

JSS COLLEGE FOR WOMEN (Autonomous)

Saraswathipuram Mysore-9

Choice Based Credit System

CBCS Scheme

VAP in Animation

(2026-27)

DEPARTMENT OF COMPUTER SCIENCE

Proposed Regulations for the Career Oriented Program in ANIMATION

Preamble

The course of study for the career oriented programme is an add on course. Any Degree student of the college may be admitted. The rules and regulations for admission for the course shall be in accordance with those framed by the college from time to time.

The course of study is taught in two years under semester scheme. The first year course is entitled “CERTIFICATE COURSE IN ANIMATION”. It shall be of one academic year with two semesters/term of 15 weeks each.

The second year course is entitled “DIPLOMA COURSE IN ANIMATION”. It shall be of one academic year with two semesters/term of 15 weeks each.

The third year course is entitled “ADVANCED DIPLOMA COURSE IN ANIMATION”. It shall be of one academic year with two semesters/term of 15 weeks each. However, to join this course the candidate should have completed the Certificate course.

A candidate is awarded with the respective certificates at the end of each course with marks obtained.

JSS COLLEGE FOR WOMEN (AUTONOMOUS)

SARASWATHIPURAM MYSURU-570009

CBCS Syllabus – COP in Animation for 2025-2026 onwards

Year	Sem	Corse	Title	Hours / Week			Credits			Maximum Marks						Exam Duration	Total Marks
										Th IA		Pr IA		Exam			
				L	T	P	L	T	P	C1	C2	C1	C2	Th	Pr		
I	I	DSC 1	Introduction to Flash	2	0	2	2	0	1	10	05	10	05	50	20	2 Hours	100
	II	DSC 2	Audio and Video in Flash	2	0	2	2	0	1	10	05	10	05	50	20	2 Hours	100
II	III	DSC 3	Introduction to Maya and User Interface	2	0	2	2	0	1	10	05	10	05	50	20	2 Hours	100
	IV	DSC 4	Modeling and Deformers	2	0	2	2	0	1	10	05	10	05	50	20	2 Hours	100
III	V	DSC 5	Skinning and Advanced Deformation	2	0	2	2	0	1	10	05	10	05	50	20	2 Hours	100
	VI	DSC 6	Introduction to Animation and Texturing	2	0	2	2	0	1	10	05	10	05	50	20	2 Hours	100

Proposed syllabus for the Certificate course in Animation:-

SEMESTER-1

Credit (L: T: P = 2: 0: 1)

DSC 1:

Introduction to Flash (Theory)

Course Outcomes (COs)

Upon successful completion of this course, students will be able to:

CO1: Explain the fundamentals of animation; including animation principles, color theory, character creation, perspective drawing, and background design.

CO2: Demonstrate the use of Adobe Flash CS5 interface, workspace, and drawing tools to create graphical elements.

CO3: Apply object editing, transformation, text formatting, colors, and filters to design digital artwork in Flash.

CO4: Develop simple Flash-based graphical compositions by integrating drawing tools, objects, and text using appropriate design principles.

UNIT-1

15hrs

Introduction to Animation: Meaning of animation, Types of animation, Principles of animation, Color theory, Basic Art, Advanced Art: Character creation, Perspective drawing, Background creation.

Introduction to flash cs5: New feature in flash cs5, launching flash on the computer, creating a new flash file, exploring flash cs5 interfaces, working with workspace.

UNIT-2

15hrs

Drawing Tools: Exploring drawing mode in flash, working with drawing tools in flash, using colors in flash, adding filters.

Working with objects and text: Selecting objects in flash, moving an object, copying an object, deleting an object, editing objects, transforming objects, working with text in flash, editing text field.

DSC 1: Introduction to Flash (Practical): As per the syllabus

Text Book

Adobe Flash professional CS5 Bible by Todd Perkins published by Willey

Reference Book

Adobe flash CS5 in Simple Steps by Kogent Solution Inc, Published by Dreamtech Press

SEMESTER-2
Credit (L: T: P = 2: 0: 1)
DSC 2:

Audio and Video in Flash/After Effects (Theory)

Course Outcomes (COs)

Upon successful completion of this course, students will be able to:

CO1: Explain the concepts of timelines, frames, key frames, layers, and layer folders used in Flash animation.

CO2: Create and manage symbols, instances, and library assets for efficient animation development.

CO3: Apply audio and video elements to enhance interactive Flash projects.

CO4: Develop animations using motion tween, classic tween, frame-by-frame animation, shape tweening, and masking techniques to create engaging multimedia content.

Unit-1

15hrs

Working with Time line:

Working with frames and key frames, working with layers and layer folders

Symbols, instances and library:

Exploring the type of symbols, creating symbols modifying symbols, working with instances, library panel in flash.

Unit-2

15hrs

Working with sound, video and animation: Working with sounds in flash, working with video in flash, understanding tweened animation, creating motion tween, editing the motion path of a motion tween, motion presets in flash, understanding classic tween, frame by frame animation, shape tweening in flash, shape hints in flash, understanding mask layers.

DSC 1: Audio and Video in Flash (Practical): As per the syllabus

Text Book

Adobe Flash professional CS5 Bible by Todd Perkins published by Willey

Reference Book

Adobe flash CS5 in Simple Steps by Kogent Solution Inc, Published by Dreamtech Press

Proposed syllabus for the Diploma course in Animation:-

SEMESTER-3

Credit (L: T: P = 2: 0: 1)

DSC 3:

Introduction to Maya and User Interface(Theory)

Course Outcomes (COs)

Upon successful completion of this course, students will be able to:

CO1: Explain the Maya production workflow, architecture, user interface, and core concepts of 3D modeling and animation.

CO2: Demonstrate proficiency in navigating the Maya workspace, creating and transforming 3D objects, managing hierarchies, and rendering animations.

CO3: Apply polygonal modeling techniques to create and edit 3D models using appropriate modeling tools and best practices.

CO4: Develop organic 3D models with proper topology and basic animation by integrating modeling, shading, lighting, and rendering techniques.

Unit 1:

15hrs

Introduction to Maya: Core Concepts, Production Workflow,-Preproduction, Modeling, Character Setup, Animation, Shading and Texturing, Lighting and Rendering and Postproduction. Maya's Architecture: Nodes, Attributes, and Dependencies, Node Hierarchies.

The Maya User Interface: The Title Bar, Menu Bar, Status Line, Shelf, Toolbox, Workspace, Channel Box, Layer Editor, Time Slider and the Range Slider, Command Line and Script Editor Button, Help Line, Hotbox

Unit 2:

15hrs

Working with the Maya Interface: Navigating a 3D Scene, Set Up a Project, Maya's Cameras, Create and Place Geometry, Focus and Shade in the View Window, Transform Objects, Create a Hierarchy, Animate the Objects, Shading Objects, Add Light, Render the Animation.

Polygonal Modeling: Basics of Polygonal Modeling, Polygon Anatomy, Selecting and Editing Polygonal Components, Advantages of Polygon Modeling, Disadvantages of Polygon Modeling, Tips for Polygon Modeling, Helpful Interfaces for Polygon Modeling, Heads Up Display, Custom Polygon Display. Tutorial Modeling a Church, Set Up the Project Directory and File System, Block Out the Shape of the Model, Model Secondary Objects.

Organic Modeling: Customizing the workspace, modeling topology, Modeling a human head.

DSC 3: Maya Modeling and Texturing (Practical): As per the Syllabus

Text book

MAYA 8 The Complete Reference by Tom Meade Shinsaku Arima, Published by Tata McGraw-Hill Publishing Company Limited

Reference book

Mastering in Maya 2009 by John Kundert – Gibbs, Eric Kunzen Dort, Dariush Derakhashani, Mick Larkins, Eric Keller, Boaz Livny, Mark E.A. de Saura, Published by Willey

SEMESTER-4
Credit (L: T: P = 2: 0: 1)

DSC 4:

Modeling and Deformers (Theory)

Course Outcomes (COs)

Upon successful completion of this course, students will be able to:

CO1: Explain the concepts of NURBS curves and surfaces, continuity, and the advantages and limitations of NURBS modeling.

CO2: Create and edit NURBS-based 3D models using curve and surface modeling techniques such as revolve, extrude, loft, and birail.

CO3: Apply geometry conversion and deformation techniques to prepare 3D models for animation using subdivision surfaces and deformers.

CO4: Develop basic character rigs by creating and organizing joints, skeletons, and joint orientations for animation.

Unit 1:

15hrs

Basic NURBS Modeling: Anatomy of NURBS Curves and Surfaces- Components of a NURBS Curve, Components of a NURBS Surface, Surface or Curve Degree, Curve Direction, Parameterization of Curves and Surfaces, Surface Direction. Advantages and Disadvantages of NURBS modeling.

NURBS Modeling- Continuity-Levels of Continuity, Achieving Continuity Using Tools. Curves-Creating curves with the curve tools, curves on surface, Attaching and Detaching Curves, Creating Curves with the Curve Tools, Curves on Surfaces, Cutting and Filleting Curves. Tutorial: Modeling a Teacup with NURBS>Create the Source Curves for a Teacup, Fillet the Curves. Surfaces- Revolve, Extrude, Loft, Birail.

Unit 2:

15hrs

Preparing Models for Animation: Converting Geometry, Generating Polygonal Surfaces from NURBS Curves, Converting NURBS Surfaces to Polygons, Hierarchical Subdivision Surfaces, Tutorial: Modeling with Subdivision Surfaces.

Deformers: Nonlinear Deformers, Types of Nonlinear Deformers, Applying and Using Nonlinear Deformers. Specialized Deformers- Lattice Deformer, Cluster Deformer, Wire Deformer, Soft Modification Tool, Blend Shape Deformer, Wrap Deformer.

Joints and Skeletons: Joints and Bones- Creating Skeletons, Selecting and Inserting Joints. A Closer Look at Joints-Joint Tool Options, Orienting Joints, World, Object, and Local Transformations

DSC 4: Animation in Maya and Rendering (Practical): As per the Syllabus

Text book

MAYA 8 The Complete Reference by Tom Meade Shinsaku Arima, Published by Tata McGraw-Hill Publishing Company Limited

Reference book

Mastering in Maya 2009 by John Kundert – Gibbs, Eric Kunzen Dort, Dariush Derakhashani, Mick Larkins, Eric Keller, Boaz Livny, Mark E.A. de Saura, Published by Willey

Proposed syllabus for the Advanced Diploma course in Animation:-

SEMESTER-5

Credit (L: T: P = 2: 0: 1)

DSC 5:

Skinning and Advanced Deformation (Theory)

Course Outcomes (COs)

Upon successful completion of this course, students will be able to:

CO1: Explain the principles of skinning, advanced deformation techniques, and attribute connections used in character rigging.

CO2: Apply rigid and smooth skinning techniques, weight painting, blend shapes, and deformers to prepare 3D characters for animation.

CO3: Develop character control rigs using forward kinematics (FK), inverse kinematics (IK), constraints, and custom controllers.

CO4: Create and refine key frame animations by applying animation principles, editing key frames, and producing basic character animations in Maya.

Unit 1:

15hrs

Skinning and Advanced Deformations: Rigid Bind, The Rigid Bind Process, Edit Membership, Flexors, Smooth Bind, The Smooth Bind Process, Weight Normalization. Tutorial: Smooth, Skinning a Character, Prepare the Model, Skin a Character, Paint Skin Weights, Mirror Skin Weights, Prune Small Weights, Save Skin Weight Maps, Add an Influence Object, Sculpt Deformers, Add the Facial Blend Shapes.

Connecting Attributes: Types of Connections, Direct Connections, Expressions, Keyed Relationships. Constraints-Types of Constraints, Using Constraints

Unit 2:

15hrs

Character Controls: Methods of Posing a Skeleton, Forward Kinematics, Inverse Kinematics.

Tutorial: Building a Control Rig, Create Finger Controls, Create the Leg Control, Create the Back Controls, Create the Head and Neck Control, Create the Arm Control, Create the Clavicle Controls, Create the Root Controls, Clean Up the Scene, test the Rig.

Animation Basics: A Brief History of Animation, Keyframe Animation in Maya-Keyframe and Frame, In-Between and interpolation, How to Set Keys, Viewing and Editing Keyframes,

playback Control. Tutorial: Bouncing Ball, Set Up the Animation, Set Keys, Edit the Keys, Add Character, Use Playblast. Basic Animation Principles-Squash and Stretch, Anticipation, Follow Through, Secondary Action, Study Reference.Further Reading and Practice.

DSC 4: Animation in Maya and Rendering (Practical): As per the Syllabus

Text book

MAYA 8 The Complete Reference by Tom Meade Shinsaku Arima, Published by Tata McGraw-HillPublishing Company Limited

Reference book

Mastering in Maya 2009 by John Kundert – Gibbs, Eric Kunzen Dort, Dariush Derakhashani, Mick Larkins, Eric Keller, Boaz Livny, Mark E.A. de Soura, Published by Willey

SEMESTER-6
Credit (L: T: P = 2: 0: 1)
DSC 6:

Introduction to Animation and Texturing (Theory)

Course Outcomes (COs)

Upon successful completion of this course, students will be able to:

CO1: Explain the fundamentals of character animation, animation tools, and workflows used in Maya.

CO2: Create character animations using keyframe techniques, IK blending, constraints, references, and nonlinear animation tools.

CO3: Apply texturing and shading techniques using Hypershade, material nodes, texture nodes, and UV mapping methods.

CO4: Develop rendered 3D scenes by applying materials, texture maps, lighting, and appropriate rendering settings in Maya.

Unit 1:

15hrs

Character Animation: Tutorial Walking and Pushing a Box,-Set Up the Character for Animation, Create a Walking Animation, Push a Box Using IK Blending.

Animation Tools: File Referencing, Creating References, Managing References. Tutorial Creating Nonlinear Animation-Create Character Sets, Use the Trax Editor. Animation Retargeting-Retargeting Workflow, Tutorial: Retargeting the Animation. Object Interaction-Constraints, Using the Parent Constraint.

Texture Basics: Hypershade: Maya's Texturing Interface, Hypershade Sections, Working with the Hypershade, Using the Attribute Editor for Editing Materials.

Rendering Nodes and Their Attributes- Material Nodes Texture Nodes, Placement Nodes.

Unit 2:

15hrs

Texturing in Practice: Building Basic Shading Networks, Texture the Stone Wall Material, Create the Bronze Material, Create the Specular, Diffuse, and Reflectivity Maps, Create a Reflection Map, Use IPR to Fine-Tune the Material Attributes.

Tutorial: UV Texture Mapping- Create UVs, Edit UVs in the UV Texture Editor.

Rendering: Rendering in Maya, Preparing to Render, Render Settings Window, Select a Rendering Engine.Anti-Aliasing, Anti-Aliasing Quality Settings, Anti-Aliasing in Mental Ray

DSC 4: Animation in Maya and Rendering (Practical): As per the Syllabus

Text book

MAYA 8 The Complete Reference by Tom Meade Shinsaku Arima, Published by Tata McGraw-Hill Publishing Company Limited

Reference book

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Question Paper Pattern

Theory (2 Credits)

Time: 2 Hours

Max. Marks: 50

Part – A

I. Answer all Questions.

05 X 02 = 10

- 1.
- 2.
- 3.
- 4.
- 5.

Part – B

II. Answer any Four Questions out of given four Questions. 4X 10 = 40

- 6.
- 7.
- 8.
- 9.
- 10.
- 11.