

**Deccan Education Society's  
FERGUSSON COLLEGE (AUTONOMOUS),  
PUNE**

**Syllabus**

**for**

**S. Y. B. Voc. (Digital Art and  
Animation)**

[Pattern 2019]

*(B. Voc. Digital Art and Animation  
Semester-III and Semester-IV)*

From Academic Year

**2020-21**

Deccan Education Society's  
Fergusson College (Autonomous), Pune

**S.Y.B.Voc. Digital Art and Animation (Pattern 2019)**

From academic year 2020-21

| Particulars  | Name of Paper       | Paper Code | Title of Paper                                      | No. of Credits |
|--|---------------------|------------|---|----------------|
| S.Y. B.Voc<br>Digital Art<br>and<br>Animation.<br>Semester III | Theory Paper - 1    | BVA2301    | Script Writing                                      | 4              |
|  | Theory Paper - 2    | BVA2302    | Digital 2D Animation                                | 4              |
|  | Theory Paper - 3    | BVA2303    | 3D Modeling, Texturing and Rendering                | 4              |
|  | Practical Paper - 1 | BVA2304    | Practical in Digital 2D Animation                   | 6              |
|  | Practical Paper – 2 | BVA2305    | Practical in Production Process II                  | 6              |
|  | Practical Paper - 3 | BVA2306    | Practical in 3D Modeling and Texturing              | 6              |
| S.Y. B.Voc<br>Digital Art<br>and<br>Animation.<br>Semester IV  | Theory Paper - 1    | BVA2401    | Web Design  | 4              |
|  | Theory Paper - 2    | BVA2402    | 3D Rigging and Animation                            | 4              |
|  | Theory Paper - 3    | BVA2403    | Motion Graphics and Compositing                     | 4              |
|  | Practical Paper - 1 | BVA2404    | Practical in Sculpting                              | 6              |
|  | Practical Paper – 2 | BVA2405    | Practical in 3D Rigging and Animation and Lighting. | 6              |
|  | Practical Paper - 3 | BVA2406    | Practical in Motion Graphics and Compositing        | 6              |

| <b>S.Y. B. Voc. Semester III</b>                                  |   |                               |
|---|---|-------------------------------|
| <b>Title of the Course and Course Code</b>                        | <b>Script Writing (BVA2301)</b>                               | <b>Number of Credits : 04</b> |
| <b>Course Outcomes (COs)</b>                                      |   |                               |
| <b>On completion of the course, the students will be able to:</b> |   |                               |
| CO1   | Define importance of script in the process of pre-production. |                               |
| CO2   | Differentiate Character and Plot driven scripts.              |                               |
| CO3   | Apply visual treatment to a script.                           |                               |
| CO4   | Analyze various script formats and their style.               |                               |
| CO5   | Evaluate different script format and their style.             |                               |
| CO6   | Write different genre of scripts.                             |                               |

| <b>Unit. No.</b> | <b>Title of Unit and Contents</b>   | <b>No. of Lectures</b> |
|------------------|---|------------------------|
| <b>I</b>         | <b>Introduction to Storytelling</b><br>1.1 What is Storytelling<br>1.2 Types of Storytelling<br>1.3 Pre- Production Process   | <b>6</b>               |
| <b>II</b>        | <b>Narrative Techniques</b><br>2.1 What is narration?<br>2.2 Narrative Structure<br>2.3 Narrative treatment of the space & time   | <b>6</b>               |
| <b>III</b>       | <b>Development of Script</b><br>3.1 Idea and Concept Development<br>3.2 Character Development (Internal& External Features, Wants vs Needs, Obstacles, Stakes & Character Arc)<br>3.3 Character Psychology<br>3.4 Three act Structure<br>3.5 Visual treatment to a script | <b>6</b>               |
| <b>VI</b>        | <b>Script Formats and their style</b><br>4.1 Scene heading<br>4.2 Parenthesis<br>4.3 Description<br>4.4 Scene Transition<br>4.5 Basic Idea of Shooting Script<br>4.6 Screenplay Structure ( Screenplay Template)  | <b>8</b>               |
| <b>V</b>         | <b>Elements of Script</b><br>5.1 Story premise<br>5.2 Theme<br>5.3 Plot<br>5.4 Style and tone<br>5.5 Structure of Scenes/ Chronology  | <b>8</b>               |

|            |  |          |
|------------|--|----------|
| <b>VI</b>  | <b>The basic of dramaturgy</b><br>6.1 The Nature of Conflict<br>6.2 Types of conflicts   | <b>8</b> |
| <b>VII</b> | <b>Different Genre of script</b><br>7.1 Genre include action, children, comedy, crime, drama, family, history, horror, romance, science fiction, teens and thriller<br>7.2 How to write a Synopsis | <b>5</b> |

**Learning Resources:**

1. Save a cat by Blake Synder
2. A directors method for Film & Television by Ron Richards

| Digital 2D Animation (BVA2302)  |   |                               |
|---|---|-------------------------------|
| <b>Title of the Course and Course Code</b>  | <b>Digital 2D Animation (BVA2302)</b>                               | <b>Number of Credits : 04</b> |
| <b>Course Outcomes (COs)</b><br><b>On completion of the course, the students will be able to:</b> |   |                               |
| CO1   | Recall principles of animation.                                     |                               |
| CO2   | Differentiate tools used for 2d animation.                          |                               |
| CO3   | Carry out projects based on 2d Animations.                          |                               |
| CO4   | Compare various tools used in Animate software.                     |                               |
| CO5   | Consider 12 principals of animation while making the 2d animations. |                               |
| CO6   | Create 2D characters and environments.                              |                               |

| <b>Unit. No.</b> | <b>Title of Unit and Contents</b>   | <b>No. of Lectures</b> |
|------------------|---|------------------------|
| <b>I</b>         | <b>Introduction to Software.</b><br>1.1 Overview of digital 2d animation<br>1.2 Introduction to digital 2d software.<br>1.3 FPS<br>1.4 Introduction to Concept of Limited Animation | <b>5</b>               |
| <b>II</b>        | <b>Introduction to the interface</b><br>2.1 Tools required for animation<br>2.2 Document setup<br>2.3 Introduction to drawing and drawing tools                                     | <b>8</b>               |
| <b>III</b>       | <b>Timeline</b><br>3.1 Introduction to Frames, Key frame, Hold<br>3.2 Onion Skin<br>3.3 Motion Guide<br>3.4 Motion Path<br>3.5 Guide<br>3.6 Orient to path                          | <b>8</b>               |
| <b>IV</b>        | <b>Property Inspector</b><br>4.1 Library<br>4.2 Different type of Symbols<br>4.3 Graphics<br>4.4 Movie clip<br>4.5 Button   | <b>8</b>               |
| <b>V</b>         | <b>Types of animation techniques</b><br>5.1 Shape tween<br>5.2 Shape Hints<br>5.3 Classic tween<br>5.4 Frame by frame animation   | <b>8</b>               |
| <b>VI</b>        | <b>Timeline effects</b><br>6.1 Rotoscopy in Flash<br>6.2 Shockwave file   | <b>8</b>               |

**Learning Resources:** Adobe Animate CC Classroom in a Book 2018 by Pearson Author Russell Chun

| 3D Modeling, Texturing and Rendering (BVA2303)  |  |                        |
|---|--|------------------------|
| Title of the Course and Course Code   | 3D Modeling, Texturing and Rendering (BVA2303)         | Number of Credits : 04 |
| <b>Course Outcomes (COs)</b><br><b>On completion of the course, the students will be able to:</b> |  |                        |
| CO1   | Recall 3d Animation techniques and concepts.           |                        |
| CO2   | Illustrate tools used for 3d modelling & texturing.    |                        |
| CO3   | Demonstrate different types of modelling.              |                        |
| CO4   | Compare modelling topologies.                          |                        |
| CO5   | Review different types of shaders and materials.       |                        |
| CO6   | Design various textured 3d models & get final renders. |                        |

| Unit. No.  | Title of Unit and Contents   | No. of Lectures |
|------------|--|-----------------|
| <b>I</b>   | <b>Intro to 3d and Basic Interface</b><br>Common used Tools<br>Common used Operations  | <b>8</b>        |
| <b>II</b>  | Interior Modeling – Hall/Bedroom<br>Character Modelling  | <b>8</b>        |
| <b>III</b> | Materials and Hypershade<br>Types of mapping<br>Making Complex materials   | <b>9</b>        |
| <b>IV</b>  | Animating Camera<br>Paint Effects<br>Lighting setup and type of lights<br>3 Point light system<br>Animating Lights               | <b>10</b>       |
| <b>V</b>   | Rendering Concept and setup<br>Arnold Render System<br>Making an Interior with character (Basic pose) and rendering with Arnold. | <b>10</b>       |

**Learning Resources:**

1. Autodesk Maya 2019 Basics Guide
2. Digital Lighting and Rendering (Voices That Matter) 3rd Edition- By Jeremy Brin
3. Digital Modeling ([digital]) 1st Edition- By William Vaughan
4. Advanced Maya Texturing and Lighting

| Title of the Course and Course Code                               | Practical in Digital 2D Animation (BVA2304)                         | Number of Credits : 06 |
|---|---|------------------------|
| <b>Course Outcomes (COs)</b>                                      |   |                        |
| <b>On completion of the course, the students will be able to:</b> |   |                        |
| CO1   | Recall principles of animation.                                     |                        |
| CO2   | Differentiate tools used for 2d animation.                          |                        |
| CO3   | Carry out projects based on 2d Animations.                          |                        |
| CO4   | Compare various tools used in Animate software.                     |                        |
| CO5   | Consider 12 principals of animation while making the 2d animations. |                        |
| CO6   | Create 2D characters and environments.                              |                        |

**List of practicals (Compulsory 10 + 2 Activity)**

| Sr. No.   | List of practicals  |
|-----------|---|
| <b>1</b>  | Bouncing ball/ bouncing ball with tail/ bouncing ball with different weight |
| <b>2</b>  | Character animation - Jump  |
| <b>3</b>  | Character animation - Walk  |
| <b>4</b>  | Character animation –run  |
| <b>5</b>  | Walk cycle – quadruped  |
| <b>6</b>  | Run cycle – quadruped   |
| <b>7</b>  | Character animation – Dialogue base on 12 principles                        |
| <b>8</b>  | Character animation – Dialogue base on 12 principles                        |
| <b>9</b>  | Character animation – Dialogue base on 12 principles                        |
| <b>10</b> | Character animation – Dialogue base on 12 principles                        |

| Title of the Course and Course Code                               | Practical in Production Process II (BVA2305)                                | Number of Credits : 06 |
|---|---|------------------------|
| <b>Course Outcomes (COs)</b>                                      |   |                        |
| <b>On completion of the course, the students will be able to:</b> |   |                        |
| CO1   | Outline pre-production process for animated films.                          |                        |
| CO2   | Discuss the storyboarding techniques and animatics.                         |                        |
| CO3   | Demonstrate details of character designing.                                 |                        |
| CO4   | Compare various characters aspects in detail.                               |                        |
| CO5   | Review Story-Boards for animation.  |                        |
| CO6   | Create concept art for animated film and a Character design from real life. |                        |

**List of practicals (Compulsory 10 + 2 Activity)**

| Sr. No.   | List of practicals        |
|-----------|---------------------------|
| <b>1</b>  | Concept Art               |
| <b>2</b>  | Prop Design               |
| <b>3</b>  | Prop Design               |
| <b>4</b>  | Character design (Male)   |
| <b>5</b>  | Character design (Female) |
| <b>6</b>  | Character design (Child)  |
| <b>7</b>  | Layout Design             |
| <b>8</b>  | Layout Design             |
| <b>9</b>  | Story Board               |
| <b>10</b> | Animatic                  |



| Practical in 3D Modeling and Texturing (BVA2306)  |   |                        |
|---|---|------------------------|
| Title of the Course and Course Code   | Practical in 3D Modeling and Texturing (BVA2306)        | Number of Credits : 06 |
| <b>Course Outcomes (COs)</b><br><b>On completion of the course, the students will be able to:</b> |   |                        |
| CO1   | Recall 3d Animation techniques and concepts.            |                        |
| CO2   | Discuss tools used for 3d basics.                       |                        |
| CO3   | Demonstrate different types of modelling.               |                        |
| CO4   | Compare modelling topologies.                           |                        |
| CO5   | Consider types of shaders and materials.                |                        |
| CO6   | Design various textured 3d models to get final renders. |                        |

**List of practicals (Compulsory 10 + 2 Activity)**

| Sr. No. | List of practicals  |
|---------|---|
| 1       | Interior Modeling and Texturing – Hall / Kitchen                      |
| 2       | Character Modeling and texturing – Human body                         |
| 3       | Exterior Modeling and texturing - A bridge over River / Tower of Pisa |
| 4       | Props Modeling and texturing – Sword/ Gun                             |
| 5       | Props Modeling and texturing – Sword/ Gun                             |
| 6       | Animal Modeling and texturing   |
| 7       | Animal Modeling and texturing   |
| 8       | Car Modeling and texturing  |
| 9       | Making Hair / Fur for Animals   |
| 10      | Show reel of the above Topics   |

| S.Y. B. Voc. Semester IV  |  |                               |
|---|--|-------------------------------|
| <b>Title of the Course and Course Code</b>                        | <b>Web Design (BVA2401)</b>  | <b>Number of Credits : 04</b> |
| <b>Course Outcomes (COs)</b>                                      |  |                               |
| <b>On completion of the course, the students will be able to:</b> |  |                               |
| CO1   | Define concepts of web technology.                                 |                               |
| CO2   | Explain web technologies and the issues involved in web designing. |                               |
| CO3   | Execute scripts of HTML, Java script, CSS, Dreamweaver, SST.       |                               |
| CO4   | Compare various options to design a web page.                      |                               |
| CO5   | Rewrite technical programs.  |                               |
| CO6   | Reconstruct and design a new web page.                             |                               |

| Unit. No.  | Title of Unit and Contents  |
|------------|---|
| <b>I</b>   | <b>Introduction</b><br>1.1 Concept of WWW<br>1.2 Internet and WWW<br>1.3 HTTP Protocol: Request and Response<br>1.4 Web browser and Web servers<br>1.5 Features of Web  |
| <b>II</b>  | <b>HTML5</b><br>2.1 Structuring an HTML Document - Elements and Attributes, Tags, The DOCTYPE Element<br>2.2 Creating and Saving an HTML Document, validating an HTML Document, viewing an HTML Document, Hosting Web Pages.<br>2.3 Understanding Elements<br>2.4 Working with Text<br>2.5 Defining the DIV Element and SPAN Element<br>2.6 Working with Links the Target Attribute, The id Attribute<br>2.7 Creating Tables<br>2.8 Working with Images, Colors, and Canvas<br>2.9 Working with Forms<br>2.10 Working with Multimedia |
| <b>III</b> | <b>CSS</b><br>3.1 Evolution, Syntax<br>3.2 CSS Selectors, Inserting CSS in an HTML Document<br>3.3 Backgrounds and Color Gradients in CSS<br>3.4 Font Properties<br>3.5 Creating Boxes and Columns Using CSS<br>3.6 Creating Boxes and Columns Using CSS<br>3.7 Effects, Frames, and Controls in CSS  |

|           |   |
|-----------|---|
| <b>IV</b> | <b>Dreamweaver</b><br>4.1 Introduction<br>4.2 Adobe Dreamweaver CS3<br>4.3 Text Styles<br>4.4 Images and Links<br>4.5 Symbols and Lines<br>4.6 Tables<br>4.7 Forms                      |
| <b>V</b>  | <b>Server Side Technology</b><br>5.1 HTTP Transactions<br>5.2 Multitier Application Architecture<br>5.3 Client-Side Scripting versus Server-Side Scripting<br>5.4 Accessing Web Servers |

**Learning Resources:**

1. Web Technology, black book (Kogent learning solutions inc.)
2. HTML5 black book: covers CSS3, Javascript, XML, XHTML, Ajax, PHP and Jqery

| <b>Title of the Course and Course Code</b>  | <b>3D Rigging and Animation (BVA2402)</b>                                | <b>Number of Credits : 04</b> |
|---|--|-------------------------------|
| <b>Course Outcomes (COs)</b><br><b>On completion of the course, the students will be able to:</b> |  |                               |
| CO1   | Recall 3d Animation techniques.  |                               |
| CO2   | Discuss advanced 3d animation terms.                                     |                               |
| CO3   | Illustrate different Rig setups & types of simulations and compare them. |                               |
| CO4   | Analyze terms of physics which are incorporated in 3d simulations.       |                               |
| CO5   | Determine suitable results for the simulations and rig models.           |                               |
| CO6   | Assemble rigs for 3d models to create character animations.              |                               |

| <b>Unit. No.</b> | <b>Title of Unit and Contents</b>  | <b>No. of Lectures</b> |
|------------------|--|------------------------|
| <b>I</b>         | Basics of Principles of Animation<br>Bouncing Ball-Setting Keys and Graph Editor<br>Making Human Body ready for Rig<br>Putting Joints and Renaming<br>Putting IK Handles and Pole Vectors<br>Inverse Foot with SetDriven keys<br>Spine Control | <b>12</b>              |
| <b>II</b>        | Fist controller with Set Driven key<br>Neck and Head controller<br>Eyes Controller<br>Master Controller<br>Types of Bind-Soft & Rigid<br>Binding the character<br>Paint Weights  | <b>12</b>              |
| <b>III</b>       | Type of Blend Shapes<br>Making Phonetics A, E, I, O, U, M, F<br>Finalizing and Cleaning the Rig  | <b>10</b>              |
| <b>IV</b>        | Walk cycle<br>Run Cycle<br>Dialogue between characters<br>Fight Scene with Two Characters<br>Animating Camera and render Sequence  | <b>10</b>              |

**Learning Resources:**

1. Rig it Right! Maya Animation Rigging Concepts, 2nd edition- By Tina O'Hailey
2. Animation Methods: Rigging Made Easy: Rig Your First 3D Character in Maya Animation Methods - By David Rodriguez
3. Stop Staring: Facial Modeling and Animation Done Right - By Jason Osipa

| S.Y.B.Voc. (Digital art and Animation)  |  |                        |
|---|--|------------------------|
| Title of the Course and Course Code   | Motion Graphics and Compositing (BVA2403)                                  | Number of Credits : 04 |
| <b>Course Outcome(COs)</b><br><b>On completion of the course, the students will be able to:</b> |  |                        |
| CO1   | Recall history & utility of motion graphics.                               |                        |
| CO2   | Compare various tools of motion graphics                                   |                        |
| CO3   | Execute various compositing techniques.                                    |                        |
| CO4   | Identify appropriate tools required for motion graphics specific projects. |                        |
| CO5   | Determine motion graphics examples based on target audience                |                        |
| CO6   | Create motion graphic videos.  |                        |

| Unit       | Details  | Lectures |
|------------|--|----------|
| <b>I</b>   | What is Motion graphics and its history<br>Motion Graphics in Film & Television<br>Different tools available for Motion Graphics<br>What is Composition, Composition Settings and its principles | [12]     |
| <b>II</b>  | Introduction to layers & its types<br>Importing, Exporting and Nesting<br>Text animation<br>Stroke Animation<br>Rotoscopying/ Masking<br>Chroma Keying   | [12]     |
| <b>III</b> | Wire Removal<br>Tracking<br>Color Correction & Color Grading<br>3d Projection  | [12]     |
| <b>IV</b>  | Adding subtitles and Credits<br>Creating Titles<br>Using animation & Text presets<br>Introduction to expressions   | [11]     |

**Books-**

1. The Art and Science of Digital Compositing: Techniques for Visual Effects . By Ron Brinkmann
2. After Effects For Designers: Graphic And Interactive Design In Motion
3. Creating Motion Graphics with After Effects: Essential and Advanced Techniques - By Chris Meyer, Trish Meyer

| S.Y.B.Voc. (Digital art and Animation)                            |   |                        |
|---|---|------------------------|
| Title of the Course and Course Code                               | Practical in Sculpting (BVA2404)                                  | Number of Credits : 06 |
| <b>Course Outcomes (COs)</b>                                      |   |                        |
| <b>On completion of the course, the students will be able to:</b> |   |                        |
| CO1   | Define use of sculpting in Animation Industry.                    |                        |
| CO2   | Explain interface of Mudbox.                                      |                        |
| CO3   | Demonstrate sculpting techniques in the software.                 |                        |
| CO4   | Compare various tools used in mudbox for sculpting the 3d models. |                        |
| CO5   | Review other production-level texture painting programs.          |                        |
| CO6   | Build high definition, detailed 3d models in Mudbox.              |                        |

**List of Practicals (Compulsory 10 + 2 Activity)**

| Sr. No. | List of Practicals   |
|---------|--|
|         |  |
| 1       | Ancient T-Rex Model sculpting and Painting using brushes                 |
| 2       | Future Reptile Model -sculpting and Painting                             |
| 3       | Future Reptile Model -sculpting and Painting                             |
| 4       | Props Modeling and sculpting   |
| 5       | Props Modeling and sculpting   |
| 6       | Props Modeling and sculpting   |
| 7       | Alien Model sculpting using reference                                    |
| 8       | Posing a character using inbuilt pose tools                              |
| 9       | Making a Badge in sculpting software using customized stamp and stencils |
| 10      | Making and Ancient coin using textures.                                  |

| <b>Title of the Course and Course Code</b>                        | <b>Practical in 3D Rigging and Animation and Lighting. (BVA2405)</b> | <b>Number of Credits : 06</b> |
|---|--|-------------------------------|
| <b>Course Outcomes (COs)</b>                                      |  |                               |
| <b>On completion of the course, the students will be able to:</b> |  |                               |
| CO1   | Recall rigging & simulation techniques.                              |                               |
| CO2   | Discuss advanced 3d animation terms.                                 |                               |
| CO3   | Outline and compare different Rig setups & types of simulations.     |                               |
| CO4   | Analyze terms of physics which are incorporated in 3d simulations.   |                               |
| CO5   | Determine suitable results for the simulations and rig models.       |                               |
| CO6   | Assemble rigs for 3d models to create character animations.          |                               |

**List of practicals (Compulsory 10 + 2 Activity)**

| <b>Sr. No.</b> | <b>List of practicals</b>     |
|----------------|-------------------------------|
| 1              | Pendulum rig                  |
| 2              | Camera Rig                    |
| 3              | Car Rig                       |
| 4              | Human Rig                     |
| 5              | Blend Shapes                  |
| 6              | Animal Rig                    |
| 7              | Bird Rig                      |
| 8              | Make showreel of above topics |

| Title of the Course and Course Code                               |  |                        |
|---|--|------------------------|
| Practical in Motion Graphics and Compositing (BVA2406)            |  | Number of Credits : 06 |
| <b>Course Outcomes (COs)</b>                                      |  |                        |
| <b>On completion of the course, the students will be able to:</b> |  |                        |
| CO1   | Recall history & utility of motion graphics.                               |                        |
| CO2   | Compare various tools of motion graphics.                                  |                        |
| CO3   | Execute various compositing techniques.                                    |                        |
| CO4   | Identify appropriate tools required for motion graphics specific projects. |                        |
| CO5   | Determine motion graphics examples based on target audience.               |                        |
| CO6   | Create motion graphic videos.  |                        |

**List of practicals (Compulsory 10 + 2 Activity)**

| Sr. No. | List of practicals            |
|---------|-------------------------------|
| 1       | Making Subtitles              |
| 2       | Making Creative titles        |
| 3       | Making Creative titles        |
| 4       | Making neon sign boards       |
| 5       | Stroke effect animation       |
| 6       | Chroma Removal from scene     |
| 7       | Chroma Removal from scene     |
| 8       | Wire removal from scene       |
| 9       | Changing name plate           |
| 10      | Make showreel of above topics |