



**Karmaveer Bhaurao Patil University, Satara**

**Syllabus for**

**M. Sc. I Animation Science**

**Under**

**Faculty of Science and Technology**

**(As per NEP 2020)**

**With effect from Academic Year 2024-2025**

## M.Sc. Part – I

**Title: Animation Science**

**Year of Implementation: The syllabus will be implemented from June, 2024 onwards.**

**Preamble:** Animation science is 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. The introduction of formal and professional level training programs and courses at the university and college levels is necessary to support the continued expansion of these industries and to produce highly qualified and trained professionals. This industry includes an important portion of animation, and this degree is being offered to train people in the field of animation, which is now an integral aspect of many different industries and finds applications in fields other than animation science. For this revolution in technology, scientific faculty students need also be prepared. The students from science faculty should also be competent for this change in the technology.

### Program Outcomes:

PO No.	PO Statement
	<b>After completing the Master of Science in Animation Science students will be able to-</b>
PO-1	The student will graduate with proficiency in the subject of their choice.
PO-2	The student will be eligible to continue higher studies in their subject.
PO-3	The student will be eligible to pursue higher studies abroad.
PO-4	The student will be eligible to appear for the examinations for jobs in government organizations.
PO-5	The student will graduate with proficiency in the subject of their choice.

### Program Specific Objectives:

1. Computer Animation and Game Development graduates should have an understanding of critical and aesthetic issues in computer graphics and mixed-

media.

2. They should know basic aesthetic principles and concepts, and the production process.
3. They should be able to effectively use technical, conceptual and critical abilities, and appropriate technology tools.
4. They should be effective written and oral communicators with the ability to function as effective members of collaborative multi-disciplinary teams in the production process.
5. They should be able to critically evaluate computer graphics and the mixed media.

**Program Specific Outcomes:**

<b>PSO No.</b>	<b>PSO Statement</b>
<b>PSO-1</b>	Explain the basics of Animation Science.
<b>PSO-2</b>	Learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learnt in the classroom.
<b>PSO-3</b>	Develop the ability to apply the knowledge acquired in classroom and laboratories to specific problems in theoretical and experimental Animation Science.
<b>PSO-4</b>	Develop the ability to apply the knowledge acquired in classroom and laboratories to specific problems in theoretical and experimental Animation Science.
<b>PSO-5</b>	Identify the area of interest in the academic research and development.

**Duration: Two year full time.**  
**Pattern: Semester examination.**  
**Medium of Instruction: English.**  
**Structure of Course: M.Sc. – I**

**Semester – I**

Level	Semester	Course Code	Course Title	No. of hours Per Week	Credits
6	I	MAST 411	Advanced Graphics Designing	4	4
		MAST 412	Composting And Editing	4	4
		MAST 413	Modern Art	4	4
		MAST 414 E-I MAST 414 E-II DSE (Elective: Any one among two)	E-I: Elements of Animation Designs E-II: Animation Business Marketing	2	2
		MAST415	Research Methodology	4	4
		MASP 416	Practical-I: LAB- I	4	2
		MASP 417	Practical-II: LAB- II	4	2
<b>Total</b>					<b>22</b>

**Structure of Course: M.Sc. – I****Semester – II**

<b>Level</b>	<b>Semester</b>	<b>Course Code</b>	<b>Course Title</b>	<b>No. of hours Per Week</b>	<b>Credits</b>
6	II	MAST 421	Z Brush Modeling	4	4
		MAST 422	Motion Graphics	4	4
		MAST 423	Advanced Blender Modeling	4	4
		MAST 424 E-I MAST 424 E-II DSE (Elective : Any one among two)	E-I: Digital Marketing for Animation E-II: Typography for Animation	2	2
		MASP 425	Research Projects	8	4
		MASP 426	Practical-III: LAB- III	4	2
		MASP 427	Practical-IV: LAB- IV	4	2
<b>Total</b>					<b>22</b>

## SEMESTER I

### MAST 411 Advanced Graphics Designing

**Course Objectives:** Student should able to:-

- 1) Understand process of photos, Photoshop ventures into image manipulation, creation, and enhancement.
- 2) Discuss and classify Interface menus tools and panels.
- 3) Understand lightroom tools and properties.
- 4) Understand Making process of flyers, brochures, magazines, books, marketing collateral.

Credits 4	SEMESTER-I Paper I Advanced Graphics Designing	No. of hours per unit
<b>UNIT I</b>	<b>Exploring the Lightroom Workspace</b>	<b>(15)</b>
	Adjusting the workspace layout, Toggling between screen modes, Working in the different Library module views, Working with the Filmstrip, Using filters in the Filmstrip, Working in the Map module, Quick and easy video editing, Trimming video clips, Cropping and rotating images, Removing unwanted objects, Retouching spots, Correcting color problems and adjusting the tonal range, Creating a Photo Book	
<b>UNIT II</b>	<b>Adobe Illustrator</b>	<b>(15)</b>
	Workspace basics, Tools bar, working with interface, about color, Color groups, adjusting colors, about painting, Painting with fills and strokes, Brushes, Transparency and blending modes, Gradient panel and Gradient tool overview, about layers, creating special effects, Appearance attributes, working with effects, create a drop shadow, Drop shadows, glows, and feathering, Printing with color management, Print presets	
<b>UNIT III</b>	<b>Adobe InDesign Interface, Working with objects &amp; Text</b>	<b>(15)</b>
	Introducing the Workspace, Tool box, working with panels, Customizing the workspace, Working with styles, Working with graphics, Working with objects, Working with object styles, Creating and saving custom document settings, Creating a new document, Working with master pages, Work with layers, Create and edit text frames and graphics frames, Import graphics into graphics frames, Crop, move, and	

	scale graphics, Wrap text around an object or graphic. Create complex frame shapes, Working with Text, Editing Text.	
<b>UNIT IV</b>	<b>Working with Color &amp; Exporting</b>	<b>(15)</b>
	Set up color management, Specify output requirements, Create color swatches, Apply colors to objects, strokes, and text, Create and apply a gradient swatch, Work with color groups, Working with Styles, Working with Transparency, Check a document for potential printing issues, Manage the colors used in a document, Confirm that an InDesign file and all of its elements are ready for printing, Preview a document onscreen before printing.	

**Course Outcomes:** Student will be able to:-

- 1) Explain different types of designing software and their interface.
- 2) Implement Principles of design in different project.
- 3) Create advance design using a scientific colour scheme.
- 4) Interpret Printing issues and solutions.

**Reference Books: -**

- 1) “Scott Kelby”, The Adobe Photoshop Lightroom CC Book for Digital Photographer, Publishedby New Riders, 2015
- 2) “Brian Wood”, Adobe Illustrator CC Classroom,2018
- 3) “John Cruise and Kelly Kordes Anton”, Adobe InDesign CC”2019
- 4) “Kelly Kordes Anton and Tina DeJarld” Adobe Indesign Classroom in a Book, 15 December2021

## MAST 412: Compositing and Editing

**Course Objectives:** Student should be able to:-

- 1) Understand fundamental Editing and compositing technics.
- 2) Recite working of non-linear editing software.
- 3) Understand procedure of publications design and video presentations.
- 4) Summarize editing principles and video formats.

Credits 4	<b>SEMESTER-I Paper II Compositing and Editing</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Workspace</b>	<b>(15)</b>
	Non-Linear editing, Video Setting, Editing vs. delivery formats, Tape- based vs. tapeless formats, High definition vs. standard definition, Progressive video vs. interlaced video, Premiere Pro presets, Overview of the post production workflow, Workspaces and Workflow, Working with panel, Capturing and Importing, Sequence, Video, Audio, Advance Editing.	
<b>UNIT II</b>	<b>Editing</b>	<b>(15)</b>
	Videos and Transition Effect, Understanding Video Transition, Adding transition to video clip, Editing Transition Setting, Apply and Remove Effect, Effect Presets, Color Correction Effect, Adjustment layer, Stabilize footage, Graphics Titles and Animation, Graphics Panel, Create Title, Create Shape, Align, Gradient to Text, Animation and Keyframes, Adding Nevagiting and Setting keyframe, Animating Effect, Motion Effect.	
<b>UNIT III</b>	<b>Compositing</b>	<b>(15)</b>
	Compositing Fundamentals, Opacity Masks, Track Matte Key, basic Track Matte set-up, Nesting, Using Secondary Color Correction to Create Track Mattes, Digital Makeup, Creating the Matte, Using the Ultra Keyer, Creating a garbage matte, Spill Suppression and Color Correction, Masking, Blending Modes, Color Workflow in Premiere Pro, Create Vintages, Looks and LUTs, VR Video Editing, Stitching, VR Video Settings in Premiere, Effects for VR Video, Mettle SkyBox 360/VR Tools.	



<b>UNIT IV</b>	<b>Exporting</b>	<b>(15)</b>
	Exporting Tips and Techniques, Output for the Web and desktop, Understanding formats and codecs, Understanding temporal and spatial compression, bit rate, frame rate and resolution, aspect ratio and pixel aspect ratio, Progressive display vs. interlacing, Exporting an H.264 file for mobile devices, Creating a custom export preset Export Video, Video Preset manager, Workflow and overview for exporting, Quick Export, Exporting for the Web and Mobile device, Export Still Images, Exporting Project for other Application, Export Setting Preferences.	

**Course Outcome:** Student will be able to

- 1) Illustrate the concept of Editing and Compositing.
- 2) Classify work with non-linear editing in Adobe Premiere Pro.
- 3) Describe the concept of transition and effects in Adobe Premiere Pro.
- 4) Perform color correcting, adjusting and stabilizing footage.

**Reference Books:**

- 1) The Cool Stuff in Premiere Pro Learn advanced editing techniques to dramatically speed up your workflow Second Edition-Jarle Leirpoll Dylan Osborn Paul Murphy Andy Edwards.
- 2) The Technique of Film and Video Editing History, Theory, and Practice Fifth Edition -Ken Dancyger.
- 3) Adobe Premiere Pro User Guide.
- 4) Adobe® Premiere® Pro CC Digital Classroom Jerron Smith and the AGI Training Team.

## MAST 413: Modern Art

**Course Objectives:** Student should be able to-

- 1) Apply the techniques of pencil drawing.
- 2) Interpret image resolution, image size, and image file format for web, video, and print.
- 3) Understand to compose materials, tools and processes from a variety of media
- 4) Design the products of matte painting in Adobe Photoshop.

<b>Credits 4</b>	<b>SEMESTER-I Paper III Modern Art</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Drawing &amp; Sketching</b>	<b>(15)</b>
	Introduction to Drawing and sketching, History of drawing and sketching, History of pencil, types of a Pencil, Instruments used in Drawing, Drawing Text and Lettering, Drawing Realistic Characters, Drawing Animals, Cartoon and Comic Drawing, Introduction to Acting, Modelling, Sketching from Acting, Sketching from live models, Introduction of Perspective, importance of Perspective, perspective terminology, horizon line, eye level, vanishing point, view point, orthogonal line, ground line, picture plane, Types of perspective views, One point perspective, Two point perspective, Three point perspective, bird's view, worm's view	
<b>UNIT II</b>	<b>Background design in Adobe Photoshop</b>	<b>(15)</b>
	Workspace basics, Tools, Colours basics, Layers settings, Brush settings, drawing tools, Using Filters for Special Effects, Choosing colors in the Color and Swatches panels, Color modes, Converting between color modes, Customizing color pickers and swatches, Understanding color management, Layer basics, Managing layers, Selecting, grouping, and linking layers, Moving, stacking, and locking layers, Editing layer masks, Masking layers with vector masks, Combining multiple images into a group portrait, Final Output settings	
<b>UNIT III</b>	<b>Fundamentals of Visual Art</b>	<b>(15)</b>

	Fundamentals of visual art (line, shape, form, space, colour, texture, tonal values, perspective, design etc.), Introduction - Meaning of Art, Definition of Art , Calcification of Art, Elements of Painting - Line, Form, Colour , Tone , Texture ,Space, Principles of Composition Proportion, Rhythm, Dominance, Harmony, Unity, Balance, Pre-historic Painting , Indus Valley, Jogimara, – Ajanta ,Bagh , Sittanvasal, Badami, Elephanta, Ellora	
<b>UNIT IV</b>	<b>Matte Painting</b>	<b>(15)</b>
	A Brief History of Matte Painting, Custom Brushes, Document Setting Adobe Photoshop, Understanding Pixels and Resolution, Getting Started with Layers, Understanding the Tool Composition and Concept, Painting, Perspective Basics, Changing Seasons, Texturing and Color Correction, Lighting Techniques, Final Image.	

**Course Outcomes:** Student will be able to: -

- 1) Explain basics of drawing and material handling and understanding.
- 2) Illustrate 2d background for various cartoon, movies, games etc.
- 3) Classify the elements of art and principals of design through effective compositions.
- 4) Construct story board, character design, matte painting, texturing art etc.,

**Reference Books:**

- 1) Preston J. Blair, “Animation 1: Learn to Animate Cartoons Step by Step”, Walter Foster Publishing, Jan 1, 2003.
- 2) Adobe Photoshop CC Classroom in a Book Paperback – by Faulkner Andrew (Author), Chavez Conrad (Author).
- 3) Wayne Gilbert, “Simplified Drawing for Planning Animation”, Anomie Entertainment Ltd, 4th edition, Aug 1, 2014.
- 4) Eric Curry, “Painting with Light: Lighting & Photoshop Techniques for Photographers”2nd Edition, 14 February 2017, Published by Amberst MediaLisa DaNae Dayley, “Adobe Photoshop CC Bible” 22 November 2013

## MAST 414 E1: Elements of Animation Designs

**Course Objectives:** Student should be able to:

- 1) Understand unique design thinking and related process.
- 2) Understand search area and define task.
- 3) Understand how design thinking applies across industries.
- 4) Understand design thinking across businesses.

<b>Credits 2</b>	<b>SEMESTER-II</b> <b>Paper IV - Elements of Animation Designs</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Introduction</b>	<b>(07)</b>
	Finding lead focused on market research & need, Define project goal, Planning work packages, correctly planning for the sequence & resources, Planning for project budget	
<b>UNIT II</b>	<b>Defining Roles</b>	<b>(08)</b>
	Find search area, Define task, Reformulating task, Recognize empathy, collect & evaluating information	
<b>UNIT III</b>	<b>Redefining Problem</b>	<b>(07)</b>
	Finding task, focusing on right people, recognize & analyzing needs of user, selecting & determining right solution	
<b>UNIT IV</b>	<b>Evaluating Ideas</b>	<b>(08)</b>
	Understanding creative principles, assuming different mindset with Six Hat Method, select right evaluation method, understanding experiments, benefit using different prototypes	

**Course Outcomes:** Student will be able to:-

- 1) Explain role and tasks of elements of designing.
- 2) Identify and search solution for task.
- 3) Create the prototype for task.
- 4) Test proposed solution with customer across industries.

### Reference Books:

- 1) "Design thinking for Dummies" by Christian Muller-Roterberg, 2020
- 2) "Design your thinking: The Mindsets, Toolsets and Skillsets for creative problem solving",2020

- 3) "The Design of Everyday Things" by Don Norman, 2014
- 4) "The Design Thinking Play Book" by Michael Lewrick, 2018

## **MAST 414 E2: Animation Business Marketing**

**Course Objectives:** Student should be able to:-

- 1) Study of marketing concepts and strategies.
- 2) Study of achieve consumer satisfaction by maximizing profits.
- 3) Study of the market share and related programs.
- 4) Understand design and implement marketing control.

<b>Credits 2</b>	<b>SEMESTER-I Paper IV Animation Business Marketing</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Introduction To Business-To-Business Marketing</b>	<b>(07)</b>
	Introduction The characteristics of business markets, Types of organizational customers, Types of business goods and services, The characteristics of B2B marketing, B2B marketing management approaches, Understanding value and supply chains.	
<b>UNIT II</b>	<b>Business Value – Products, Services And Pricing</b>	<b>(08)</b>
	Product attributes and benefits, Business product strategy, Product market strategies, Portfolio models, Product life cycle, Technological applications and the PLC, Strategic implications arising from the PLC, New product development (NPD), The technology adoption life cycle.	
<b>UNIT III</b>	<b>Marketing Management</b>	<b>(07)</b>
	Introduction, The process of segmenting B2B markets, Bases for segmenting business markets, Target market selection, Barriers to segmentation, Positioning.	
<b>UNIT IV</b>	<b>Marketing channels and networks</b>	<b>(08)</b>
	An Introduction to marketing channels, Function and purpose of marketing channels, Channel flows, Service outputs, Types of distribution channel, Channel roles and membership, Impact of technology on marketing channels, Types of Marketing tools.	

**Course Outcomes:** Student will be able to:-

- 1) Explain characteristics of business markets.
- 2) Describe the processes to solve marketing issues.

- 3) Discuss and analyze the scope of business expansion and its procedure.
- 4) Illustrate marketing strategies align with corporate strategies.

**Reference books:**

- 1) Chris Fill, Caren E. fill: Business to Business Marketing(Relationships,Systems Communication).
- 2) Asha Kaul : Effective Business Communication (PHI).
- 3) Jayaraman M.S.: Business Process Re-engineering (TMG).
- 4) Modern Marketing Principles & Practices Book by R S N Pillai, Bagavathi

## MAST 415: Research Methodology

**Course Objectives:** Student should be able to: -

- 1) Introduce the basic concepts in research methodology
- 2) Understand limitations particular research method.
- 3) Identify and solve the research problem for benefit of society.
- 4) Understand process of writing and framing Research proposals.

<b>Credits 4</b>	<b>SEMESTER-I MAST 415: Research Methodology</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Introduction to Research Methods</b>	<b>(15)</b>
	Definition of research, role and objectives of research, applications and types of research, research process and steps in it. Collecting and reviewing the literature, conceptualization, and Formulation of a research problem, Identifying variables, constructing hypothesis, Synopsis.	
<b>UNIT II</b>	<b>Research Design</b>	<b>(15)</b>
	(a) Research Design: Selecting and defining a research problem, need for research design, features of a good research design, different research designs (exploratory, descriptive experimental and diagnostic research). (b) Design of Sample Survey: Census V/s Sample enumerations, objectives and principles of sampling, Types of sampling, Sampling and Non-sampling errors. Designing Questionnaires and interview. Determination of the sample size.	
<b>UNIT III</b>	<b>Data Collection &amp; Analysis</b>	<b>(15)</b>
	Primary & secondary data, Validity and Reliability of data collection procedures, data preparation, exploratory data analysis, parametric and non-parametric tests, correlation and regression analysis, ANOVA, Multivariate Techniques.	
<b>UNIT IV</b>	<b>Report Writing</b>	<b>(15)</b>
	Discussions, Conclusion, referencing and various formats for reference writing, Bibliography, Thesis Writing, Thesis writing, Formats of publications in research journals including subject	



	classification, Impact factor, Citation index, Search Engines, Scientific search engines. PDF and Latex files.	
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**Course Outcomes:** Student will be able to:-

- 1) Classify a range of quantitative and qualitative research techniques.
- 2) Apply the knowledge and understanding of data analysis and interpretation.
- 3) Practice critical thinking skills.
- 4) Draft literature review and research proposal.

**Reference Books:**

- 1) Krishna Swamy K.N., Siva Kumar A.I., Mathirajan M., “Management Research Methodology (2006), Pearson Education, New Delhi.
- 2) Kothari C.R., “Research Methodology, Methods and Techniques, Second edition, (2008), New Age International Publication.
- 3) Ranjit Kumar : Research Methodology, A step by step guide for beginners, Pearson Education, Sixth Edition 2009.
- 4) Mark Saunders, Philip Lewis, Adrain Thornhiu: Research Methods for Business Students, Pearson Education

## MASP 416: Practical I: LAB I

**Course Objectives:** Student should be able to:-

- 1) Study the process of customizing a document using color, swatches, gradients, and styles.
- 2) Study of flyers, brochures, magazines, books, marketing collateral, and any type of layout for print or digital distribution.
- 3) Understand publications design and video presentations.
- 4) Understand the editing principles and video formats.

Credits 2	SEMESTER-I MASP 416	No. of hours per unit 60 Hrs.
	<ol style="list-style-type: none"> <li>1) How to Quickly Create a Slideshow using Adobe Light room.</li> <li>2) How to editing for Landscape Photograph using Adobe Light room.</li> <li>3) Photo editing Portrait Skin Retouching using Adobe Light room.</li> <li>4) Create a Milk Bottle with a Funny Cow Label using Adobe Illustrator.</li> <li>5) How to Make a Delicious Vector Orange using Adobe Illustrator.</li> <li>6) Modern Social Media Banner Food Restaurant in Adobe Illustrator.</li> <li>7) Create a Flyer Design in Adobe InDesign CC.</li> <li>8) How to Design a Calendar in InDesign CC.</li> <li>9) How to Create a Magazine Layout Design in InDesign CC.</li> <li>10) Creating a Trifold Brochure in Adobe InDesign CC.</li> <li>11) Animate a Layered Title.</li> <li>12) Create animated effect preset.</li> <li>13) Ultra Key Effect.</li> <li>14) Add track Matte Key.</li> <li>15) Working with transition effect.</li> <li>16) Create Motion Graphics Template.</li> <li>17) Create Title Graphics.</li> <li>18) Create photorealistic background for Green Screen Footage.</li> <li>19) Opening and sharing multiple projects on network.</li> <li>20) Create Timelapse video from still images.</li> </ol>	

**Course outcomes:** the student will be able to:

- 1) Customize a document using color, swatches, gradients, and styles.
- 2) Create flyers, brochures, magazines, books, marketing collateral, and any type of layout for print or digital distribution.
- 3) Critically analyze publications design and video presentations.
- 4) Explain the editing principles and video formats.

## MASP 417: Practical II: LAB II

### Course Objectives: Student should be able to: -

- 1) Apply the techniques of pencil drawing.
- 2) Understand unique design thinking and related process.
- 3) Understand search area and define task.
- 4) Study of marketing concepts and strategies.

Credits 2	SEMESTER-I MASP 417	No. of hours per unit 60 Hrs.
	<ol style="list-style-type: none"> <li>1) Free hand sketching from real objects.</li> <li>2) Sketching from live models.</li> <li>3) Cartoons and Comic Drawings.</li> <li>4) How to draw Easy Landscape in Adobe Photoshop CC.</li> <li>5) How to make Beautiful Sunset Scenery drawing in Adobe Photoshop CC.</li> <li>6) Mountain Flat landscape drawing in Adobe Photoshop CC.</li> <li>7) How to create 2D landscape in Adobe Photoshop CC.</li> <li>8) How to Create Environment Matte Painting in Adobe Photoshop CC.</li> <li>9) How to Create Smudge Oil Painting Effect in Adobe Photoshop CC.</li> <li>10) How to Draw Beautiful Village Scenery Drawing in Adobe Photoshop CC.</li> </ol>	
	<p style="text-align: center;"><b>Elective I: Elements of Animation Design</b></p> <ol style="list-style-type: none"> <li>1) Study on need, Principles and planning of Projects.</li> <li>2) Study on projects Hypothecation and Budget.</li> <li>3) Study on defining and redefining problems.</li> <li>4) Study on Evaluation and collection of information.</li> <li>5) Study on task Role defining.</li> <li>6) Study on designing prototyping.</li> <li>7) Study on Creative principles assuming different mindset.</li> <li>8) Study on Six Hat Method.</li> <li>9) Study a case on experimentation through sketches, prototypes.</li> <li>10) Study a case on experimentation through testing and trails of new concepts and ideas.</li> </ol>	

	<p style="text-align: center;"><b>Elective II: Animation Business Marketing</b></p> <ol style="list-style-type: none"> <li>1) Study on effective digital marketing strategies for small business.</li> <li>2) Study on analyzing consumer behavior trends in E-commerce.</li> <li>3) Study on impact of social media influencers on brand perception.</li> <li>4) Study on Traditional vs Digital marketing channels.</li> <li>5) Study on strategies for building managing a brand online.</li> <li>6) Study on data analytics in marketing decision-making.</li> <li>7) Study on Ethical considerations in marketing practices.</li> <li>8) Study on innovative uses of augmented reality in marketing.</li> <li>9) Study on CRM Tools [Customer Relationship Manager]and Their Application.</li> <li>10) Study on effective strategies for launching a new product.</li> </ol>	
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**Course outcomes:** the student will be able to:

- 1) Explain basics of drawing and material handling and understanding.
- 2) Explain role and tasks of elements of designing.
- 3) Describe the processes to solve marketing issues.
- 4) Explain characteristics of business markets.

## SEMESTER II

### MAST 421: Z Brush Modeling

**Course Objectives:** Student should be able to:-

- 1) Study digital techniques for figure sculpture.
- 2) Study human anatomy.
- 3) Understand the process of creating a high quality CG digital figure
- 4) Understand complex software packages used in industry for sculpting human figures.

Credits 4	Paper IV SEMESTER-II MAST 421: Z Brush Modeling	No. of hours per unit
<b>UNIT I</b>	<b>Working with Interface</b>	<b>(15)</b>
	Sculpting, from Traditional to Digital, Gesture, Form, and Proportion, Overview, Interface, Interface Layout, Controls, Interface Component, Working with Canvas and document, Modeling Basic, Polymesh, Creating Meshes, SubTools, Navigation, Cameras, Subdivision levels, Dynamic Subdivision, Masking, Polygroup, Mesh Visibility, Polygroups, Transpose, Gizmo 3D, Reference Images, Working with 3D ZTools, keyboard shortcut keys, GoZ.	
<b>UNIT II</b>	<b>Sculpting in ZBrush</b>	<b>(15)</b>
	Sculpting basic, Sculpting brushes, 3D Layers, Surface Noise, Projection Master, Hard Surface, Bevel Brushes, Planar trim Polish, Clip Brushes, The Brush Menu, custom Brushes, Clay Brushes, Using Polygroups, Working with imported meshes, Optimizing meshes for Zbrush, Zbrush Plug-ins, Fiber Mesh, Nano Mesh, Array Mesh.	
<b>UNIT III</b>	<b>ZBrush for Detailing</b>	<b>(15)</b>
	Forms and details, Alphas, Alphas as a Stroke, Alphas as Stencils, Importing Images to Use as Alphas, Details and Layers, UVs in ZBrush, The Texture Menus, UV Projection Texture Method, polypainting, Materials, Modifiers, Matcap, lights, Light Cap, background.	

<b>UNIT IV</b>	<b>Rendering in ZBrush.</b>	<b>(15)</b>
	Posterization, Curves setting, material Mixer, 3D Posterization, BPR(Best Preview Render), BPR Passes, BPR Setting, BPR Filters, Filter List, Filter Modulators, Radial Overlay, Background images, NPR (Non-Photorealistic Rendering), Cell Shading, Flat Shadows, Working with filters, Saving and Loading, NPR Filters NPR Modulators, Z movie, Recording the screen, Turntable Animation, Timeline, Setting for GoZ, ZBrush Plug-ins, 3D text and Vector Shapes, Export file types.	

**Course Outcomes:** Student will be able to:-

- 1) Explain designs concepts.
- 2) Illustrate the drawing, sculpting, critiquing, and presenting skills.
- 3) Analyze the critical elements of digital figure sculpting.
- 4) Work with the complex software packages used in industry for figure sculpting.

**Reference books:**

- 1) Getting Started in ZBrush an Introduction to Digital Sculpting and Illustration- Greg Johnson.
- 2) Z-Brush User guide-pixologic.
- 3) ZBrush Character Creation Advanced Digital Sculpting Second Edition Scott Spencer
- 4) ZBrush 4 Sculpting for Games Beginner's Guide Sculpt machines, environments, and creatures for your game development projects Manuel Schere

## MAST 422: Motion Graphics

**Course Objectives:** Student should be able to:-

- 1) Study the concepts of motion graphics.
- 2) Understand Designs and Sequence of Motion Graphics Projects.
- 3) Study the techniques of complex animations.
- 4) Understand the transformations tools and short-cuts in Visual Effects (vfx).

<b>Credits 4</b>	<b>SEMESTER-II Paper V MAST 422: Motion Graphics</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Exploring the After Effect</b>	<b>(15)</b>
	Main Application Window, Tools Panel, Project Panel, Footage Panel, Transparency and Alpha Channel, Composition Panel, Timeline Panel, Layer Panel, Info, Preview and Audio Panel, Effects and Presets, Stacked Panel, Basic Animation, Composition Basics, Starting project, Importing Footages, New Composition, Adding Layer to Comp Panel, Changing Properties, Motion Path, Previewing the Animation, Navigating Between Keyframes, Applying Ease in, Duplicating and Replacing Layers, Working with Effects, Importing layered photoshop and Illustrator files.	
<b>UNIT II</b>	<b>Advanced Animation</b>	<b>(15)</b>
	Keyframes Basic, Anchor Point Overview, Anchor Point tool, motion control moves, Graph editor, editing graph curves, easing animation, motion sketch, Motion Blur, Roving keyframes, time display and timecode, Editing Layer and Effects- Layer and Stacking order , Trimming, Slip Editing, Changing frame Rate, Blending Modes, effect motion path, animation Presets, Layer Styles, adjustment layers, third party effects.	
<b>UNIT III</b>	<b>Animation and Keyframes</b>	<b>(15)</b>



	Animation Basics, Content-Aware Fill Panel, Construct VR environment, Working with VR tools, immersive video effect, Animating with Puppet tool, working with keyframes, Speed, Tracking 3D camera movement, Tracking and Stabilizing motion, Color, Color Basic, Color Management, Drawing Painting and Paths, Paint tools, Shape Layers Path and Vector Graphics, Creating Shapes and Mask, Managing and animating Shapes path and Mask, Mask Tracking, Mask References.	
<b>UNIT IV</b>	<b>Working with Text and Rendering Motion Graphics</b>	<b>(15)</b>
	Creating and Editing Text Layers, Formatting Character and Character panel, Animating Text, Extruding text and Shape layer, Formatting Paragraph and Paragraph Panel, Transparency and Composition, Alpha Channel Masks and Mattes, Keying, Markers, Layer Markers and Composition Markers, Rendering and Exporting, Basic Rendering and Exporting, Rendering and Exporting Still images and Image Sequences, Exporting After effect Project, Converting Movies, Automated Rendering and Network Rendering, Creating Motion Graphics template in After Effect.	

**Course Outcomes:** Student will be able to:-

- 1) Explain the concept of masking.
- 2) Create animatics layers.
- 3) Describe the Puppet Tools.
- 4) Illustrate the use of roto brush to create mattes and extract objects.

**Reference Books:**

- 1) After Effects Apprentice\_ Real-World Skills for the Aspiring Motion Graphics Artist-TRISH & CHRIS MEYER.
- 2) Adobe After Effects CC Classroom in a Book by Adobe Creative team.
- 3) Creating Motion Graphics with After Effects by Trish and Chris.
- 4) ADOBE AFTER EFFECTS Help and tutorials

## MAST 423: Advanced Blender Modeling

**Course Objectives:** Student should be able to:-

- 1) Understand the process and methods of 3D modeling.
- 2) Identify 3D models and its types.
- 3) Understand difference between Boolean and polygon 3D objects.
- 4) Understand Inverse and foreword kinematics.

<b>Credits 4</b>	<b>SEMESTER-II</b> <b>Paper VI MAST 423: Advanced Blender Modeling</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Interface</b>	<b>(15)</b>
	Introduction to software, screen setup, user preferences window, Working with viewports, Moving around in 3D space, window and button control, creating viewports, working with basic meshes, using the main modifier to manipulate meshes, edit mode- mesh editing, the tool shelf, proportional editing, joining/ separating meshes, Boolean operations.	
<b>UNIT II</b>	<b>Modeling</b>	<b>(15)</b>
	Blender Render Engines, the classic rendering engine, The cycles render engine, Tweaking cycles for speed & quality, Materials and Textures, Basic material settings, Basic texture settings, Using images and movies as textures, Displacement mapping, Materials and Textures in cycles.	
<b>UNIT III</b>	<b>Texturing and Lighting</b>	<b>(15)</b>
	Setting up a world, Using colour, mist and textures, Using an image in the background, Cycles world settings, Lighting and Cameras, Camera settings and options, Using nodes for depth-of-field, Green screen (chroma key), and more, Lighting types and settings, Indirect lighting, Basic setup options, Rendering movies and images, network rendering.	
<b>UNIT IV</b>	<b>Animation</b>	<b>(15)</b>
	Animation Basics, Basic key-framing and auto key-framing, working with the graph editor and dope sheet, Animating mates, lamps and world settings, Adding 3D text, Blender 3d text settings, converting to a mesh, NURBS and Meta shape basic, Using NURBS to create lofted shapes, Liquid and droplet effects using meta shapes, Modifiers, Basic mesh modifiers, simulation modifiers.	

**Course Outcomes:** Student will be able to:-

- 1) Character 3D character Modeling.
- 2) Create modeling and texturing.
- 3) Create 3D Rigging and characters.
- 4) Create photo realistic renders.

**Reference books:**

- 1) “Blender 3D: Designing Objects”, by Romain Caudron, Pierre-Armand Nicq, Enrico Valenza, Published by Packt Publishing Ltd., Published on: September 2016.
- 2) “Blender for Dummies”, 3rd Edition, by Jason van Gumster, Published by: John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030-54.
- 3) “Blender User Manual” Release 2.78, Blender Community, Published by Mar 08, 2017.
- 4) “Mastering Blender” Second Edition by Tony Mullen, Publisher: Neil Edde.

## MAST 424 E1: Digital Marketing for Animation

**Course Objectives:** Student should be able to:-

- 1) Understand the fundamental concepts of Marketing.
- 2) Know the Digital marketing challenges in both Internal & External.
- 3) Understand the key analytical frameworks and tools used in marketing.
- 4) Promote market products and services to customers.

<b>Credits 4</b>	<b>SEMESTER-II Paper VII MAST 424 E1: Digital Marketing for Animation</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Basics Digital Marketing</b>	<b>(07)</b>
	Introduction of Online Digital Marketing, Importance of Digital Marketing. How did Internet Marketing work? Traditional Vs. Digital Marketing, Types of Digital Marketing, Increasing Visibility, Visitors" Engagement, Bringing Targeted Traffic, Lead Generation.	
<b>UNIT II</b>	<b>Analysis and Keyword Research</b>	<b>(08)</b>
	Market Research, Keyword Research And Analysis, Types Of Keywords, Tools Used For Keyword Research, Localized Keyword Research, Competitor Website Keyword Analysis, Choosing Right Keywords To The Project	
<b>UNIT III</b>	<b>Search Engine Optimization</b>	<b>(07)</b>
	Introduction To Search Engine Optimization How Did Search Engine, How Did Search Engine work? SEO Fundamentals & Concepts, ON PAGE OPTIMIZATION - Metadata Optimization, URL Optimization, Internal Linking. OFF PAGE OPTIMIZATION - Link Building Tips & Techniques, Difference Between White Hat And Black Hat SEO, Alexa Rank, Domain. SEO UPDATES AND ANALYSIS - Google Panda, Penguin, Google Penalties, Backlinks Tracking, Monitoring, And	

	Reporting.	
<b>UNIT IV</b>	<b>Social Media Marketing</b>	<b>(08)</b>
	Social sites Optimization, Fan Page Vs. Profile Vs. Group, Creating Page For Business, Increasing Fans And Doing Marketing, Payment Modes, Branding, Tools & Techniques. GOOGLE WEB ANALYTICS - Real-Time Monitoring, Acquisition, Demographics WEBMASTER TOOLS - Adding site and verification, HTML Suggestion, Search queries analysis	

**Course Outcomes:** Student will be able to:-

- 1) Explain the marketing theories, frameworks & tools to solve marketing problems.
- 2) Identify and priorities appropriate marketing strategies.
- 3) Apply market research skills for designing innovative marketing strategies for business firms.
- 4) Discuss various marketing environment variables and interpret them for designing market strategy.

**Reference books:**

- 1) Digital Marketing 2020 : Book by Danny Star.
- 2) The Art of SEO: Book by Eric Enge, Stephan Spencer, Jessie Stricchiola .
- 3) New Rules of Marketing: Book by David Meerman Scott.
- 4) Modern Marketing Principles & Practices Book by R S N Pillai, Bagavathi

## MAST 424 E2: Typography for Animation

**Course Objectives:** Student should be able to:-

- 1) Understand the role of typography in everyday life.
- 2) Analyze the basic principles of micro- and macro-typography.
- 3) Identify the requirements of a project brief, research, plan and implement it.
- 4) Interpret digital technology to implement design solutions.

<b>Credits 2</b>	<b>SEMESTER-II Paper VII MAST 424 E2: Typography for Animation</b>	<b>No. of hours per unit</b>
<b>UNIT I</b>	<b>Typography Introduction</b>	<b>(07)</b>
	Introduction, Classification, Anatomy of a Font, Features of a Font, Text Formatting, Multilingual Typography, Expressive Typography.	
<b>UNIT II</b>	<b>Typographic Measurement</b>	<b>(08)</b>
	Definition of Point Size, Definitions: Font versus Typeface, The Baseline, x-Height, Principal Features of Typefaces, Variations in Typeface Weight, Classifying Typefaces by Historical Period, Old-Style Typefaces, Transitional Typefaces, Modern Typefaces.	
<b>UNIT III</b>	<b>Typesetting and Typewriting</b>	<b>(08)</b>
	Page Sizes and Line Lengths, Word Spaces, Typeface Choice and Point Size, Unavailable Characters, Hyphens and Dashes, Quotation Marks, Fractions, Measure, Point Size, and Leading.	
<b>UNIT IV</b>	<b>Managing Indention and Alignment</b>	<b>(07)</b>
	Indents as Paragraph Attributes, Indents on a Point or Character, Skews and Wraps, Alignments of Characters and Text Blocks, Special Characters and Special Situations, Document Structures and Typographic Conventions, Tables, Language-Specific Issues, Typesetting with Style Sheets, Resolution Issues: Print, Screen, and Web	

**Course Outcomes:** Student will be able to:-

- 1) Define and evaluate the basic components of the invention of printing.
- 2) Classify typefaces according to their visual similarities and describe them.
- 3) Apply the basic principles of micro-typography for setting text.
- 4) Identify and use typographic conventions to articulate the structure of text.

**Reference Books:**

- 1) *Typography, Referenced: A Comprehensive Visual Guide to the Language, History, and Practice of Typography*, Jason Tselentis , Allan Haley, Richard Poulin , Tony Seddon, Gerry Leonidas, Ina Saltz, Beverly, Rockport Publishers. 2012.
- 2) *Thinking with Type* , Ellen Lupton, Princeton Architectural Press, 2004, 9781568989693 (e-book).
- 3) *The elements of typographic style* , Bringhurst R., Hartley & Marks, 2004.
- 4) *Type and Typography*, Baines Phil & Haslam Andrew, Watson- Guptill, 2005.

**MASP 425: RESEARCH PROJECT**

<b>Credits</b> <b>4</b>	<b>MASP 425: RESEARCH PROJECT</b>	<b>No. of Hours</b> <b>120</b>
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## MASP 426: Practical III: LAB III

**Course Objectives:** Student should be able to

- 1) Introduce them to the basic principles of micro- and macro typography.
- 2) Enable them to assess the requirements of a project brief, research, plan and implement it.
- 3) Examine how design thinking applies across industries.
- 4) Evaluate design thinking across industries.

<b>Credits 2</b>	<b>SEMESTER-II PRACTICAL LAB II MASP 426</b>	<b>No. of hours per unit 60 Hrs.</b>
	<ol style="list-style-type: none"> <li>1) Working with Sculpting techniques in Zbrush.</li> <li>2) To create and use alphas to get detail on your model.</li> <li>3) Modeling basics: Booleans in Zbrush.</li> <li>4) Working with paint techniques in Zbrush</li> <li>5) Sculpting Ornamental design.</li> <li>6) Creating fruit model in Zbrush</li> <li>7) Modeling wrinkle Fabric Sofa in Zbrush</li> <li>8) Creating organic model in Zbrush.</li> <li>9) Cartoon Character modeling in Zbrush.</li> <li>10) Creating stylized tower house in Zbrush.</li> <li>11) Working With Text in Adobe After Effect.</li> <li>12) Mask Text Reveal Animation in Adobe After Effects.</li> <li>13) Liquid logo animation in Adobe After Effects.</li> <li>14) Particle Logo and Text Animation in Adobe After effects.</li> <li>15) Cinematic Title animation in Adobe After Effects.</li> <li>16) Working with Element 3D in Adobe After Effects.</li> <li>17) Working with 3D camera technique in Adobe After Effects.</li> <li>18) Dynamic text Animation in Adobe After Effect.</li> <li>19) Chroma Key removal in Adobe After Effect.</li> <li>20) Working with RotoBrush in Adobe After Effects.</li> </ol>	

**Course Outcomes:** Student will be able to:-

- 1) Analyze and understand translating design concepts between non-digital representations.
- 2) Construct the drawing and sculpting.
- 3) Design new customers acquisitions, better leads & brand awareness.
- 4) Describe the scope of marketing with different marketing functions

**Reference books:**

- 1) Getting Started in ZBrush an Introduction to Digital Sculpting and Illustration- Greg Johnson.
- 2) Z-Brush User guide-pixologic.
- 3) After Effects Apprentice\_ Real-World Skills for the Aspiring Motion Graphics Artist- TRISH &CHRIS MEYER.
- 4) “Blender 3D: Designing Objects”, by Romain Caudron, Pierre-Armand Nicq, Enrico Valenza, Published by Packt Publishing Ltd., Published on: September 2016.

## MASP 427: Practical IV: LAB IV

**Course Objectives:** Student should be able to

- 1) Understand the process and methods of 3D modeling.
- 2) Understand the fundamental concepts of Marketing.
- 3) Understand the Digital marketing challenges in both Internal & External.
- 4) Analyze the basic principles of micro- and macro-typography.

Credits 2	SEMESTER-II MASP 427: Practical IV: LAB IV	No. of hours per unit 60 Hrs.
	<ol style="list-style-type: none"> <li>1) To study of blender making a coffee cup.</li> <li>2) To study of blender making a dinner table fork.</li> <li>3) To study of blender cup with wood texture.</li> <li>4) To study of texturing a wooden table in blender.</li> <li>5) To study of blender tutorial photorealistic ring.</li> <li>6) To study of blender tutorial create A Dice Game.</li> <li>7) To study of blender Water Simulation with scene.</li> <li>8) To study of blender sample scene with smoke and Cloth Simulation.</li> <li>9) To study of blender render interior and exterior scene. (Architectural)</li> <li>10) To study of blender rendering environmental scene.</li> <li>11) Study on website Analysis and optimization.</li> <li>12) Study on content marketing.</li> <li>13) Study on social media marketing.</li> <li>14) Study on Email marketing.</li> <li>15) Study on PPC Advertising.</li> <li>16) Study on Analytics and data interpretation.</li> <li>17) Study on E-commerce &amp; online sales.</li> <li>18) Study on Influencer marketing.</li> <li>19) Study on Ethical &amp; legal considerations.</li> <li>20) Study on Industry tools &amp; certification.</li> <li>21) Study on Anatomy of fonts.</li> <li>22) Study on Multilingual typography.</li> <li>23) Study on Traditional Typefaces.</li> <li>24) Study on Modern Typefaces.</li> <li>25) Study on Hyphens, Dashes.</li> <li>26) Study on Quotation mark.</li> </ol>	

	27) Study on Paragraph attributes. 28) Study on Alignment of characters and textboxes. 29) Study on Document structures and typographic conversations. 30) Study on Resolution Issues for Typography.	
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**Course Outcomes:** Student will be able to:-

- 1) Create modeling and texturing.
- 2) Construct the drawing and sculpting.
- 3) Explain the marketing theories, frameworks & tools to solve marketing problems.
- 4) Apply the basic principles of micro-typography for setting text.