

**BHARATHIAR UNIVERSITY: COIMBATORE 46**  
**CENTRE FOR COLLABORATION OF INDUSTRIES AND INSTITUTIONS**  
**(CCII)**  
**DIPLOMA IN ANIMATION TECHNOLOGY**

(For the CCII students admitted from the academic year 2017-18 onwards)

1. **Description of course/objective of the course**  
This course is designed to prepare technicians with specialized skills, knowledge and attitude to work in Animation field.
2. **Eligibility**
  - a. A pass in 10+2 Examination/PUC/Equivalent to H.S.C
3. **Duration of the Course**  
The Course shall extend over a period of 12 months.

**SCHEME OF EXAMINATION**

Paper	Course Title	University Examination	
		Dur.Hrs	Total Marks
	<b>SEMESTER I</b>		
1. Theory	Introduction to 2D Animation	3	100
2. Theory	Maya Modeling and Animation	3	100
3. Practical	Background and Character Animation	3	100
	<b>SEMESTER II</b>		
4. Theory	Visual Effects	3	100
5. Practical	Character Modeling Animation	3	100
6. Practical	Dynamic & Particle Illusion	3	100
7. Project	Project work & Viva voce	-	200
	<b>TOTAL</b>		<b>800</b>

## **Paper 1 : Introduction to 2D Animation (Theory)**

### **UNIT – 1**

Digital 2D Animation orientation – Basic factors affecting the illusion of motion – Impact of digital techniques on the craft of film and video animation – Professional animation practice and job description – Prevailing file format standards and other compatibility issues – History and future trends of computer animation application in the visual arts.

### **UNIT – 2**

2D graphics editing features – Basic geometric transformations – Boolean operations on shapes – Object stroke attributes - Objects fill attributes – Shading techniques (blends – gradients) – Packaged effects (extensions – plug-ins) – Features specific to the program in use.

### **UNIT – 3**

2D animation frame-sequencing features – Straight-ahead animation – Key frames animation – Motion paths – Applying geometric transformation over time – Intertwining options – Looping and palindrome motion – Features specific to the program in use.

### **UNIT – 4**

2D animation application software interface - Default setting and user preferences – Document setup. Import and export formats – Document and timeline window feature – Tools and commands palettes – Media-selection tools and techniques Asset-management features.

### **UNIT – 5**

2D graphics-creation features – Underlying data type: raster – vector – Raster painting and/or import features – Vector shapes – Vector free-form and control-point placement tools – Features specific to the program in use.

### **SUGGESTED READINGS**

1. Adam Watkins : Maya A Professional Guide  
Published by dreamtech, first  
edition – 2003.
2. Joey Lott and Robert Reinhardt. : Flash 8 Action Script Bible.  
Published by Wiley India (P)  
Ltd.2006.
3. Tom Meade and Shinsaka Anima : The Complete Reference Maya 6  
Published by Tata MC.Graw –  
Hill Publishing Company Limited  
edition 2004.
4. Robert Reinhardt and Snow Dowd : Macromedia Flash 8 Bible.  
Published by Wiley India Pvt  
Ltd.2006

## **Paper 2 : Maya Modeling and Animation (Theory)**

### **UNIT – 1**

Basic Modeling – Polygon Basics and Poly Editing Tools – The Sculpt Polygons Tools NURBS Modeling – Subdivisions Surfaces.

### **UNIT -2**

Advanced Modeling - Blend Shape Modeling Pipeline – Sneers, Blinks, and Smiles – The Paint, Blend Shape Weights Tool.

### **UNIT – 3**

Character Setup and Rigging – Deformers, Skeletons Clusters and Lattices – Forward and inverse Kinematics – Creating a Proper Bipedal Skeleton – Using the Full Body IK Skeleton – Skinning a Character.

### **UNIT – 4**

Character Animation – Preparing to Animate – The Animation Process – Pose-to-Pose blocking – Establishing Timings – Refining Animation.

### **UNIT – 5**

Non-Linear Animation – Creating Poses – Creating Clips – Modifying, blending and Sharing Clips – Animating with Maya’s new Body IK Setup.

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1. Adam Watkins : Maya A Professional Guide  
Published by dreamtech,first  
edition – 2003.
2. Joey Lott and Robert Reinhardt. : Flash 8 Action Script Bible.  
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3. Tom Meade and Shinsaka Anima : The Complete Reference Maya 6  
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4. Robert Reinhardt and Snow Dowd : Macromedia Flash 8 Bible.  
Published by Wiley India Pvt  
Ltd.2006

### **Paper 3 : Background and Character Animation (Practical)**

#### **UNIT – 1**

Beginner level – Introductory concepts to basic techniques in Animation – Principles of Animation Production.

#### **UNIT – 2**

Layout – Background Painting Basic and Advanced techniques layout – Basic and Advanced techniques in BG Painting.

#### **UNIT – 3**

Intermediate level – Introductory concepts to basic techniques in Animation Principles of Animation Production.

#### **UNIT – 4**

Digital Animation – Course Introductory concepts of Animation – Animation Production – High-end Digital Production Software- US ANIMATION (V5.2).

#### **UNIT – 5**

Cleanup and In-between – Introductory concepts to basic techniques in Animation – Principles of animation Production of cleanup and in-betweens.

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edition – 2003.
2. Joey Lott and Robert Reinhardt. : Flash 8 Action Script Bible.  
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Ltd.2006.
3. Tom Meade and Shinsaka Anima : The Complete Reference Maya 6  
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Hill Publishing Company Limited  
edition 2004.
4. Robert Reinhardt and Snow Dowd : Macromedia Flash 8 Bible.  
Published by Wiley India Pvt  
Ltd.2006

## **Paper 4 : Visual Effects (Theory)**

### **UNIT – 1**

Visual Effects- Description- Types- Particles – Analysis- Size- Sand Effects – Smoke Effects- Fire Effects – Cloud Effects – Snow Effects

### **UNIT-2**

Fluid Effects-Coloring- designing Clouds Background – Designing Fog Effects – Explosion Effects– Fire Effects with flames - Space Effects and designs- Designing Thick Smoke

### **UNIT-3**

Designing Paint Effects – Coloring paints- Designing Trees and green effects – Designing Weather and seasons –Effects on seasons- Designing Glass image – Designing Different glass reflection- Designing Glow Effects – Liquid Effects and reflection design

### **UNIT-4**

Designing Special Effects – Designing effects of Hair and shape – Designing Fur Effects- Designing Clothes and effects

### **UNIT-5**

Visual Effects Tool and advanced functions– Converting images from 2D to 3D Pictures. Creating 3D Effects- Differentiation 2D effects and 3D effects.

## **SUGGESTED READINGS**

1. Antony Bolante : Adobe After effects 5 for windows After Indian edition 2002 Published by G.C. Jain for Techmedia
2. Danish Derakhshevi : Introducing Maya 8 3D for Beginners 2006 Wiley Publishing Inc.
3. Vikas Gubta & Kogent Solutions Inc. : Multimedia and Web Design. A Revolutionary 3-Stage Sub learning System Published by dream tech.
4. Paul Marino : 3D Animation and Film making Using Game engines. The art of Machinima Published by Dreamtech edition – 2005.
5. Asoke K.Ghosh : Game Design Process – NIIT Published by Practice – Hall of India Private Ltd.

## **Paper 5 : Character Modeling and Animation (practical)**

### **UNIT – 1**

Polygonal Modeling – Using primitives - Converting 5-,6-,7-,8-,9-,,-Sided Polys to Quads – Creating Linear Templates – Working With Poly Editing Tools: Making Simple Hand – Sub div Proxy Modeling – Splitting Polygons – Creating Areas of Details on a Poly Mesh(Surface)

### **UNIT - 2**

Modeling with NURBS – Lofting, Revolved Surface, Extruded Surface, Planar Surface, Beveled Surface, Boundary Surface – Combining Techniques and Surface History – Modeling with Deformers – Editing NURBS Surfaces – Using NURBS Surfacing to Create Polygons – Converting NURBS to Polygons - Patch Modeling – Using Artisan to Sculpt NURBS

### **UNIT – 3**

Modeling with Deformers and Subdivisions Surfaces – The Lattice – Creating a Base Poly Model, Converting it to a subdivision Surface and Converting Back to Polygons – Human Hand and Character’s Head

### **UNIT – 4**

Basic Animation – Creating Keys – Setting Breakdown Keys – Bouncing a Ball – Creating and Editing Keys Using the Graph Editor – Adding “Whiz Bang”, Squash and Stretch – Converting Cycled Animation to Curves

### **UNIT – 5**

Character Animation – Skeletons – Clusters and Lattices - Forward and Inverse Kinematics – Using the ikRP Solver, ikSC Solver, ik Spline Handle Solver, ik Spring Solver, Human IK Solver – Switching between FK and IK – The Animation Process: Posing, Timing and Refining.

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4. Robert Reinhardt and Snow Dowd : Macromedia Flash 8 Bible.  
Published by Wiley India Pvt  
Ltd.2006

## **Paper 6 : Dynamic Particle Illusion (Practical)**

### **UNIT – 1**

Particles and Environment Aspects – Physics of Dynamics – Static and Dynamics, a Comparative Study – Complexity of Structures.

### **UNIT – 2**

Fluids and their Props for Environmental Effects – Particles and Fluids Interactions – Simulations and Fluids

### **UNIT – 3**

Sizing and Fixing Properties – Hands On: Sands and Glass Particles, Environment and Physical Structures

### **UNIT – 4**

Effects of Particles with Hair, Fur, Cloth – Dust Particles and Simulations – Subdivisions Properties of Tiny Objects – Particles Containers

### **UNIT – 5**

Integrating Independent Workflows – Hands On: Creating Subdivided Clouds – Overcoming Practical Difficulties of Particle and Creation and Simulation – Overcoming Hardware Requirement

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2. Joey Lott and Robert Reinhardt. : Flash 8 Action Script Bible.  
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