REGULATIONS AND SYLLABUS

FOR

DIPLOMA IN ANIMATION TECHNOLOGY

OFFERED BY

BHARATHIAR UNIVERSITY, COIMBATORE

FROM 2008-2009

UNDER THE

CENTRE FOR COLLABORATION OF INDUSTRY

AND INSTITUTIONS (CCII)

COLLABORATIVE PROGRAMME

DIPLOMA IN ANIMATION TECHNOLOGY

REGULATIONS

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.The program will be conducted at any Amaze Multimedia Centre recognized by Bharathiar University under the UIICSC Collaborative Program.

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.

4. Courses and scheme of examination

Course No.	Course Title	University examination		Credits
		Internal	External	
1. Theory	Introduction to 2D Animation	40	60	4
2. Theory	Maya Modeling and Animation	40	60	4
3. Theory	Visual Effects	40	60	4
4. Practical	Background and Character Animation	40	60	4
5. Practical	Character Modeling Animation	40	60	4
6. Practical	Dynamic & Particle Illusion	40	60	4

5. Practical Training

Being a practical oriented program, the focus will be more on practical training. The candidate shall undergo practical training of the computer laboratory of Amaze Multimedia or other computer laboratories of Bharathiar University affiliated institutions.

6. Requirement to appear for examination

Candidate should put in a minimum of 90% attendance to appear for the examinations.

7. Passing minimum

To pass

- A candidate shall secure a minimum of 40% in the University examination for practical and theory and overall 40% in each of the paper (Internal + External) to pass the examination. A candidate failing in any one of the component s has to reappear for that particular component in the supplementary examinations.

8. Classification of successful candidate

- A candidate who obtains 75% and above, aggregate in theory and practical examinations, in the first attempt shall be deemed to have passed the examination with distinction.
- A candidate who obtains from 60% to 74% of the aggregate in theory and practical examinations, in the first attempt shall be deemed to have passed the examination in the first class.
- Other Successful candidates shall be declared to have passed the examination in the Second class.

Conferment of degree

A candidate who has passed all the examination as prescribed shall be eligible to receive the "DIPLOMA IN ANIMATION TECHNOLOGY" from Bharathiar University.

9. Course Material

Course Material shall be supplied by Amaze Multimedia.

10. Revision of Regulation and syllabus

The syllabus and regulations of the courses are subject to modification by the University whenever necessary.

11. Question Paper Pattern

Theory examination will be for 100 marks with the following components which will be converted into 60 marks.

- Multiple Choice / one word answers: 20x1=20 marks(no choice)
- Short notes(100 words / one paragraph) : 5x6=30 marks(either/or type)
- Descriptive (300 words 1 ½ page) : 5x10=50 marks(either/or type)

SYLLABUS

Course 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 Rein hardt and Snow Dowd	:	Macromedia Flash 8 Bible. Published by Wiley India Pvt Ltd.2006

Course 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.

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 Rein hardt and Snow Dowd : Macromedia Flash 8 Bible. Published by Wiley India Pvt Ltd.2006

Course 3 : 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.

Course 4 : 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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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 Rein hardt and Snow Dowd : Macromedia Flash 8 Bible. Published by Wiley India Pvt Ltd.2006

Course 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.

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 Rein hardt and Snow Dowd : Macromedia Flash 8 Bible. Published by Wiley India Pvt Ltd.2006

Course 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 Simulaitons – 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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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 Rein hardt and Snow Dowd : Macromedia Flash 8 Bible. Published by Wiley India Pvt Ltd.2006