

Annexure-III

**Parvatibai Chowgule College of Arts and Science
(Autonomous)**

DEPARTMENT OF APPLIED AND PROFESSIONAL STUDIES

SYLLABUS

**THREE YEAR B.VOC. DEGREE PROGRAMME IN 3D MEDIA AND VIRTUAL
REALITY – VFX**

&

**THREE YEAR B.VOC. DEGREE PROGRAMME IN MULTIMEDIA – DIGITAL
FILMMAKING**

**THREE YEAR B.VOC. DEGREE PROGRAMME IN 3D MEDIA AND VIRTUAL
REALITY – VFX**

SEMESTER-I

Course Title: Drawing & Painting

Course Code: VFX-SK1

Marks: 50

Credits: 02

Total Hours: 30

Course Prerequisites: Nil

Course Objectives:

- To make the student learn to perceive, read and translate the visual world into personal forms of pictorial expression and representation.
- To enable the student to develop a relationship with the physical production of art and also acquire knowledge of its theory, history and criticism.

Learning Outcome: At the end of this course, students will be able to

- Identify the various techniques used and elements required in drawing.
- Sketch virtual art using computer graphics software program.
- Compose layouts as per their own creative visualizations.

SYLLABUS:

Module - I - Fundamentals of Art

(12 Hrs.)

This module involves a series of exercises designed to introduce the basics and give a grounding in various types of drawings.

The sections covered are:

Fundamentals of Art- The fundamentals of art are the building blocks for successful art-making. Artwork can also be analyzed according to the use of the elements in a work of art.

Elements of Art-The elements of art are the basic components of art-marking. It is impossible to create a work of art without using at least one of the seven elements of art.

Principles of Art-Balance, emphasis, movement, proportion, rhythm, unity, and variety; the means an artist uses to organize elements within a work of art. By the careful placement of repeated elements in a work of art to cause a visual tempo or beat. Equilibrium or stability to a work of art.

Content- Refers to the message or meaning within an artwork.

Aesthetics - Refers to the artwork's visual attraction or beauty.

Art Criticism - An organized approach to evaluating artwork.

Symbolism - Using visual objects or arrangements to represent an alternate meaning.

Module - II - Fundamentals of Drawing

(12 Hrs.)

Introduction with Basic Line Drawing - This includes drawing straight lines, circles & half circles to give the student a basic exercise of free hand drawing.

Different Technique of Drawing - This includes techniques of holding pencils, brushes and use of other mediums and drawing materials which help the student understand the different techniques of drawing.

Object Drawing – This section involves drawing basic geometric 3d objects such as squares, triangles, cones, circular objects and spheres, this will help the students get an understanding of the dimensions of different objects.

Pictorial Design – This is a 2d design which will help students to gain an understanding of composition, color & balance in a design.

Nature Drawing – Involves the drawing of natural objects such as leaves, flowers, fruits, vegetables in a still life composition.

Perspective – Various methods of perspective will be looked where students will learn the rules of perspective and learn how to effectively use them in their drawings & compositions

Composition – Composition is the most important part of art work as it helps an artist to create visual harmony and balance in a painting. Students will learn the rules of composition in any given space.

Color Theory- practical guidance to color mixing and the visual effects of a specific color combination. Definitions (or categories) of colors based on the color wheel: primary color, secondary color and tertiary color.

Module - III - Digital Painting

(6 Hrs.)

Digital painting is a method of creating an art object (painting) digitally. It is a technique for making digital art on the computer. As a technique, it refers to a computer graphics software program that uses a virtual canvas and virtual painting box of brushes, colors and other resources. The virtual box contains many instruments that do not exist outside the computer. This helps to give digital artwork a different look and feel from an artwork that is made the traditional way.

Digital Drawing – Introduction of digital format as a canvas for drawing and painting. Students will learn different digital media techniques and professional digital painting software.

Textbook:

1. Barrington Barber, The Fundamentals of Drawing, Arcturus publishing Limited, 2009.
2. Victor Perard, Anatomy and Drawing, Grace Prakashan, 2011.

References:

1. 3D Total Team, Gilles Beloeil, Andrei Riabovitchev, Roberto F. Castro, Publishing 3D Total; Art Fundamentals: Color, Light, Composition, Anatomy, Perception and Depth, 3D Total Publishing, 2013.
2. <https://www.craftsy.com/art>
3. <https://www.youtube.com/watch?v=8xdchD4lUXI>

Lab: Drawing & Painting

Marks: 50

Credits: 4

Total Hours: 60

-
1. Drawing of straight lines, curve lines, horizontal lines, vertical lines, thick lines, thin lines, diagonal lines, dotted lines.
 2. Drawing of basic geometric 3d objects such as squares, triangles, cones, circular objects and spheres.
 3. Drawing of two objects by observation.
 4. Drawing of illustrative design.
 5. Drawing of objects from nature.
 6. Drawing using the rules of perspective.
 7. Drawing using the rules of composition.
 8. Using the different color combinations to create visual art.
 9. Using the color wheel: primary color, secondary color and tertiary color to create visual art.
 10. Creating digital art object using Wacom Intuos.

Hardware

- Wacom Intuos

Course Title: 3D Animation – I

Course Code: VFX-SK2

Marks: 50

Credits: 02

Total Hours: 30

Course Prerequisites: Nil

Course Objectives:

- To give an introduction to basic animation tools and techniques.
- To prepare the student for the advanced level course in the next semester.

Learning Outcome: At the end of this course, students will be able to

- Explore the basic tools and interfaces used to model a 3D animation character.
- Positioning 3D objects.
- Create 3D object using splines tools and splines modifier.
- Manipulate and segregate 3D objects.

SYLLABUS

Module – I - Fundamentals of 3D Animation

(12 Hrs.)

In this module, we teach how to plan the production and interact with 3D studio max software.

Introduction with 3D Studio Max CC - Learn to get around with 3d studio max, from ground up, providing overview of the entire package as well as essential workflows that require to create professional models and animations.

Exploring Interface - Complete overview of the 3Ds Max interface, navigation, configure major parts of the interface, including the viewports, the timeline, the outliner, and the various other parts of the 3Ds Max UI.

Controlling of Viewports - Creating and manipulating standard 3ds Max primitives such as spheres, cubes, cones, and cylinders, then moves on to extended primitives such as the capsule and the oil tank. Exploring modifiers and use them as the basis for modeling.

Working with Files & Hierarchy - Exploring the different 3d file extension and assembly. Discover various file association, referencing and grouping techniques. Learn industry standard file types like FBX and alembic.

Module - II- Modeling in 3D

(9 Hrs.)

Creating and positioning 3D Object, running a mass Fx simulation and animating object with key frames.

Creating and Modeling, Editing Primitive - Overview of graphite modeling tools. Exploring functionality of connect tool, weld tool, extrude tool and various component tool that help in modeling and topology techniques.

Selecting Objects and Using Layers - Overview of modeling interface and modifier stacks. Procedural way of modifying objects, parameters and adjusting the workflow of modeling techniques. Preparing and understanding assets through poly modeling.

Transformation Tools – Learning rich tool set to view and manipulate vertex editing, edge and border editing. Zoom in and out workflows with controlling distance with clipping planes.

Cloning and Array - Overview of breaking edit mesh and poly mesh models into different files for sub tool modeling techniques. Explore isolated, hidden, freeze, wire frame and adaptive degradation technique with proxy file assembly.

Module – III - Shapes and Splines

(9 Hrs.)

Working with layer and creating 3D object using splines tools and splines modifier.

Creating and Modeling, Editing Primitive - Creating common nurms and spline shapes primitive that allow to create 3d objects from 2d shapes. Shapes comprises of basic line, circle, and curved shapes, with their own set of parameters that can be further edited

Selecting Objects and Using Layers - Learn to renaming and segregate objects. Using selection sets and compile them to layer distribution for non-linear edits and modifying objects. Discover layer base modeling and animatics with layer properties and parameters.

Transformation Tools - Explore the manipulation tools translate, rotate and scale. In-depth parameters on manipulation gizmo and co-ordinate. Discover how manipulation axis order in global, local, view and normal contribute to the workflow of developing professional 3d objects.

Textbooks:

1. Kelly L. Murdock, 3ds Max Bible 2012, John Wiley & Sons Inc., 2012.

References:

1. Jeffrey M. Harper, Mastering Autodesk 3ds Max, John Wiley & Sons Inc., 2013.
2. Richard E. Williams, The Animator's Survival Kit, Faber, 2009.
3. <https://www.autodesk.com/education/home>
4. <https://www.youtube.com/watch?v=kqQmwXCH6w8>

Lab: 3D Animation – I**Marks: 50****Credits: 04****Total Hours: 60**

1. Introduction to 3ds Max, opening and saving the files, adjusting workspace, exploring the menus.
2. Creating and manipulating objects, adjusting the pivot, aligning, snapping, and adjusting the gizmos.
3. Manipulating object using vertexes, lines, and faces. Create a crusher using polygon tools.
4. Modelling of coke bottle and detailing with extrude.
5. Modelling interior furniture using connect and weld tool.
6. Modelling interior using chamfer tool.
7. Modelling a ship using boolean modifier.
8. Modelling shrine using duplicate option and array.
9. Modelling a bicycle using spline.
10. Create chess pieces using revolve modifier.

Softwares

- Autodesk 3ds Max
- Blender (Open Source)

Course Title: Vector Graphics - Illustrator**Course Code: VFX-SK3****Marks: 50****Credits: 02****Total Hours: 30****Course Prerequisites: Nil**

Course Objectives:

- To make the student learn to perceive, read and translate the visual world into digital forms.
- To train students to create small file size vector graphics.

Learning Outcome: At the end of this course, students will be able to

- Sketch virtual art using computer graphics software program.
- Create vector images using Adobe Illustrator.

SYLLABUS

Module - I – Introduction to Adobe Illustrator

(10 Hrs.)

Adobe Illustrator is a program used by both artists and graphic designers to create vector images. These images will then be used for company logos, promotional uses or even personal art work, both in print and digital form.

Introduction to Adobe Illustrator - Complete overview of adobe illustrator, from core concept of the entire package as well as essential workflows that require to create professional graphic illustration.

Working with Illustrator Documents –Create a document using preloaded templates or built in document profiles such as print, web & film.

Module – II – Working with Tools

(20 Hrs.)

Working with Shapes & Symbols – Understanding vector and raster graphics, drawing basic shapes, working with drawing modes, shapes & perspectives, selections, transforming shapes using shape builder tools and working with symbols.

Working with Colors, Gradients & Patterns - Explore standard graphic tools for vector-based images. Creating point-based vector shapes and symbols. In depth study on color wheel and gamut for modifying and setting color pallet and pattern for repetitive design.

Drawing and Painting in Illustrator - Learn to use illustrator as traditional brush-based painting software & vector-based color pattern designer.

Working with Type – Learning Type of Tools using Type to format text and different type styles.

Working with Brushes, Styles & Effects - Brief overview of tools pallet and standard function. Defining and exploring brush parameters, styles setting and effects panel to make professional illustrations.

Working with Text - Exploring text and typography, base design workflow for designing object and subjects.

Automation Saving and Exporting - Learning core concept of various file association and parameter to control exporting illustrations for production.

Organizing Objects in Illustrator – Exploring the layer panel, creating new layers, sub layer, hiding and showing layers, merging layers, moving objects to another layer, isolation mode and working with ruler's guides and grids.

Textbook:

1. Adobe Press, Adobe Illustrator CC Classroom in a Book, Pearson Education India, 2014.

References:

1. Kogent Learning Solution Inc., Illustrator CS6 in Simple Steps, Dreamtech Press, 2014.
2. <https://helpx.adobe.com/illustrator/tutorials.html>

Lab: Adobe Illustrator**Marks: 50****Credits: 04****Total Hours: 60**

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1. Explore the workspaces; tabbed document windows, application bar, workspace switcher, panel title bar, control panel, tool panel, collapse to icons button and four panel groups in vertical dock.
 2. Draw straight lines with the Line Segment tool, draw rectangles and squares, specify the corner radius of a rounded rectangle, draw ellipses, polygons, stars, arcs, spirals and grids.
 3. Working with multiple artboards, tools and shapes.
 4. Working with color and blending modes, RGB, CMYK, HSB, grayscale, color spaces and gamut, spot and process colors.
 5. Working with gradients and strokes, layers, brushes, graphic styles and effects.
 6. Exploring character paragraph and text; change the definition of a default character and paragraph styles, remove style overrides, delete character or paragraph styles.
 7. Importing, exporting and saving artwork into file formats, compressing – PDF, SWF, JPEG, PSD, PNG, TIFF, EPS, SVG.
 8. Use the shape builder tool to create new complex new shapes by merging simple shapes.
 9. Draw an object, assign either fill or stroke or both to it. Draw other objects, paint similarly, and layer each new object on top of the previous ones.
 10. Draw objects, create an envelope using either preset wrap shape or rectangular grid or an object, and reshape the envelope.

Software

- Adobe Illustrator
- GIMP (Open Source)

SEMESTER II

Course Title: Creative Design & 2D Animation

Course Code: VFX-SK4

Marks: 50

Total Hours: 30

Credits: 02

Course Prerequisites: Nil

Course Objectives:

- To introduce the student to the creative processes which combines art and technology to communicate ideas visually.

Learning Outcome: At the end of this course, students will be able to

- Identify the software tools used to create graphics and manipulate images.
- Associate the interaction of the tools with the graphics or images to attain the intended result.
- Manipulate images to attain the desired result.
- Animate 2D characters.

SYLLABUS

Module – I - Adobe Flash

(15Hrs.)

Adobe Flash is a multimedia software platform for production of animations, browser games, rich Internet applications, desktop applications, mobile applications and mobile games. Flash displays text, vector graphics and raster graphics to provide animations, video games and applications. It allows streaming of audio and video, and can capture mouse, keyboard, microphone and camera input.

Introduction to Adobe Flash - Overview of Adobe Flash for creating dynamic, interactive graphics. Exploring tools and interface. Learn to incorporate shapes objects and other media to develop professional presentation for video and web.

Image, Audio & Animation - Exploring the stage and property tools to assemble image, audio and make 2D animation. Learning pallets for preset parameters to deliver frame by frame animation.

Drawing and Painting - Creating line art and brush-based painting with flash. Explore the bucket and brush parameters to modify design in various interactive form.

Text & Interactivity - Making buttons, roll over and hyperlink properties with text and ty99pographic parameter. Using general snippets creating functional interactivity for rich media presentation.

Action Script & Effects – Understanding core concept of Adobe Flash programming learning the common syntax of action script 3.0 and action script 2.0.

Exporting and Publishing - Creating frame by frame motion, tweening and animation with proper workflows. Understanding the publish dialogue box for export parameters and publish in standard professional extensions.

Module – II- Adobe Photoshop (15Hrs.)

Adobe Photoshop is the predominant photo editing and manipulation software on the market. Its uses range from full featured editing of large batches of photos to creating intricate digital paintings and drawings that mimic those done by hand.

Introduction to Adobe Photoshop – This section will help introduce the student to digital image editing, creating a new file and familiarizing them with the various tools in Photoshop. Knowing when to use Photoshop.

Working with Selection, Layers & Channel – This section will help students learn how to use the selection tool, menu & choosing selections based on color.

Using Paint, Paths, Shapes and Text Tools – This section will help to learn to use different paint brushing techniques and customizing paint brush settings. Understanding how parts and shapes are manipulated and created. Learn to add text to images as vector objects.

Working with Camera Raw – Examining raw file types and displaying images in camera Raw. Understanding Raw workspace, creating altered versions of your images and exporting from the raw format.

Working with 3D Images – Understanding the 3D workspace and using different 3D file formats. Creating 3D objects, importing 3D objects into Photoshop and working with them.

Working with Video and Animations – Dealing with aspect ratio, opening video files and using a timeline panel. Trimming of video clips and rearranging video footage. Animating text and 3D objects using key frames.

Advance Output Techniques – Understanding color management, calibrating color profiles, configuring color management to print accurate colors.

Textbook:

1. Russell Chun, Adobe Flash Professional CC Classroom in a Book, Adobe, 2014.
2. Andrew Faulkner and Conrad Chavez, Adobe Photoshop CC Classroom in a Book, Adobe Press, 2015.

References:

1. Fred Gerantabee, Adobe Flash Professional CS6 Digital Classroom, John Wiley & Sons, 2012.
2. Lisa Danae Dayley and Brad Dayleyz, Adobe Photoshop CC Bible, Wiley India Pvt. Ltd., 2014.
3. Angie Taylor, Design Essentials for the Motion Media Artist: A Practical Guide to Principles & Techniques, Focal Press, 2010.
4. <https://helpx.adobe.com/in/photoshop/tutorials.html>
5. <https://helpx.adobe.com/in/adobe-character-animator/tutorials.html>

Lab: Creative Design & 2D Animation

Marks: 50

Credits: 4

Total Hours: 60

1. Working with Software Layouts.
2. Photo Manipulation using shapes and pen tool.
3. Adjusting image brightness, contrasts, saturation and levels.
4. Mixing of different photographs to create a single image.
5. Working on transparent layers.
6. Changing the view size of a document, resizing files and adjusting resolutions, printing on different mediums.
7. Working with multiple shapes and objects.
8. Working with images and audios.
9. Working with objects in motion and animation of different shapes.
10. Drawing and painting using different tools.
11. Working with text animation and interactivity, action script and effects.
12. Exporting and publishing in different file products.
13. Creating animation for webpages and videos.

Software

- Adobe Photoshop
- Adobe Flash Professional / Animate
- GIMP (Open Source)

Course Title: 3D Animation - II
Course Code: VFX-SK5
Marks: 50
Total Hours: 30
Credits: 02
Course Prerequisites: 3D Animation – I (VFX-SK2)

Course Objectives:

- Use the basic knowledge acquired in combination with advanced level 3D modelling.
- Compose advance 3D animation characters for architecture, games, videos. Etc.

Learning Outcome: At the end of this course, students will be able to

- Identify the various modeling techniques.
- Associate how the different modeling techniques are used to model a 3D character.
- Model advanced 3D characters.

SYLLABUS:

Module - I: Advance Modeling in 3d Animation

(10 Hrs.)

3D Assets Modeling - Creating different 3d asset types and function for modeling scene hierarchy. Understand core concept of developing inter portability asset modeling including edit poly modeling, bezier modeling and sub-d modeling.

Nurbs Modeling - Exploring the non-rational B-spline techniques to build 3d objects from line projections. Understanding nurb isoparms, hulls and control vertex. Learning the parametric adaptation to modify object geometry according to suite.

Patch Modeling - Overview of quad based patch geometric data for advance nurbs modeling. Explore the parameters and various operation like lathe, revolve, birail and planer.

Polygon Modeling - Create 3d advance objects with use of quad surface poly. Exploring different parameter of component level modeling like vertex edge and face. Learning the tools for sub level polygon operation like extrude bevel and various definitive.

Module – II - Material & Texturing and Virtual Camera

(10Hrs.)

Standard Materials - Overview of shade materials to give color perception to 3d objects. Using nodes and connectors to channel color data for illuminating surface parametric representation.

Slate Material Editor - Explore one of the material controller sets of preset assembly. Learn to use compact node stack workflow for editing and making materials.

Compact Material Editor - Explore advanced material controller sets of preset assembly. Learn to use nonlinear node workflow for editing and making materials.

Material Modifier - Explore modifier functionality for controlling material look and development. Apply set of world space and object spec modifier to enhance color data.

UV Mapping - Overview of processing 3d objects to retain and apply 3d image or procedural texture in 0 and 1 space of quad poly adaptation. Learn the workflow of setting and manipulating face coordinate to create world space UV coordinate for material and shading.

Concept of Virtual Cameras - Exploring the parameters and operation of cameras for rendering and final output. Overview of camera properties to control depth, color, blur, material and scene content.

Module – III - Lighting, Rendering and Export

(10 Hrs.)

Lighting Techniques - Overview of light panel with in depth study of standard and photometric lights. Creating light lister and referencing for advance light probe techniques.

Standard and Photometric Lights - Core concept of virtual light paradigms operation and relation. Explore the illumination model in various spaces like world view and local.

Atmospheric and Render Effects - Create background FX with render atmospheric tools. Learning the effects parameter functionality to control various effects for final render.

Rendering with Mental Ray - Overview of interface and operative nodes of Mental ray render engine. Learning advanced render algorithms Final Gather and Global illumination techniques. Explore core concept for calculating and finalising render outputs.

Compositing with Video Elements - Exploring render data composition in various formats and assembly. Learn to manipulate and modify editable video data from composite render elements.

Video Post and Export - Learn video post dialogue parameter to modify edit and deliver for final production output.

Textbook:

1. Kelly L. Murdock, 3ds Max Bible 2012, John Wiley & Sons Inc., 2012

References:

1. Jeffrey M. Harper, Mastering Autodesk 3ds Max, John Wiley & Sons Inc., 2013.
2. Isaac V. Kerlow, The Art of 3D Computer Animation and Effects, John Wiley & Sons, 2009.
3. <https://www.autodesk.com/education/home>
4. <https://www.youtube.com/watch?v=kqQmwXCH6w8>

Lab: 3D Animation – II

Marks: 50

Credits: 04

Total Hours: 60

1. Converting spline modelling into polygon modelling.
2. Creating of complex model using advance modelling tools.
3. Building an exterior using NURBS, patch and polygon modelling.
4. Understanding material editor in slate mode and compact material.
5. Solving UV and create a map for a given model.
6. Use max cameras to get the shot render from different angles.
7. Light up the interior scene using standard light in MAX.
8. Illuminate scene using photometric lights.
9. Create a daylight system using mental ray.
10. Take video output of a ten second after composting final scene.

Software

- Autodesk 3ds Max
- Blender (Open Source)

Course Title: Project - First Year End

Course Code: VFX-SK6

Marks: 100

Credits: 06

Hours: 90

Course Prerequisites: **Drawing & Painting (VFX-SK1)**
 3D Animation - I (VFX-SK2)
 Vector Graphics - Illustrator (VFX-SK3)
 Creative Design & 2D Animation (VFX-SK4)
 3D Animation – II (VFX-SK5)

Project - First Year End – Part A – (50 Marks)

- **Logo Creation:** The student should create a logo based of his choice.
- **Corporate Branding:** The student should create layouts and design a company’s letterhead, envelopes, business cards, brochure, and banner stand.
 - Creating a Design – 10 Marks
 - Color Scheme – 5 Marks
 - Comprehension – 10 Marks
 - Placements - 5 Marks
 - Concept - 10 Marks

- Presentation - 10 Marks
 - Logo – 1 nos.
 - Corporate Branding – 5 nos.
 - Letterhead
 - Envelope
 - Business Card
 - Brochure
 - Banner Stand

Project - First Year End – Part B – (50 Marks)

- Model a building architecture. Map the project and take the final output into photo realistic JPEG file.
 - Creating a design – 5 Marks
 - Modelling – 5 Marks
 - Solving UVs – 10 Marks
 - Texturing – 5 Marks
 - Lighting – 10 Marks
 - Rendering – 5 Marks
 - Final Presentation – 10 Marks

B.VOC. IN MULTIMEDIA – DIGITAL FILMMAKING

SEMESTER I

Course Title: Drawing & Painting

Course Code: MDF-SK1

Marks: 50

Credits: 02

Total Hours: 30

Course Prerequisites: Nil

Course Objectives:

- To make the student learn to perceive, read and translate the visual world into personal forms of pictorial expression and representation.
- To enable the student to develop a relationship with the physical production of art and also acquire knowledge of its theory, history and criticism.

Learning Outcome: At the end of this course, students will be able to

- Identify the various techniques used and elements required in drawing.
- Sketch virtual art using computer graphics software program.
- Compose layouts as per their own creative visualizations.

SYLLABUS:

Module - I - Fundamentals of Art

(12 Hrs.)

This module involves a series of exercises designed to introduce the basics and give a grounding in various types of drawings.

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Content- Refers to the message or meaning within an artwork.

Aesthetics - Refers to the artwork's visual attraction or beauty.

Art Criticism - An organized approach to evaluating artwork.

Symbolism - Using visual objects or arrangements to represent an alternate meaning.

Module - II - Fundamentals of Drawing

(12 Hrs.)

Introduction with Basic Line Drawing - This includes drawing straight lines, circles & half circles to give the student a basic exercise of free hand drawing.

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Pictorial Design – This is a 2d design which will help students to gain an understanding of composition, color & balance in a design.

Nature Drawing – Involves the drawing of natural objects such as leaves, flowers, fruits, vegetables in a still life composition.

Perspective – Various methods of perspective will be looked where students will learn the rules of perspective and learn how to effectively use them in their drawings & compositions

Composition – Composition is the most important part of art work as it helps an artist to create visual harmony and balance in a painting. Students will learn the rules of composition in any given space.

Color Theory- practical guidance to color mixing and the visual effects of a specific color combination. Definitions (or categories) of colors based on the color wheel: primary color, secondary color and tertiary color.

Module - III - Digital Painting

(6 Hrs.)

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Digital Drawing – Introduction of digital format as a canvas for drawing and painting. Students will learn different digital media techniques and professional digital painting software.

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5. <https://www.craftsy.com/art>
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Lab: Drawing & Painting

Marks: 50

Credits: 4

Total Hours: 60

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11. Drawing of straight lines, curve lines, horizontal lines, vertical lines, thick lines, thin lines, diagonal lines, dotted lines.
 12. Drawing of basic geometric 3d objects such as squares, triangles, cones, circular objects and spheres.
 13. Drawing of two objects by observation.
 14. Drawing of illustrative design.
 15. Drawing of objects from nature.
 16. Drawing using the rules of perspective.
 17. Drawing using the rules of composition.
 18. Using the different color combinations to create visual art.
 19. Using the color wheel: primary color, secondary color and tertiary color to create visual art.
 20. Creating digital art object using Wacom Intuos.

Hardware

- Wacom Intuos

Course Title: 3D Animation – I

Course Code: MDF-SK2

Marks: 50

Credits: 02

Total Hours: 30

Course Prerequisites: Nil

Course Objectives:

- To give an introduction to basic animation tools and techniques.
- To prepare the student for the advanced level course in the next semester.

Learning Outcome: At the end of this course, students will be able to

- Explore the basic tools and interfaces used to model a 3D animation character.
- Positioning 3D objects.
- Create 3D object using splines tools and splines modifier.
- Manipulate and segregate 3D objects.

SYLLABUS

Module – I - Fundamentals of 3D Animation

(12 Hrs.)

In this module, we teach how to plan the production and interact with 3D studio max software.

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Exploring Interface - Complete overview of the 3Ds Max interface, navigation, configure major parts of the interface, including the viewports, the timeline, the outliner, and the various other parts of the 3Ds Max UI.

Controlling of Viewports - Creating and manipulating standard 3ds Max primitives such as spheres, cubes, cones, and cylinders, then moves on to extended primitives such as the capsule and the oil tank. Exploring modifiers and use them as the basis for modeling.

Working with Files & Hierarchy - Exploring the different 3d file extension and assembly. Discover various file association, referencing and grouping techniques. Learn industry standard file types like FBX and alembic.

Module - II- Modeling in 3D

(9 Hrs.)

Creating and positioning 3D Object, running a mass Fx simulation and animating object with key frames.

Creating and Modeling, Editing Primitive - Overview of graphite modeling tools. Exploring functionality of connect tool, weld tool, extrude tool and various component tool that help in modeling and topology techniques.

Selecting Objects and Using Layers - Overview of modeling interface and modifier stacks. Procedural way of modifying objects, parameters and adjusting the workflow of modeling techniques. Preparing and understanding assets through poly modeling.

Transformation Tools – Learning rich tool set to view and manipulate vertex editing, edge and border editing. Zoom in and out workflows with controlling distance with clipping planes.

Cloning and Array - Overview of breaking edit mesh and poly mesh models into different files for sub tool modeling techniques. Explore isolated, hidden, freeze, wire frame and adaptive degradation technique with proxy file assembly.

Module – III - Shapes and Splines

(9 Hrs.)

Working with layer and creating 3D object using splines tools and splines modifier.

Creating and Modeling, Editing Primitive - Creating common nurms and spline shapes primitive that allow to create 3d objects from 2d shapes. Shapes comprises of basic line, circle, and curved shapes, with their own set of parameters that can be further edited

Selecting Objects and Using Layers - Learn to renaming and segregate objects. Using selection sets and compile them to layer distribution for non-linear edits and modifying objects. Discover layer base modeling and animatics with layer properties and parameters.

Transformation Tools - Explore the manipulation tools translate, rotate and scale. In-depth parameters on manipulation gizmo and co-ordinate. Discover how manipulation axis order in global, local, view and normal contribute to the workflow of developing professional 3d objects.

Textbooks:

2. Kelly L. Murdock, 3ds Max Bible 2012, John Wiley & Sons Inc., 2012.

References:

5. Jeffrey M. Harper, Mastering Autodesk 3ds Max, John Wiley & Sons Inc., 2013.
6. Richard E. Williams, The Animator's Survival Kit, Faber, 2009.
7. <https://www.autodesk.com/education/home>
8. <https://www.youtube.com/watch?v=kqQmwXCH6w8>

Lab: 3D Animation – I**Marks: 50****Credits: 04****Total Hours: 60**

11. Introduction to 3ds Max, opening and saving the files, adjusting workspace, exploring the menus.
12. Creating and manipulating objects, adjusting the pivot, aligning, snapping, and adjusting the gizmos.
13. Manipulating object using vertexes, lines, and faces. Create a crusher using polygon tools.
14. Modelling of coke bottle and detailing with extrude.
15. Modelling interior furniture using connect and weld tool.
16. Modelling interior using chamfer tool.
17. Modelling a ship using boolean modifier.
18. Modelling shrine using duplicate option and array.
19. Modelling a bicycle using spline.
20. Create chess pieces using revolve modifier.

Software

- Autodesk 3ds Max
- Blender (Open Source)

Course Title: Vector Graphics - Illustrator**Course Code: MDF-SK3****Marks: 50****Credits: 02****Total Hours: 30****Course Prerequisites: Nil**

Course Objectives:

- To make the student learn to perceive, read and translate the visual world into digital forms.
- To train students to create small file size vector graphics.

Learning Outcome: At the end of this course, students will be able to

- Sketch virtual art using computer graphics software program.
- Create vector images using Adobe Illustrator.

SYLLABUS

Module - I – Introduction to Adobe Illustrator

(10 Hrs.)

Adobe Illustrator is a program used by both artists and graphic designers to create vector images. These images will then be used for company logos, promotional uses or even personal art work, both in print and digital form.

Introduction to Adobe Illustrator - Complete overview of adobe illustrator, from core concept of the entire package as well as essential workflows that require to create professional graphic illustration.

Working with Illustrator Documents –Create a document using preloaded templates or built in document profiles such as print, web & film.

Module – II – Working with Tools

(20 Hrs.)

Working with Shapes & Symbols – Understanding vector and raster graphics, drawing basic shapes, working with drawing modes, shapes & perspectives, selections, transforming shapes using shape builder tools and working with symbols.

Working with Colors, Gradients & Patterns - Explore standard graphic tools for vector-based images. Creating point-based vector shapes and symbols. In depth study on color wheel and gamut for modifying and setting color pallet and pattern for repetitive design.

Drawing and Painting in Illustrator - Learn to use illustrator as traditional brush-based painting software & vector-based color pattern designer.

Working with Type – Learning Type of Tools using Type to format text and different type styles.

Working with Brushes, Styles & Effects - Brief overview of tools pallet and standard function. Defining and exploring brush parameters, styles setting and effects panel to make professional illustrations.

Working with Text - Exploring text and typography, base design workflow for designing object and subjects.

Automation Saving and Exporting - Learning core concept of various file association and parameter to control exporting illustrations for production.

Organizing Objects in Illustrator – Exploring the layer panel, creating new layers, sub layer, hiding and showing layers, merging layers, moving objects to another layer, isolation mode and working with ruler's guides and grids.

Textbook:

2. Adobe Press, Adobe Illustrator CC Classroom in a Book, Pearson Education India, 2014.

References:

3. Kogent Learning Solution Inc., Illustrator CS6 in Simple Steps, Dreamtech Press, 2014.
4. <https://helpx.adobe.com/illustrator/tutorials.html>

Lab: Adobe Illustrator

Marks: 50

Credits: 04

Total Hours: 60

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11. Explore the workspaces; tabbed document windows, application bar, workspace switcher, panel title bar, control panel, tool panel, collapse to icons button and four panel groups in vertical dock.
 12. Draw straight lines with the Line Segment tool, draw rectangles and squares, specify the corner radius of a rounded rectangle, draw ellipses, polygons, stars, arcs, spirals and grids.
 13. Working with multiple artboards, tools and shapes.
 14. Working with color and blending modes, RGB, CMYK, HSB, grayscale, color spaces and gamut, spot and process colors.
 15. Working with gradients and strokes, layers, brushes, graphic styles and effects.
 16. Exploring character paragraph and text; change the definition of a default character and paragraph styles, remove style overrides, delete character or paragraph styles.
 17. Importing, exporting and saving artwork into file formats, compressing – PDF, SWF, JPEG, PSD, PNG, TIFF, EPS, SVG.
 18. Use the shape builder tool to create new complex new shapes by merging simple shapes.
 19. Draw an object, assign either fill or stroke or both to it. Draw other objects, paint similarly, and layer each new object on top of the previous ones.
 20. Draw objects, create an envelope using either preset wrap shape or rectangular grid or an object, and reshape the envelope.

Software

- Adobe Illustrator
- GIMP (Open Source)

SEMESTER II

Course Title: Creative Design & 2D Animation

Course Code: MDF-SK4

Marks: 50

Total Hours: 30

Credits: 02

Course Prerequisites: Nil

Course Objectives:

- To introduce the student to the creative processes which combines art and technology to communicate ideas visually.

Learning Outcome: At the end of this course, students will be able to

- Identify the software tools used to create graphics and manipulate images.
- Associate the interaction of the tools with the graphics or images to attain the intended result.
- Manipulate images to attain the desired result.
- Animate 2D characters.

SYLLABUS

Module – I - Adobe Flash

(15Hrs.)

Adobe Flash is a multimedia software platform for production of animations, browser games, rich Internet applications, desktop applications, mobile applications and mobile games. Flash displays text, vector graphics and raster graphics to provide animations, video games and applications. It allows streaming of audio and video, and can capture mouse, keyboard, microphone and camera input.

Introduction to Adobe Flash - Overview of Adobe Flash for creating dynamic, interactive graphics. Exploring tools and interface. Learn to incorporate shapes objects and other media to develop professional presentation for video and web.

Image, Audio & Animation - Exploring the stage and property tools to assemble image, audio and make 2D animation. Learning pallets for preset parameters to deliver frame by frame animation.

Drawing and Painting - Creating line art and brush-based painting with flash. Explore the bucket and brush parameters to modify design in various interactive form.

Text & Interactivity - Making buttons, roll over and hyperlink properties with text and ty99pographic parameter. Using general snippets creating functional interactivity for rich media presentation.

Action Script & Effects – Understanding core concept of Adobe Flash programming learning the common syntax of action script 3.0 and action script 2.0.

Exporting and Publishing - Creating frame by frame motion, tweening and animation with proper workflows. Understanding the publish dialogue box for export parameters and publish in standard professional extensions.

Module – II- Adobe Photoshop (15Hrs.)

Adobe Photoshop is the predominant photo editing and manipulation software on the market. Its uses range from full featured editing of large batches of photos to creating intricate digital paintings and drawings that mimic those done by hand.

Introduction to Adobe Photoshop – This section will help introduce the student to digital image editing, creating a new file and familiarizing them with the various tools in Photoshop. Knowing when to use Photoshop.

Working with Selection, Layers & Channel – This section will help students learn how to use the selection tool, menu & choosing selections based on color.

Using Paint, Paths, Shapes and Text Tools – This section will help to learn to use different paint brushing techniques and customizing paint brush settings. Understanding how parts and shapes are manipulated and created. Learn to add text to images as vector objects.

Working with Camera Raw – Examining raw file types and displaying images in camera Raw. Understanding Raw workspace, creating altered versions of your images and exporting from the raw format.

Working with 3D Images – Understanding the 3D workspace and using different 3D file formats. Creating 3D objects, importing 3D objects into Photoshop and working with them.

Working with Video and Animations – Dealing with aspect ratio, opening video files and using a timeline panel. Trimming of video clips and rearranging video footage. Animating text and 3D objects using key frames.

Advance Output Techniques – Understanding color management, calibrating color profiles, configuring color management to print accurate colors.

Textbook:

3. Russell Chun, Adobe Flash Professional CC Classroom in a Book, Adobe, 2014.
4. Andrew Faulkner and Conrad Chavez, Adobe Photoshop CC Classroom in a Book, Adobe Press, 2015.

References:

6. Fred Gerantabee, Adobe Flash Professional CS6 Digital Classroom, John Wiley & Sons, 2012.
7. Lisa Danae Dayley and Brad Dayleyz, Adobe Photoshop CC Bible, Wiley India Pvt. Ltd., 2014.
8. Angie Taylor, Design Essentials for the Motion Media Artist: A Practical Guide to Principles & Techniques, Focal Press, 2010.
9. <https://helpx.adobe.com/in/photoshop/tutorials.html>
10. <https://helpx.adobe.com/in/adobe-character-animator/tutorials.html>

Lab: Creative Design & 2D Animation

Marks: 50

Credits: 4

Total Hours: 60

14. Working with Software Layouts.
15. Photo Manipulation using shapes and pen tool.
16. Adjusting image brightness, contrasts, saturation and levels.
17. Mixing of different photographs to create a single image.
18. Working on transparent layers.
19. Changing the view size of a document, resizing files and adjusting resolutions, printing on different mediums.
20. Working with multiple shapes and objects.
21. Working with images and audios.
22. Working with objects in motion and animation of different shapes.
23. Drawing and painting using different tools.
24. Working with text animation and interactivity, action script and effects.
25. Exporting and publishing in different file products.
26. Creating animation for webpages and videos.

Software

- Adobe Photoshop
- Adobe Flash Professional / Animate
- GIMP (Open Source)

Course Title: 3D Animation - II
Course Code: MDF-SK5
Marks: 50
Total Hours: 30
Credits: 02
Course Prerequisites: 3D Animation – I (MDF-SK2)

Course Objectives:

- Use the basic knowledge acquired in combination with advanced level 3D modelling.
- Compose advance 3D animation characters for architecture, games, videos. Etc.

Learning Outcome: At the end of this course, students will be able to

- Identify the various modeling techniques.
- Associate how the different modeling techniques are used to model a 3D character.
- Model advanced 3D characters.

SYLLABUS:

Module - I: Advance Modeling in 3d Animation

(10 Hrs.)

3D Assets Modeling - Creating different 3d asset types and function for modeling scene hierarchy. Understand core concept of developing inter portability asset modeling including edit poly modeling, bezier modeling and sub-d modeling.

Nurbs Modeling - Exploring the non-rational B-spline techniques to build 3d objects from line projections. Understanding nurb isoparms, hulls and control vertex. Learning the parametric adaptation to modify object geometry according to suite.

Patch Modeling - Overview of quad based patch geometric data for advance nurbs modeling. Explore the parameters and various operation like lathe, revolve, birail and planer.

Polygon Modeling - Create 3d advance objects with use of quad surface poly. Exploring different parameter of component level modeling like vertex edge and face. Learning the tools for sub level polygon operation like extrude bevel and various definitive.

Module – II - Material & Texturing and Virtual Camera

(10Hrs.)

Standard Materials - Overview of shade materials to give color perception to 3d objects. Using nodes and connectors to channel color data for illuminating surface parametric representation.

Slate Material Editor - Explore one of the material controller sets of preset assembly. Learn to use compact node stack workflow for editing and making materials.

Compact Material Editor - Explore advanced material controller sets of preset assembly. Learn to use nonlinear node workflow for editing and making materials.

Material Modifier - Explore modifier functionality for controlling material look and development. Apply set of world space and object spec modifier to enhance color data.

UV Mapping - Overview of processing 3d objects to retain and apply 3d image or procedural texture in 0 and 1 space of quad poly adaptation. Learn the workflow of setting and manipulating face coordinate to create world space UV coordinate for material and shading.

Concept of Virtual Cameras - Exploring the parameters and operation of cameras for rendering and final output. Overview of camera properties to control depth, color, blur, material and scene content.

Module – III - Lighting, Rendering and Export

(10 Hrs.)

Lighting Techniques - Overview of light panel with in depth study of standard and photometric lights. Creating light lister and referencing for advance light probe techniques.

Standard and Photometric Lights - Core concept of virtual light paradigms operation and relation. Explore the illumination model in various spaces like world view and local.

Atmospheric and Render Effects - Create background FX with render atmospheric tools. Learning the effects parameter functionality to control various effects for final render.

Rendering with Mental Ray - Overview of interface and operative nodes of Mental ray render engine. Learning advanced render algorithms Final Gather and Global illumination techniques. Explore core concept for calculating and finalising render outputs.

Compositing with Video Elements - Exploring render data composition in various formats and assembly. Learn to manipulate and modify editable video data from composite render elements.

Video Post and Export - Learn video post dialogue parameter to modify edit and deliver for final production output.

Textbook:

2. Kelly L. Murdock, 3ds Max Bible 2012, John Wiley & Sons Inc., 2012

References:

5. Jeffrey M. Harper, Mastering Autodesk 3ds Max, John Wiley & Sons Inc., 2013.
6. Isaac V. Kerlow, The Art of 3D Computer Animation and Effects, John Wiley & Sons, 2009.
7. <https://www.autodesk.com/education/home>
8. <https://www.youtube.com/watch?v=kqQmwXCH6w8>

Lab: 3D Animation – II

Marks: 50

Credits: 04

Total Hours: 60

11. Converting spline modelling into polygon modelling.
12. Creating of complex model using advance modelling tools.
13. Building an exterior using NURBS, patch and polygon modelling.
14. Understanding material editor in slate mode and compact material.
15. Solving UV and create a map for a given model.
16. Use max cameras to get the shot render from different angles.
17. Light up the interior scene using standard light in MAX.
18. Illuminate scene using photometric lights.
19. Create a daylight system using mental ray.
20. Take video output of a ten second after composting final scene.

Software

- Autodesk 3ds Max
- Blender (Open Source)

Course Title: Project - First Year End

Course Code: MDF-SK6

Marks: 100

Credits: 06

Hours: 90

Course Prerequisites: **Drawing & Painting (MDF-SK1)**
 3D Animation - I (MDF-SK2)
 Vector Graphics - Illustrator (MDF-SK3)
 Creative Design & 2D Animation (MDF-SK4)
 3D Animation – II (MDF-SK5)

Project - First Year End – Part A – (50 Marks)

- **Logo Creation:** The student should create a logo based of his choice.
- **Corporate Branding:** The student should create layouts and design a company’s letterhead, envelopes, business cards, brochure, and banner stand.
 - Creating a Design – 10 Marks
 - Color Scheme – 5 Marks
 - Comprehension – 10 Marks

- Placements - 5 Marks
- Concept - 10 Marks
- Presentation - 10 Marks
 - Logo – 1 nos.
 - Corporate Branding – 5 nos.
 - Letterhead
 - Envelope
 - Business Card
 - Brochure
 - Banner Stand

Project - First Year End – Part B – (50 Marks)

- Model a building architecture. Map the project and take the final output into photo realistic JPEG file.
 - Creating a design – 5 Marks
 - Modelling – 5 Marks
 - Solving UVs – 10 Marks
 - Texturing – 5 Marks
 - Lighting – 10 Marks
 - Rendering – 5 Marks
 - Final Presentation – 10 Marks