

**Savitribai Phule Pune University**  
**Pune -7**  
**Course Name : B.Sc. Animation**  
**Class : F.Y., S.Y., T.Y.**  
**Framework of the Revised Syllabus**  
**to be implemented from Academic year 2015-2016**

<b>F.Y. B.Sc. Animation</b>	
<b>Theory Papers</b>	
<b>Paper ID</b>	<b>Paper Name</b>
AN-1101	Introduction to Elements of Information Technology
AN-1102	Introduction to Programming Languages
AN-1103	Basics of Animation
AN-1104	Foundation Art
AN-1105	Computer Based 2D Animation
AN-1106	Introduction to Graphics
AN-1107	Elements of 3D Design
AN-1108	Introduction to Mass Communication and Media Literacy
<b>Practical Papers</b>	
AN-1109	Introduction to Programming languages
AN-1110	Foundation Art & Basics of Animation
AN-1111	Introduction to Graphics
AN-1112	Elements of 3D Design
<b>S.Y. B.Sc. Animation</b>	
<b>Theory Papers</b>	
<b>Semester I</b>	
<b>Paper ID</b>	<b>Paper Name</b>
AN-2101	Value Education
AN-2102	3D Production ( Using Software Maya)
AN-2103	Graphics Art ( Using Software Adobe Indesign)
AN-2104	Multimedia Systems
AN-2105	Animation Techniques – I
AN-2106	Production Process – I
<b>Semester II</b>	
<b>Paper ID</b>	<b>Paper Name</b>
AN-2201	Value Education (Skill Development, Personality Development, Mind Mapping)
AN-2202	3D Production (Using Software Mudbox)
AN-2203	Introduction to Action Script ( Using Software Adobe Flash)
AN-2204	Multimedia Communication
AN-2205	Animation Techniques – II
AN-2206	Production Process – II
<b>Practical Papers</b>	
<b>Paper ID</b>	<b>Paper Name</b>
AN-2207	3D Production I & II

<b>AN-2208</b>	<ul style="list-style-type: none"> <li>- Graphics Art</li> <li>- Introduction to Action Script</li> </ul>
<b>AN-2209</b>	<ul style="list-style-type: none"> <li>- Animation Techniques I &amp; II</li> <li>- Production Process I &amp; II</li> </ul>
<b>T.Y. B.Sc. Animation</b>	
<b>Theory Papers</b>	
<b>Semester I</b>	
<b>Paper ID</b>	<b>Paper Name</b>
AN-3101	Script Writing
AN-3102	Web Technology
AN-3103	Game Design
AN-3104	Digital Editing
AN-3105	VFX – I
AN-3106	Creative Thinking
<b>Semester II</b>	
<b>Paper ID</b>	<b>Paper Name</b>
AN-3201	IPR and Cyber Security
AN-3202	User Interface (UI ) Design
AN-3203	Game Production
AN-3204	Motion Graphics
AN-3205	VFX – II
AN-3206	New Media
<b>Practical Papers</b>	
<b>Paper ID</b>	<b>Paper Name</b>
<b>AN-3207</b>	<ul style="list-style-type: none"> <li>- Web Design</li> <li>- User Interface (UI) design</li> </ul>
<b>AN-3208</b>	<ul style="list-style-type: none"> <li>- Motion Graphics</li> <li>- VFX II</li> </ul>
<b>AN-3209</b>	<ul style="list-style-type: none"> <li>1. 100 marks project including-</li> <li>- Showreel</li> <li>- Profolio or Game Design</li> </ul>

# **Savitribai Phule Pune University**

**(Formerly University of Pune)**

## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**Sub: - Value Education-I (AN 2101)**

**SEM:-I**

### ***Objectives :***

- 1. To understand the meaning of values and different kinds of values*
- 2. To inculcate knowledge of values through education*
- 3. To help students to be a true human being who are bale to face life and make it meaningful and happy.*
- 4. To improve person's sense of right and wrong or "ought" to be.*
- 5. To understand how values tend to influende attitudes and behavior and helo to solve common human problems.*
- 6. To help relate values to the norms of a culture.*

### **UNIT-I**

**[2]**

Value Education - Definition - relevance to present day - Concept of Human Values - self introspection - Self esteem.

### **UNIT-II**

**[10]**

Family values - Components, structure and responsibilities of family - Neutralization of anger - Adjustability - Threats of family life - Status of women in family and society - Caring for needy and elderly - Time allotment for sharing ideas and concerns.

Family , Peace in Family, Society, The Law of Life, Brotherhood, The Pride of Womanhood, Five responsibilities/duties of Man : - a) to himself, b) to his family, c) to his environment, d) to his society, e) to the Universe in his lives (Kural)

### **UNIT-III**

**[7]**

Ethical values - Professional ethics - Mass media ethics - Advertising ethics - Influence of ethics on family life - psychology of children and youth - Leadership qualities - Personality development.

## UNIT-IV

[12]

Social values - Faith, service and secularism - Social sense and commitment - Students and Politics - Social awareness, Consumer awareness, Consumer rights and responsibilities - Redressal mechanisms.

Thriftiness (Thrift)/Economics (Kural 754), Health (Kural 298), Education (Kural 400), Governance (Kural 691), People's responsibility/ duties of the community (Kural 37), World peace (Kural 572)

## UNIT-V

[8]

Effect of international affairs on values of life/ Issue of Globalization - Modern warfare - Terrorism. Environmental issues - mutual respect of different cultures, religions and their beliefs. 2

## UNIT – VI

[9]

### **Impact of Global Development on Ethics and Values**

Conflict of cross-cultural influences, mass media, cross-border education, materialistic values, professional challenges and compromise.

Modern Challenges of Adolescent Emotions and behavior; Sex and spirituality: Comparison and competition; positive and negative thoughts.

### **Reference Books**

1. T. Anchukandam and J. Kuttainimathathil (Ed) Grow Free Live Free, Krisitu Jyoti Publications, Bangalore (1995)
2. Mani Jacob (Ed) Resource Book for Value Education, Institute for Value Education, New Delhi 2002.
3. DBNI, NCERT, SCERT, Dharma Bharti National Institute of Peace and Value Education, Secunderabad, 2002.
4. Daniel and Selvamony - Value Education Today, (Madras Christian College, Tambaram and ALACHE, New Delhi, 1990)
5. S. Ignacimuthu - Values for Life - Better Yourself Books, Mumbai, 1991.
6. M.M.M.Mascaronhas Centre for Research Education Science and Training for Family Life Promotion - Family Life Education, Bangalore, 1993.

Value Education for Health, Happiness and Harmony, The World Community Service Centre Vethathiri Publications Rs 35/- (for All Units)

2. Philosophy of Universal Magnetism (Bio - magnetism, Universal Magnetism) The World Community Service Centre Vethathiri Publications (for Unit VI)
3. Thirukkural with English Translation of Rev. Dr. G.U. Pope, Um

### **WEBSITES AND e-LEARNING SOURCES:**

[www.rkmissiondhe/.org/education.html/](http://www.rkmissiondhe/.org/education.html/)  
[www.clallam::org/lifestyle/education.html/](http://www.clallam::org/lifestyle/education.html/)

www.sun.com/./edu/progrmws/star.html/

www.infoscouts.com

www.secretofsuccess.com

www.1millionpapers.com

<http://militaryfinance.umuc.edu/education/edu-network.html/>

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## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**Sub: - Value Education-II (AN 2201)**

**SEM:-II**

### *Objectives:*

- *Students are encouraged to follow soft skills as self assessment, self awareness and building self confidence.*
- *To enhance communication skill and encouraged leadership qualities.*
- *To develop interpersonal and non verbal communication techniques.*
- *To enhance the effective written communication skills.*
- *To encourage students to learn ethics and etiquettes.*

### **1. Self Development and Assessment**

**(Lectures-12)**

**(Enhancing Soft Skills by Prof. Dipali Biswas - Shroff Publishers & Distributors Pvt. Ltd.)**

1.1 Self-Assessment

1.2 Self Awareness

1.3 Perception and Attitudes

1.4 Values and Belief System

1.5 Personal Goal Setting

1.6 Career Planning

1.7 Self-Esteem

1.8 Building of Self-Confidence

### **2. Components of Communication, Principles of communication Barriers, Listening Skills**

**(Lectures -15)**

**(Enhancing Soft Skills by Prof. Dipali Biswas - Shroff Publishers & Distributors Pvt. Ltd.)**

2.1 Components of communication

2.2 Principles of Communication

2.3 Overcoming Communication barriers

2.4 Public Speaking

a. Group Discussion

b. Oral Presentation skills, perfect interview

c. Listening skills

- 2.5 Use of presentation graphics & Aids
- 2.6 Study of Communication

### **3. Inter-Personal Communication and Non Verbal Communication (Lectures -14)**

**(Communication Skill for Effective Management by Dr. Anjali Ghanekar –Everest Publishing House –EPH)**

- 3.1 Inter-Personal Communication
- 3.2 Johari Window
- 3.3 Open Self: (Arena)
- 3.4 Blind Self
- 3.5 Hidden Self (Façade)
- 3.6 Undiscovered Self
- 3.7 Other important variables in Inter-Personal Communication
- 3.8 Advantages and Disadvantages of Oral Communication
- 3.9 Face-to-Face Communication
  - 3.9.1 Nature and Important
- 3.10 Difference between “Face-to-face” and “Oral” Communication
  - 3.10.1 Limitations
- 3.11 Speaking Skill
  - 3.11.1 Expressive Style
  - 3.11.2 Directive Style
  - 3.11.3 Problem-Solving Style
  - 3.11.4 Meta Style
- 3.12 Telephonic Meetings
- 3.13 Small Group Discussion
  - 3.13.1 Committee and Conference
  - 3.13.2 Variables Affecting Group Communication
- 3.14 Meetings
- 3.15 Participant’s Responsibilities
- 3.16 Leader’s Responsibilities
- 3.16 Non Verbal Communication
  - 3.16.1 Difference between Verbal and Non-Verbal Communication
- 3.17 Importance of Non-Verbal Communication
- 3.18 Functions of Non-Verbal Communication
- 3.19 Role of Non-Verbal Communication
- 3.20 Major Categories of Non-Verbal Language
- 3.21 How to Handle Question and Answer Sessions

### **4. Written Communication (Lectures -4)**

**(Communication Skill by Dr. Nageshwar Rao and Das-Himalaya Publishing House)**

- 4.1 Meaning of Written Communication
- 4.2 Characteristics of Written Communication
- 4.3 Objectives of Written Communication
- 4.4 Communication Problems of Writers
- 4.5 Pointers and Structure of Written Communication

4.6 Essentials of Effective Written Communication

## **5. Ethics and Etiquettes**

**(Lectures -3)**

**(Enhancing Soft Skills by prof. Dipali Biswas- Shroff Publishers & Distributors Pvt. Ltd.)**

5.1 Business Ethics

5.2 Telephone Etiquettes

Reference Books:-

- 1. Enhancing Soft Skills by Prof. Deepali Biswas - Shroff Publishers & Distributors Pvt. Ltd.**
- 2. Communication Skill by Dr. Nageshwar Rao and Das-Himalaya Publishing House**
- 3 Communication Skill for Effective Management by Dr. Anjali Ghanekar – Everest Publishing House –EPH**



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**To be implemented from Academic Year - 2016-17**

**S.Y.B.Sc. Sem – I (AN – 2102)**

### **3D Production (Autodesk Maya)**

#### **Unit I: Working in Autodesk Maya (4)**

##### 1.1 Creating and Editing Nodes

Using the Hypergraph, Connecting Nodes with the Node Editor

Creating Node Hierarchies in the Outliner, Displaying Options in the Outliner

The Channel Box, The Attribute Editor, Working with Shader Nodes in the Hypershade

##### 1.2 Creating Maya Projects

Creating a New Project, Editing and Changing Projects

#### **Unit II: Hard-Surface Modeling (5)**

##### 2.1 Understanding Polygon Geometry

Polygon Vertices, Polygon Edges, Polygon Faces, Working with Smooth Polygons

##### 2.2 Understanding NURBS, Understanding Curves, Understanding NURBS Surfaces

Surface Seams, NURBS Display Controls

##### 2.3 Modeling NURBS Surfaces

Lofting Surfaces, Attaching Surfaces

##### 2.4 Converting NURBS Surfaces to Polygons

##### 2.5 Modeling with Polygons, Using Booleans, Cleaning Topology

Creating Your Own Polygons, Multi-Cut Tool, Combining and Merging Geometry,

Bridge Polygon, Mirror Cut

#### **Unit III: Organic Modeling (6)**

##### 3.1 Implement Box Modeling

Shaping Using Smooth Mesh Polygon Geometry , Connect Components

Slide Edge Tool, Offset Edge Loops, 3.2 Employ Build-out Modeling

Extrude Along a Curve

##### 3.3 Sculpting Polygons

Soft Select Tool, Sculpting Polygons Using Artisan

##### 3.4 Use Retopology Tools

Importing and Exporting Alembic

Cache Files, Slide on Surface

Quad Draw, Reduce

#### **Unit IV: Rigging and Muscle Systems (8)**

##### 4.1 Understanding Rigging

##### 4.2 Creating and Organizing Joint Hierarchies

Orienting Joints, Naming Joints  
 Mirroring Joints,  
 4.3 Rigging the Character, IK Legs  
 FK Blending, Rotate Plane Solver, Creating Custom Attributes, Spline IK  
 4.4 Human Inverse Kinematics  
 Skeleton Generator, Character Controls, Interoperability  
 4.6 Skinning Geometry  
 Interactive/Smooth Binding, Weighting the Giraffe, Geodesic Voxel Binding  
 Painting Skin Weights, Editing Skin Weights in the Component Editor  
 Copying Skin Weights, Mirroring Skin Weights  
 4.7 The Maya Muscle System  
 Understanding the Maya Muscle System  
 Using Capsules, Creating a Muscle Using the Muscle Builder  
 Editing Muscle Parameters, Converting the Smooth Skin to a Muscle System  
 Sliding Weights

**Unit V: Animation Techniques (5)**

5.1 Keyframe Animation, Creating Keyframes  
 Auto Keyframe , Moving and Scaling Keyframes on the Timeline  
 5.2 The Graph Editor  
 5.3 Playblast and FCheck  
 5.4 Driven Keys, Creating a Driven Key  
 Looping Driven Keys, Copying and Pasting Driven Keys  
 5.5 Constraints  
 5.6 Working with Deformers, Shrink Wrapping Geometry  
 Using Textures to Deform Objects  
 5.7 Animating Facial Expressions Using Blend Shapes  
 Creating Blend Shape Targets, Creating Blend Shapes  
 Painting Blend Shape Weights, Adding Targets

**Unit VI: Lighting with mental ray (6)**

6.1 Shadow-Casting Lights, Shadow Preview  
 Depth Map Shadows, mental ray Shadow Map Overrides  
 Raytrace Shadows,  
 6.2 Indirect Lighting: Global Illumination  
 Tuning Global Illumination, Working with Photon Maps  
 Color Bleeding, Caustics, Caustic Light Setup  
 6.3 Indirect Illumination: Final Gathering  
 Light-Emitting Objects, Final Gathering Maps  
 Using Lights with Final Gathering  
 6.4 Image-Based Lighting  
 Enabling IBL, IBL and Final Gathering  
 6.5 Physical Sun and Sky  
 Enabling Physical Sun and Sky, Editing the Sky Settings

**Unit VII: Texture Mapping (6)**

7.1 Mental Ray Shaders  
 7.2 UV Texture Layout  
 What Are UV Texture Coordinates?  
 Mapping the Giraffe Leg, Unfolding UVs

Mirroring UVs, More UV Tools, Arranging UV Shells  
Additional UV Mapping Considerations  
Multiple UV Sets, Optimizing Textures  
7.3 Bump and Normal Mapping  
Bump Maps , Normal Maps, Creating Normal Maps, Applying Normal Maps  
7.4 Displacement Mapping  
7.5 Subsurface Scattering  
Fast, Simple Skin-Shader Setup, Subsurface Specularity  
7.6 Viewport 2.0

## **Unit VIII: Rendering for Compositing (5)**

8.1 Render Layers  
Creating Render Layers, Render Layer Overrides,  
Creating Overrides for Rendering Cameras, Material Overrides  
Render Layer Blend Modes,  
8.2 Render Passes  
Upgrading Materials for Rendering Passes,  
Rendering Multiple Passes from a Single Render Layer  
Creating an Ambient Occlusion Render Pass  
8.3 Setting Up a Render with mental ray  
Specifying Frame Range, Renderable Cameras  
File Formats and the Frame Buffer, Starting a Batch Render  
Command-Line Rendering  
8.4 mental ray Quality Settings  
Tessellation and Approximation Nodes  
Unified Sampling, Filtering

## **Unit IX: Dynamics and Effects (7)**

9.1 Creating nCloth Objects  
Making a Polygon Mesh Dynamic  
Applying nCloth Presets, Making Surfaces Sticky  
Creating nConstraints, Making nCloth Objects Expand Using Pressure  
Additional Techniques, Creating an nCache  
9.2 Creating nCloth and nParticle Interactions  
Creating an nParticle Goal  
Controlling Collision Events  
Bursting an Object Open Using Tearable nConstraints  
9.3 Rigid Body Dynamics  
Creating an Exploding Tower, Tuning the Rigid Body Simulation  
Baking the Simulation, Crumbling Tower  
9.4 Soft Body Dynamics  
9.5 Creating Flying Debris Using nParticle Instancing  
Adding nParticles to the Scene  
Sending the Debris Flying Using a Field  
Creating a More Convincing Explosion by Adjusting nParticle Mass  
Instancing Geometry  
9.6 Animating Instances Using nParticle Expressions  
Randomizing Instance Index  
Connecting Instance Size to nParticle Mass

Controlling the Rotation of nParticles

**Reference Book:**

Mastering Autodesk Maya 2015, Author - Todd Palmar

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**Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**S.Y.B.Sc. Sem – 2 (AN – 2202)**

**3D Production (Autodesk Mudbox)**

**Chapter 1: Sculpting Concepts**

**1.1 Comparing Traditional and Digital Sculpting**

Workspace  
Armatures  
Lighting  
Sculpting Tools

**1.2 Anatomy for Sculptors**

Skeleton  
Muscles  
Skin and Fat

**1.3 Proportions and Measurements**

Proportions  
Measurements

**1.4 Form, Negative Space, and Gesture**

Form  
Negative Space  
Gesture

**Chapter 2: Introduction to Mudbox**

**2.1 Interface Overview**

**2.2 What You Will Need to Work InMudbox**

**2.3 A 3D Primer**

Understanding 3D Space  
Polygon Basics  
Resolution  
UV Mapping  
Digital Images

**2.4 Mudbox Hotkeys**

**2.5 Quickstart Tutorial: Sculpting a Bell Pepper**



Setting Up the Scene  
Selecting and Scaling a Model  
Creating a Layer and Subdividing  
Roughing In the Shape  
Sculpting Details  
Adding Texture with a Stencil

## Chapter 3: Sculpting a Portrait Bust



### 3.1 Collecting Reference Material

### 3.2 Facial Expressions

### 3.3 Measurements

### 3.4 Getting Started

Sculpting In the Neutral Position

Loading the Basic Head Model

Setting up Reference Sketches

Adding a Camera Bookmark

### 3.5 Refining the Shape of the Face

Roughing In the Eye Sockets

Shaping the Face

### 3.6 Sculpting the Nose

Widening the Bridge of the Nose

Sculpting the Alae and Tip of the Nose

- Refining the Tip of the Nose
- Adding Nostrils
- Refining the Alae
- Sculpting with Negative Space
- Sculpting the Philtrum

### **3.7 Sculpting the Mouth**

- Hiding Part of the Model
- Marking the Location of the Lips
- The Upper Lip
- The Lower Lip
- Refining the Mouth

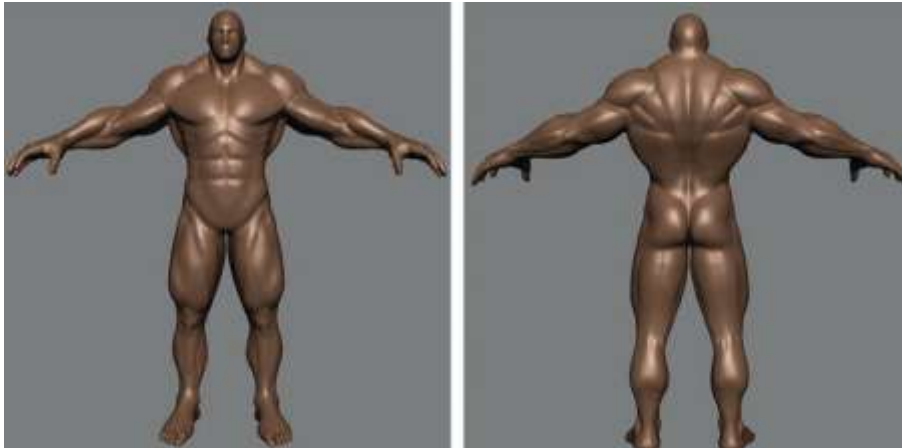
### **3.8 Sculpting the Eyes**

- Sculpting the Eyeball
- Sculpting the Lower Eyelid
- Sculpting the Upper Eyelid
- Refining the Eye
- Creating the “Sculpture” Look

### **3.9 Sculpting the Ears**

- Shaping the Back of the Head and Positioning the Ears
- Sculpting the Back of the Ear
- Sculpting the Ear
- Adding Hair

## **Chapter 4: Sculpting a Figure**



### **4.1 Anatomy Primer**

- Navigating Anatomical Space
- Quick Overview of Muscle Anatomy
- Character Proportions

### **4.2 Subdividing and Adding a New Layer**

### **4.3 Sculpting Muscle Masses**

### **4.4 The Torso**

### **4.5 The Upper Limb**

- 4.6 The Lower Limb**
- 4.7 Sculpting the Head and Face**
  - Refining the Face and Ear
- 4.8 Final Details**

## **Chapter 5: Painting Sculptures**

- 5.1 UV Mapping**
- 5.2 The Paint Tools**
  - Paint Layers
  - Painting the Creature
  - Getting Started
  - Creating Basic Skin
  - Adding Depth and Color to Skin
  - Adding Details
- 5.3 Viewport Rendering**

## **Chapter 6: Creating Displacement Maps 145**

- 6.1 Normal Maps**
- 6.2 Displacement Maps**
- 6.3 Extracting Displacement Maps**
  - Exporting a Low-Resolution Model
- 6.4 Applying Mudbox Displacement Maps**
  - 3ds Max
  - Maya and Mental Ray
  - Modo
  - Cinema 4D

### ***Ref Book –***

Digital Sculpting with Mudbox - Essential Tools and Techniques for Artists  
By Mike de la Flor Bridgette Mongeon



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**Sub: - Graphics Art I**

**SEM-I**

### **Course Description**

Adobe InDesign is a layout program that allows students to put together all kinds of print materials such as: Brochures, Posters and even large scale pieces like Bill Boards. With InDesign, students are able to format text, include imagery such as photos or illustrations from other Adobe Programs like Illustrator and Photoshop.

### **Course Objective**

This course will demonstrate the various tools that assist in formatting text importing images and creating page layouts. By the end of the course the student will be familiarized with In Design from the beginning stages of laying out print documents to learning how to create interactive projects all within one program. At the completion of the course, the Students will be able to:

Apply the use of all toolbars in order to create effective Page Design Projects.

Easily design projects that will include Typographic and Graphic elements together.

### **1. Introduction to Indesign** [8]

- 1.1 Arranging palettes
- 1.2 Customizing workspace
- 1.3 Palette menus
- 1.4 Navigation and magnification
- 1.5 Layers
- 1.6 Context menus
- 1.7 Selecting objects

### **2. Documents** [5]

- 2.1 Starting new documents and page size
- 2.2 Master pages
- 2.3 Footers
- 2.4 Placeholder master
- 2.5 Applying master and overriding master
- 2.6 Editing master pages

### **3. Frames** [6]

- 3.1 Modifying and resizing text frames
- 3.2 Modifying and resizing graphic frames
- 3.3 Wrapping graphics
- 3.4 Creating and duplicating frames

3.5 Rotating and aligning objects

**4. Importing and editing text** [8]

4.1 Managing fonts

4.2 Working with styles

4.3 Aligning text

4.4 Threading text

4.5 Changing number of columns

4.6 Changing text alignment

4.7 Character style

4.8 Find and Replace and Spell check

4.9 Text on a path

**5. Typography** [5]

5.1 Vertical spacing

5.2 Baseline grid

5.3 Space above and below paragraph

5.4 Font and type style

5.5 Paragraph alignment

5.6 Special font features and drop cap

**6. Working with color** [5]

6.1 Adding color to swatch palette

6.2 Applying color to objects

6.3 Dash stroke

6.4 Gradient

6.5 Tint

6.6 Spot color

6.7 Apply color to text

6.8 Apply color to object

6.9 Creating and applying gradient swatch

**7. Importing and linking graphics** [5]

7.1 Adding graphics

7.2 Vector and bitmap graphics

7.3 Managing links to imported graphics

7.4 Updating graphics

7.5 Clipping paths

7.6 Settings for display performance

7.7 Library to manage objects

**8. Vector graphics** [6]

8.1 Document grids

8.2 Applying color to path

8.3 Pencil tool

8.4 Pen tool

8.5 Drawing curve and straight segments

8.6 Compound path

Reference Book:

Adobe InDesign CC Classroom in a Book

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## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

### **Sub: - Introduction to Action Script SEM-II**

#### **Objective:**

Flash Action Script is an object oriented programming (OOP) language that is designed specifically for media – rich website animation & interactive user interfaces.

This course is an introduction to Action Script for students who have no programming experience or beginners.

By the end of the course student will able to create user controlled animation simple games, and smart web pages that can adapt to the user's preferences.

1. Introduction to ActionScript [5]
  - 1.1. Variables and its scope in flash
  - 1.2. Working with strict data type variables
  - 1.3. Arithmetic operations with numbers and string data type
  
2. Conditional Logic [5]
  - 2.1. Script control
  - 2.2. Multiple conditions
  - 2.3. Nested conditions
  - 2.4. Control user interaction
  - 2.5. Switch Cases
  
3. Arrays [5]
  - 3.1 Understanding of Array
  - 3.2 Properties and methods
  - 3.3 Multidimensional arrays
  - 3.4 Use of Array
  
4. Loops [5]
  - 4.1 Importance of Loops
  - 4.2 Types of loops
  - 4.3 Nested loops
  - 4.4 Loop Conditions
  
5. Functions [5]
  - 5.1 Understanding the role of functions
  - 5.2 Creating functions

5.3 Reuse of function	
5.4 Passing parameters to function	
5.5 Local Variables	
5.6 Return type functions	
6. Event Handler	[4]
6.1 Understanding of events	
6.2 Event listener	
6.3 Callbacks	
7. Creating Dynamic Assets	[6]
7.1 Attach Movie clips	
7.2 Creating empty movie clips	
7.3 Using movie clip as a button	
7.4 Creating dynamic text field	
7.5 Working with drawing API	
8. Loading Assets	[4]
8.1 Loading text files	
8.2 Loading JPEG and PNG files	
8.3 Loading MP3 files	
8.4 Loading FLV files	
9. XML	[4]
9.1 Introduction to XML	
9.2 Understanding of XML	
10. Built - in Classes	[5]
10.1 String Operations	
10.2 Working with Text Field	
10.3 Understanding of other classes	

**Reference Books:**

- ActionScript 3.0 Visual Quick Start Guide \*, by Derrick Yenburg
- Essential ActionScript 3.0, by Colin Moock
- Learning ActionScript 3.0, by Rich Shupe and Zevan Rosser

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## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**Sub: Multimedia System**

**SEM-I**

### **1. Introducing Multimedia & Multimedia information ( 6)**

1.1-Introduction

1.2 Multimedia Today

1.3 Future of Multimedia

1.4 Elements of Multimedia

1.5-What is multimedia?

1.6-Early Hypertext and Collaborative Research

1.7-Multimedia and personalized computing

1.8-Multimedia on the Map

1.9-Multimedia System: The challenges

### **2. The convergence of Computers, communication and entertainment Products. (8)**

2.1Technology Trends

2.2Multimedia Appliances: Hybrid Devices

2.3 A designers view of Multimedia Appliances

2.4 Industry Perspectives for the next decade

### **3.Digital Audio Representation and Processing (6)**

3.1 Uses of Audio in computer applications

3.2 Psychoacoustics

3.3Digital Representations of sound

3.4Transmission of digital sound

3.5Digital Audio signal Processing

3.6 Digital music making

#### **4. Video Technology (6)**

4.1 Sensors for TV Cameras

4.2 Color Fundamentals

4.3 Color Video

4.4 Video Performance Measurements

4.5 Video Equipment

#### **5. Digital Video and Image Compression (10)**

5.1-Evaluating a compression System

5.2-Redundancy and Visibility

5.3-Video compression techniques

5.4-Standardization of algorithms

5.5-The JPEG Image compression standards

5.6-The MPEG Motion Video Compression Standards

5.7 -DVI Technology

#### **6. Multimedia Devices Presentation Services and User Interface (8)**

6.1-Multimedia services and the Window system

6.2-Client control of continuous media

6.3-Device control

6.4-Temporal Coordination and Composition

6.5-Toolkits

6.6-Hyper application

#### **7. Multimedia Interchange (6)**

7.1-QuickTime Movie File (QMF) format

7.2-OMFI

7.3-MHEG(Multimedia and Hypermedia Information Encoding Expert Group)

7.4-Format Function and Representation Summary

7.5-Track model and object model

7.6-Real-Time Interchange

7.7-Towards a Performance Model

### **Reference Books**

**1. Multimedia in Practice (PEARSON) –Jeffcoate.**

**2. Multimedia Systems (PEARSON) –John F.Koege Buford**

**3. Multimedia Computing Communication and Application -Steinmetz**



# **Savitribai Phule Pune University**

**(Formerly University of Pune)**

## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**Sub: Multimedia Communication**

**AN2104**

**SEM-II**

### **1. Multimedia Communications (6)**

1.1-Introduction.

1.2- Multimedia communications Model.

1.3-Elements of multimedia Systems.

1.4-User requirements.

1.5-Network requirements.

### **2. Overview of multimedia Software tools. (6)**

2.1-Music sequencing Notation.

2.2-Digital Audio.

2.3-Graphics & Image editing.

2.4-Video editing.

2.5-Animation.

### **3.Graphics&Image data representation. (6)**

3.1- Graphics Image data types.

3.2-Fil Formats.

### **4.Audio Visual Integration. (8)**

4.1-Introduction.

4.2-Media Interaction

4.3-Bimodality of Human Speech.

4.4-Lip reading.

4.5-Lip Synchronization.

4.6-Lip tracing.

## **5. Standards for multimedia Communication. (10)**

5.1-Introduction.

5.2-Reference Model.

5.3-Standards relating to interpersonal communications.

5.4- Standards relating to interactive applications over the Internet.

5.5-Standarads for entertainment applicants.

## **6.Digital Communication Basics. (12)**

6.1-Introduction.

6.2-Transmission media.

6.3-Sources of signal impairment.

6.4-Asunohronus transmission.

6.5-Synchronous transmission.

6.6-Error detection methods.

6.7-Protocol Basics.

6.8-HDLC Protocol.

## **Reference Books**

**1. Fundamental of multimedia by- Ze-Mian Li & Mark Drew (PHI Publications)**

**2. Multimedia Communications System By K R Rao , Z S Bojkovic (PHI Publication)**

**3. Multimedia Communications By- Fred Halsall (PEARSON)**

# Savitribai Phule Pune University

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## Proposed Draft of S.Y.B.Sc (Animation) Syllabus

To be implemented from Academic Year - 2016-17

Sub: Advance Techniques of Animation I

### SEM-I

1. Unit First

What is Stop Motion Animation?

Types of Stop Motion animation.

Clay and cut out animation.

Scope of stop motion animation.

Assignment: Collect Different picture for your subject and create Collage on paper.

(E.g. - Cars, electronic product, typography)

The Art of Stop motion animation (ken prieve)

2. Clay Animation

Process

Preparation

Designing puppet

Performance

Post-production

Stop motion-passion process performance (Barry J C Purves)

3. V.F.X

Visual Effects

What makes an effect 'special'?

Why create 'effects'?

Film, video, digital and string

Stocks and formats

Methods of creating visual effects

Visual effects for film and television (Professor A. J. Mitchell)

4. Chroma

Mattes and Compositing

Digital Matting Methods and Tools

Basic Shooting Setups

Basic Compositing Techniques

The Green Screen Handbook (Jeff Foster)

5. Clean Plates

Wire Removing in After Effect

Create BG Plates

Removing Characters Form BG Plates

The Visual Effects Arsenal (Bill Byrne)

6. Masking& Stereoscopy

Origins of Roto

Key Framing Techniques

Creating Spline

Depth Creation with Mask.

Monoscopic to Stereoscopic Conversion

Rotoscoping Techniques & Tools (Benjamin Bratt)

# Savitribai Phule Pune University

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## Proposed Draft of S.Y.B.Sc (Animation) Syllabus

To be implemented from Academic Year - 2016-17

### Sub: Advance Techniques of Animation II SEM-II

1. Dynamics  
What is particles?  
Dynamics in VFX  
Particles Tools in Animation Software  

Adobe after Effects CC Classroom in a Book (2015 release)
2. Compositing  
Horror Effects  
Action  
Science Fiction  
Flashy Techniques  

The Visual Effects Arsenal (Bill Byrne)
3. Tittles  
Title Sequence Workflow  
Text Background Integration  
Horror Film Titles  
Three-Dimensional Text  

The Visual Effects Arsenal (Bill Byrne)
4. Render Outputs  
The Spec List  
Render in After Effect  
Render in silhouette  

The Visual Effects Arsenal (Bill Byrne)
5. Cut Out Animation  
Scope in the cut out animation. E.g.Material  
Creating animation using software  
Importing character  
Distributing character on different layer.  
Animating characters.  

The Art of Stop motion animation (ken priebe)

#### Reference Books

1. Visual effects for film and television (Professor A. J. Mitchell) ISBN-10:  
0240516753
2. The Green Screen Handbook (Jeff Foster) ISBN-10:  
1138780332
3. The Visual Effects Arsenal (Bill Byrne) ASIN:  
B00ABLRM72
4. Rotoscoping Techniques & Tools (Benjamin Bratt) ASIN: B011DAJR86

5. Adobe After Effects CC Classroom in a Book (2015 release)

0134308123

ISBN-10:

6. The Art of Stop Motion Animation (Ken Priebe)

1435456130

ISBN-10:

Stop Motion - Passion Process Performance (Barry J C Purves)

ASIN: B011DAC4TK

# **Savitribai Phule Pune University**

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## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**SEM-I**

**Sub- Production Process I**

**AN2106**

### **Chapter 1: Pre-Production**

**(10)**

- 1.1 Concept And Story
- 1.2 Concept Design
- 1.3 Difference between concept & Story
- 1.4 Building one from the other
- 1.5 Storytelling
- 1.6 Introduction to Story Writing
- 1.7 How to write story

### **Chapter 2: Research**

**(8)**

- 2.1 Period/Location
- 2.2 Historic / Scientific facts
- 2.3 Society
- 2.4 Costumes
- 2.5 Props

### **Chapter 3: Character Design**

**(12)**

- 3.1 Anthropomorphism
- 3.2 Personality
- 3.3 Appeal
- 3.4 Character Bible and Design
- 3.5 Different types of Character
- 3.6 Male female children
- 3.7 Character Biography
- 3.8 Character Construction
- 3.9 Character Proportion
- 3.10 Costume

### **Chapter 4: Character Model Sheets**

**(8)**

- 4.1 Turn- around
- 4.2 Expression Chart
- 4.3 Extreme poses
- 4.4 Proportion Chart

### **Chapter 5: BG Design**

**(10)**

- 5.1 Color Keys
- 5.2 Color moods
- 5.3 Location, Plan,
- 5.4 Establishing BG,
- 5.5 Key Location
- 5.6 Props Design

**Reference Books:**

Storyboard Design Course by Giuseppe Cristiano ---- Barron's

How to write for Animation – Jeffery Scott- The Overlook Press Woodstock and New York

# **Savitribai Phule Pune University**

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## **Proposed Draft of S.Y.B.Sc (Animation) Syllabus**

**To be implemented from Academic Year - 2016-17**

**Sem-II**

**Sub - Production Process II**

**AN2206**

<b>Chapter 1: Script Writing</b>	<b>(8)</b>
1.1 Introduction to Script writing	
1.2 The language of cinema	
1.3 Requirement for the script	
1.4 Scenes & Shots	
<b>Chapter 2: Exposure Sheet</b>	<b>(5)</b>
2.1 Introduction to Exposure sheet/x-sheet	
2.2 Preparing X – Sheets	
<b>Chapter 3: Staging</b>	<b>(6)</b>
3.1 Introduction to framing	
3.2 Composting frame	
<b>Chapter 4: Story board</b>	<b>(10)</b>
4.1 Introduction to Thumbnails	
4.2 The frame /Aspect ratio	
4.3 Types of story boards	
4.4 Scene and shots	
4.5 Different types of camera angle	
4.6 The language of storyboards	
<b>Chapter 5: Dialogue</b>	<b>(4)</b>
5.1 Introduction to Dialogue	
5.2 How to write dialogues	
5.3 Lip Sqc.	
<b>Chapter 6: Animatics</b>	<b>(5)</b>
6.1 Preparing the Animatics	
6.2 Preparing Animatics using Digital Software (Flash)	
<b>Chapter 7: Layout Design</b>	<b>(10)</b>
7.1 Technical and creative	
7.2 Camera, Framing, Posing, Layout composing	



7.3 Hook-Up, Pan Shot, Dynamic shot, Re-use, Cross Dissolve,  
7.4 Match Moving, Loop Pan, Zip Pan, Expressions, Body Language.

**Reference Books:**

Storyboard Design Course by Giuseppe Cristiano ---- Barron's

How to write for Animation – Jeffery Scott- The Overlook Press Woodstock and New York

The Art of layout and storyboarding – Mark T.Byrne