sparks, bullet trails, fire using particles & Composting.

Suggested Readings:

Lisa Fridsma, "Adobe After Effects CC Classroom in a Book", Adobe Eran Dinur, The Filmmaker's Guide to Visual Effects: The Art and Techniques of VFX for Directors, Producers, Editors and Cinematographers

Master of Vocation (Animation and VFX) SEMESTER III COURSE CODE: MVAD-3117 Minor Project - III

L - T – P	Max. Marks: 100
0-0-6	Practical: 80
Time: 3 Hours	CA: 20

During Semester-III, the students need to submit an animation project prepared using techniques and tools taught during the course (Adobe Photoshop, Adobe Flash, Adobe Premiere, Autodesk Maya and Adobe After effects).

Following points should be taken care of while working on project:

- 1. Students can choose themselves the subject matter and scenes
- 2. Minimum of 1000 frames
- 3. Use at least two different software
- 4. Effective use of cameras, focus on viewers' attention
- 5. Project report showcasing the stages of the project

Master of Vocation (Animation and VFX) SEMESTER IV COURSE CODE: MVAM-4111 Career Management

L - T – P	Max. Marks: 75
4 - 0 - 2	Theory:30 Practical: 30
Time: 3 Hours	CA: 15

Instructions for Paper Setter –

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit I

Career opportunities in Animation:

Exploring different opportunities in Animation, A list of local, national, and international studios Existing studios and Industries which require animation

Formal Communication: Etiquettes of Public speaking, Business meetings, Telephonic communication, Email etiquettes.

Unit II

Informal Communication: Introduction, expressing gratitude, expressing regret, Apologize, Resolving conflicts.

Presentation Skills: Preparing presentation, making presentation meaningful and engaging, making effective use of the visual aid, interacting with audiences, dealing with queries from the audiences.

Unit III

Creative use of Animation: Prepare a Digital resume, prepare a Motion graphic resume **Preparing for Interviews**: Key factors for being successful in an interview, body language, confidence, subject expertise

Awareness of various platform for enhancing skills and professional growth

Creating Account on websites like animation express, bloggers.com, freelance.com, upwork.com for project work

Unit IV

Lifecycle of the project to be developed as a freelancer

Creating and maintaining account on professional networks like LinkedIn for career growth opportunities

Practical Submission: -

Students must submit Digital Portfolio/Showreel as practical assignment.

Suggested Readings:

Chaturvedi PD, Chaturvedi Mukesh," Business Communication: Skills, Concepts, and Applications", Pearson Education India

Robin Ryan, "60 Seconds and You're Hired! Revised Edition", Penguin Books

Joan van Emden, Lucinda Becker, "Presentation Skills for Students", Palgrave

David Barron, "Resume: The Definitive Guide on Writing a Professional Resume to Land You Your Dream Job", CreateSpace Independent Publishing Platform

Angela Rose (Author), "Linkedin in 30 Minutes (2nd Edition): How to Create a Rock-Solid Linkedin Profile and Build Connections That Matter", I30 Media Corporation; 2nd edition

Master of Vocation (Animation and VFX) SEMESTER IV COURSE CODE: MVAM-4112 Digital Art Copyrights

L - T – P	Max. Marks: 75
4 - 0 - 2	Theory:30 Practical:30
Time: 3 Hours	CA: 15

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit I

Copyrights: Introduction, Definition, rationale of copyright protection, classes of Copyrights protection available in India, Different types of work (artistic, music, Cinematography etc),

Unit II

Authorship and Ownership: Whose rights are protected by Copyright, who has rights on artistic, dramatic, and musical work, sound recording, rights of adaptation, rights of communication to public, performers rights, broadcaster rights, moral rights

Unit III

Registration of Copyright: Guideline of copyright act, Procedure, Term of Copyright, Administration of Copyright law, Collective administration of copyrights

Unit IV

Copyrights infringements: Common types of copyright infringements, legal remedies

Suggested Readings:

A Handbook of Copyright law, Govt of India, MHRD, Dept of Secondary and Higher Education

Master of Vocation (Animation and VFX) SEMESTER IV COURSE CODE: MVAI– 4113 INDUSTRIAL TRAINING AND REPORT

L - T – P	Max. Marks: 250
0-0-18	
Time: 3 Hours	

Following points should be taken care of during the training:

- 1. The students must attend industrial training for the duration of minimum of 3 months in any of the following fields:
 - a) Designing
 - b) Video Editing
 - c) VFX
 - d) 2D Animation
 - e) 3D Animation
- 2. The duration of the training task/assignment should be minimum 1500 frames.
- 3. The evaluation criteria primarily focus on:
 - a) Effective use of camera and various software tools
 - b) The assignment (i.e. animated movie/sequence) undertaken must convey the message successfully for which it is undertaken.
 - c) Report
 - d) Viva Voce
- 4. The training report must include:
 - a) Title and abstract overview of the work done during the training.
 - b) Brief introduction to the company and specific area of work being carried out.
 - c) Requirements: Hardware and environment needed. Various Software/Tools used.
 - d) Plan: The subject matter/script/scenes as required for the training.
 - e) Implementation: Script Writing, Design, Recording, Audio/Video Editing etc.
- 5. The final submission includes the following:
 - a) Training Certificate
 - b) Report
 - c) Work files and Final Render