ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

Programme: B.Sc. Honours in Multimedia (Major)
w.e.f. AY 2023-24

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Course</th>
<th>Title of the Course</th>
<th>No. of Hrs /Week</th>
<th>No. of Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>I</td>
<td>1</td>
<td>History of Film Industry</td>
<td>3+2</td>
<td>4</td>
</tr>
<tr>
<td>I</td>
<td>I</td>
<td>2</td>
<td>Story Design &amp; Execution</td>
<td>3+2</td>
<td>4</td>
</tr>
<tr>
<td>I</td>
<td>II</td>
<td>3</td>
<td>Graphic Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>I</td>
<td>II</td>
<td>4</td>
<td>Graphic Design Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>II</td>
<td>5</td>
<td>Color key Artist</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>I</td>
<td>II</td>
<td>6</td>
<td>Color key Artist Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>7</td>
<td>Introduction to 3D</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>8</td>
<td>Introduction to 3D Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>9</td>
<td>Advanced Graphic Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>10</td>
<td>Advanced Graphic Design Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>11</td>
<td>Basics of Animation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>12</td>
<td>Basics of Animation Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>III</td>
<td>IV</td>
<td>13</td>
<td>2D Animation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>IV</td>
<td>14</td>
<td>2D Animation Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>III</td>
<td>V</td>
<td>15</td>
<td>Fundamentals of Filmmaking</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>V</td>
<td>16</td>
<td>Fundamentals of Filmmaking Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>17</td>
<td>Nuendo</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>18</td>
<td>Nuendo Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>19</td>
<td>Science of Sound</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>20</td>
<td>Science of Sound Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>21</td>
<td>Story Board Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>22</td>
<td>Story Board Design Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>23</td>
<td>Character Animation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>24</td>
<td>Character Animation Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>25</td>
<td>Introduction to Photography (OR) AV Production</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>V</td>
<td>VI</td>
<td>26</td>
<td>Introduction to Photography (OR) AV Production Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>VI</td>
<td>VI</td>
<td>27</td>
<td>AV Content Creation (OR) 3D Animation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>VI</td>
<td>VI</td>
<td>28</td>
<td>AV Content Creation (OR) 3D Animation Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>VI</td>
<td>VI</td>
<td></td>
<td>Semester Internship/Apprenticeship with 12 Credits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Semester</td>
<td>Course</td>
<td>Title of the Course</td>
<td>No. of Hrs /Week</td>
<td>No. of Credits</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>--------</td>
<td>---------------------</td>
<td>------------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Advanced Character Animation (OR) 3D Live Integration</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Advanced Character Animation (OR) 3D Live Integration Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>VII</td>
<td>16</td>
<td>Facial Expressions &amp; Blend Modes (OR) Sfx &amp; Dynamics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Facial Expressions &amp; Blend Modes (OR) Sfx &amp; Dynamics Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lighting for Animation (OR) Rendering + Rendering</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lighting for Animation (OR) Rendering Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing &amp; Digital Art (OR) Advanced Graphics Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing &amp; Digital Art (OR) Advanced Graphics Design Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Digital Matte Painting (OR) 3D Short Film Making</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Digital Matte Painting (OR) 3D Short Film Making Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Video Editing (OR) Film Color Grading</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Video Editing (OR) Film Color Grading Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Audio Editing (OR) Visual Effects</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Audio Editing (OR) Visual Effects Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motion Graphics (OR) Camera Tracking</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motion Graphics (OR) Camera Tracking Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>VIII</td>
<td>24</td>
<td>Cinematography (OR) Advanced Compositing</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cinematography (OR) Advanced Compositing Lab</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green screen shooting (OR) Matchmoving Techniques</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green screen shooting (OR) Matchmoving Techniques Lab</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
SEMESTER-I
COURSE1: HISTORY OF FILM INDUSTRY
Theory
Credits: 3
3 hrs/week

I. Course Objectives:

- Explain the historical development of visual effects and identify key milestones in the field.
- Apply foundational concepts and techniques in visual effects production, such as compositing, motion tracking, and 3D modeling.
- Analyze and critique visual effects in films, commercials, and other media, considering their technical execution and artistic integration.
- Collaborate with team members in the planning and execution of visual effects projects, demonstrating effective communication and teamwork skills.

II. Learning Outcomes

Students at the successful completion of the course will be able to:

- Understand the history and evolution of visual effects in the film and entertainment industry.
- Gain knowledge of the fundamental principles and techniques used in visual effects.
- Develop skills in creating and manipulating visual effects using industry-standard software and tools.
- Collaborate effectively as part of a team in the creation of visual effects projects.

III. Syllabus:

Unit - I: Introduction to Visual Effects, History and evolution of visual effects in film and entertainment, Overview of different types of visual effects and their applications, Introduction to industry-standard software and tools used in visual effects production, Principles of compositing and image manipulation, Basics of 3D modeling and animation


Unit - III: New Hollywood era and the shift in filmmaking trends, Independent filmmaking and the rise of auteur directors, Notable films and directors of the New Hollywood era, Bollywood and the Indian film industry, Hong Kong cinema and martial arts films

Unit - IV: Evolution of filmmaking techniques and technology, Impact of digital filmmaking on production and distribution, Contemporary film genres and trends, History of film censorship and its implications, Films as cultural artifacts and agents of social change, Controversial films and their impact on society

Unit - V: Propaganda films and their role in shaping public opinion, Films depicting historical events and political movements, Film industry and political activism, Approaches to film analysis and interpretation, Film theory and its application in understanding cinema, Writing film reviews and critical analysis

References:
1. "The Story of Film" by Mark Cousins
2. "Film History: An Introduction" by Kristin Thompson and David Bordwell
3. "The Oxford History of World Cinema" edited by Geoffrey Nowell-Smith
4. "American Film: A History" by Jon Lewis

*Web resources suggested by the Teacher concerned and the college Librarian including reading material*

IV. a) Co-Curricular Activities:

- Film Screenings and Discussions
- Film History Research Projects
- Film Exhibitions or Museum Visits
- Film-related Field Trips
- RVJ (Reflective Visual Journal)

b) Suggested Co-Curricular Activities:

- Mentorship and Peer Support
- Collaborate on Research or Creative Projects
- Participate in Design Competitions
- Start a Personal Blog or Podcast
V. List of Experiments:

1. Biographical Research Project
2. Comparative Film Analysis
3. Film Archiving and Restoration
4. Film Exhibition Planning
5. Oral History Interview
I. **Course Objectives:**

- Demonstrate a thorough understanding of the fundamental elements of storytelling
- Develop multidimensional and relatable characters with compelling motivations.
- Control pacing and maintain narrative flow throughout the story
- Develop a marketing plan to promote

II. **Learning Outcomes**

Students at the successful completion of the course will be able to:

- Create well-structured narratives with clear plot progression and character development.
- Craft engaging dialogue that reveals character traits and advances the story
- Build conflict, tension, and suspense to captivate readers or viewers
- Pitch their stories effectively, create compelling synopses, and identify target audiences

III. **Syllabus:**

**Unit - I:** Introduction to Story Design and Execution, Understanding the fundamentals of storytelling, Elements of a compelling story, Different types of narratives and genres, The importance of theme and central conflict, Developing strong characters

**Unit - II:** Story Structure, The three-act structure, Plot development and progression, Introduction to story beats, Understanding story arcs and character arcs, Subplots and their role in storytelling, Creating a vivid and immersive world, Establishing the rules and logic of the story world, Developing the physical and cultural aspects of the setting

**Unit - III:** Writing natural and realistic dialogue, using dialogue to reveal character traits and motivations, Establishing tone and subtext through dialogue, Balancing dialogue with narrative description, Understanding the different types of conflict, Creating obstacles and challenges for the protagonist

**Unit - IV:** Developing multidimensional characters, Character back stories and motivations, Relationships and interactions between characters, Character growth and transformation throughout the story, Incorporating plot twists to surprise and engage the reader, balancing unpredictability with believability

**Unit - V:** Adapting stories for different mediums (e.g., film, television, video games), Understanding the unique requirements of each medium, Collaborating with other creative in the adaptation process, Exploring the potential of interactive storytelling, Crafting an effective story pitch, Understanding target audiences and marketability, developing a marketing plan for your story
IV. References:

1. "Story: Substance, Structure, Style, and the Principles of Screenwriting" by Robert McKee
2. "The Anatomy of Story: 22 Steps to Becoming a Master Storyteller" by John Truby
3. "The Art of Dramatic Writing: Its Basis in the Creative Interpretation of Human Motives" by Lajos Egri
4. "The Hero with a Thousand Faces" by Joseph Campbell

Web resources suggested by the Teacher concerned and the college Librarian including reading material

V. a) Co-Curricular Activities:

- Storytelling Workshops
- Scriptwriting Competitions
- Story Analysis Sessions
- Film Screenings and Analysis
- RVJ (Reflective Visual Journal)

b) Suggested Co-Curricular Activities:

- Character Profile
- Collaborate on Research or Creative Projects
- Story Pitching and Presentation Sessions
- Start a Personal Blog or Podcast
SEMESTER-II
COURSE 3: GRAPHIC DESIGN

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding Design Principles
   2. Proficiency in Design Software
   3. Conceptualization and Ideation
   4. Digital Imaging and Photo Editing
   5. Presentation and Professional Skills

2. **Syllabus:**

   **UNIT – I**
   Introduction to Graphic Design: Introduction to Multimedia, key elements of multimedia, applications of multimedia, hardware and software requirements of multimedia, introduction to Graphic Design, what is Raster Graphic & Vector Graphic, Uses & Difference between Raster Graphic & Vector Graphics

   **UNIT – II**
   Photoshop: Getting started with Photoshop, page layout and back ground, Photoshop program window - title bar, menu bar, options bar, image window, image title bar, Status bar, ruler, palettes, tool box, screen modes, saving files, reverting files, closing files.

   **UNIT – III**
   Working with images - image size and resolution, image editing, colour modes & adjustments, back grounds.

   **UNIT – IV**
   Making selections - lasso tools, sections tools, polygon lasso tool, magnetic lasso tool, magic hand tool, grow and similar commands, moving a portion of image, editing selections, filling a selection, transforming selection, painting, drawing and retouching tools.

   **UNIT – V**
   Layers and Filters: layers, type tool, converting layers, image masking, filters – the filter menu, artistic filter, blur filter, brush store filters, distort filters, noise filters, pixelate filter, lighting effects, difference clouds, sharpen filters, printing. Web based Photoshop: Web template designing, buttons, titles, back grounds, etc.
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Layout and Composition
2. Visual Communication
3. think creatively, and come up with innovative solutions
4. work on projects and assignments that will enable you to build a strong portfolio
SEMESTER-II
COURSE 3: GRAPHIC DESIGN

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:

Commercial Work: Photo base multi color visiting card – Multi color wedding cards
– Paperadds (Photo base) Pomp lets (Photo base) Broachers (Photo base) –
Advertisement designing
– Pomp lets (Photo base) – Broachers (Photo base).

Digital Work: Pass port designing, Maxi Modeling, Digital Modeling - Black and
White PhotoColor conversation, Marriage album designing.

Flex Modeling: Front light board designing, back light board designing.

5. References:

1. "Graphic Design School: The Principles and Practice of Graphic Design" by David Dabner,
   Sandra Stewart, and Eric Zempol
2. "How to be a Graphic Designer without Losing Your Soul" by Adrian Shaughnessy

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Workshops and Demonstrations
3. Design Competitions
4. Inviting guest speakers from the graphic design industry can expose students to real-world
   experiences and insights
5. Design Workshops and Projects
1. **Learning Outcomes:** Students after successful completion of this course will be able to:

1. understanding of the principles and concepts of color theory
2. understand how to create visually pleasing compositions using these schemes
3. will gain practical knowledge of color mixing techniques using various media, such as paints, pastels, colored pencils, or digital tools
4. understand how color is used differently in each discipline and develop skills specific to their chosen field

2. **Syllabus:**

**UNIT – I**
Composition, Sketching, Texture, material, Light, shadow and highlights, Drawing pencils, Colorpencils, Glasses, books, vases, flowers, plants, and rocks.

**UNIT – II**
Composition, Sketching, Texture, material, Light, shadow and highlights, Drawing pencils, Colorpencils, Glasses, books, vases, flowers, plants, and rocks.

**UNIT – III**
Composition, Sketching, Texture, material, Light, shadow and highlights, Drawing pencils, Colorpencils, Glasses, books, vases, flowers, plants, and rocks.

**UNIT – IV**
Sketching, Shading, Draw the shape of natural objects like trees, flowers, Composition and perspective, Outdoor study, nature study, architectural study, Working with pencil, water color, charcoal, oil pastels and acrylic paints.

**UNIT – V**
Drawing and composition, Drawing from imagination, Illustration based on imaginary concepts, Experimenting with dot, lines, shapes, forms, contour, texture, size perspective, Working with pencil, water color, charcoal, oil pastels and Acrylic paints
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Understanding of Color Theory
2. Mastery of Digital Tools
3. Visual Communication Skills
4. Attention to Detail and Accuracy
5. Portfolio Development
SEMESTER-II

COURSE 4: COLOR KEY ARTIST

Practical  Credits: 1          2 hrs/week

4. Practical Syllabus:

- Drawing pencils
- Color pencils
- Glasses, books, vases, flowers, plants, and rocks.
- Sketching
- Shading
- Draw the shape of natural objects like trees, flowers.
- Composition and perspective
- Outdoor study, nature study, architectural study
- Working with pencil, water color, charcoal, oil pastels and acrylic paints.
- Drawing and composition
- Drawing from imagination
- Illustration based on imaginary concepts
- Experimenting with dot, lines, shapes, forms, contour, texture, size perspective
- Working with pencil, water color, charcoal, oil pastels and Acrylic paints

5. References:

1. "Interaction of Color" by Josef Albers

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Workshops and Demonstrations
3. Exhibitions and Showcases
4. Collaborative Projects
5. Art Competitions
SEMESTER-III
COURSE 5: INTRODUCTION TO 3D

1. Learning Outcomes: Students after successful completion of this course will be able to:

   Use these tools to build complex objects then learn the basic 3D rendering tools and techniques including camera settings. Expose to all relevant aspects of CG creating with 3D Software.

2. Syllabus:

   UNIT I

   Introduction to the interface of Maya, Menu set, Main Menu Bar, Panel Menu, The Channel Box and Layer Editor, Shelf, Hotkeys, Viewport, Attribute Editor, Hot Box, Setting and Preferences, New, Set Project, About Polygons, Creating Polygon primitives, Cameras. Edit Selections: Selection, Move, Scale, Rotate, Lasso tools - Creating New Shelf, Duplicating objects, Pivot points, Snapping, Outline.

   UNIT II


   UNIT III


   UNIT IV

   Lighting, Working with Maya Lights 1-Point, Direct, Spot, Working with Maya Lights 2-Ambient, Area and Volume, Direct Illumination-Creating and Illuminating a Stage Show, Three Point Lighting and Exterior Lighting, Cast shadows, decay rate, Previewing lighting and shadows creating depth map Shadow, creating ray-traced
UNIT V

Concept of a lighting system and shadows, Creating area light shadows, setting area light visibility, Creating soft shadows with spotlights, Indirect lighting: Setting illumination for interiors, Tuning global illumination, rendering an AVI, Rendering an image sequence. Render layers: introduction, creating, Applying to render layer presets, setting overrides, creating render layer composites, Render Passes: Introduction, compare render passes and render layers, Render quality: anti-aliasing, setting color profiles, diagnosing ray tracing, adjust motion blur.

3. SKILL OUTCOMES: Students after successful completion of this course will be able to:
   - Understand the virtual 3D space and how to build objects
   - Create objects using primitive shapes and sub patch geometry
   - Analyze the importance of file backup and management (projects setup)

Evaluate the projects and assignments developed/prepared by the students.
4. **Practical Syllabus:**

   1. Create any Model some objects such as chairs, tables, fruits, utensils
   2. Create any Model instruments, tools
   3. Create any Model of Cars or Bike,
   4. Create any model of the male or female character.
   5. Create any Model of any animal.
   6. Create any Model of any birds, fishes, and worms.
   7. Apply basic material and shader types & Procedurals textures.
   8. Unwrap the models of objects and characters using various projection maps.
   9. Apply texture on various objects and characters.
   10. Create a natural outdoor or indoor scene.

5. **References:**

   1. Digital Modeling Book by William Vaughan
   2. Advanced Maya Texturing and Lighting Book by Lee Lanier

6. **Co-Curricular Activities:**

   - Presentation on Modeling, Texturing Rendering, and popular workflow
   - Demonstrate or Exhibit(museum) developed projects
   - Group discussion on 2D, 2.5D & 3D
   - Study tour or Visit to production house to get knowledge on the 3D pipeline
   - Exhibit on the external and internal models with a team project
SEMESTER-III
COURSE 6: ADVANCED GRAPHIC DESIGN

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:
   1. Print and digital design expertise
   2. Branding and identity design
   3. Professional portfolio development
   4. Collaboration and client communication
   5. Ethical and legal considerations

2. **Syllabus:**

   **UNIT I**
   Introduction of Graphics design – About Photoshop, Getting Started with Photoshop, Working with Basic selection, Working with Images, Layer concepts, Colour correction – Photo retouching

   **UNIT II**
   Painting in Photoshop, Working with the pen tool, Mask effect, Effective Title making, Creating special effects – Creating Web templates, Exporting your work to various formats. Using HDR toning for images, variations, filters and gallery.

   **UNIT III**

   **UNIT IV**
   Vector Art Design principles, Logo/Flier Design, Working with Text, Colour and Graphics and Layout, Handling Page Elements, Multiple Pages, Typography for any digital work like brochures, Pamphlets etc…

   **UNIT V**
   Image compositing, print ads making, Magazine, Adjusting Print Settings, color grading for printing work and vector for digital printing, Title creation for various designs.

3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:
   1. Advanced Image Editing and Manipulation
   2. Collaboration and Communication
   3. Mastery of Design Principles
   4. Will gain knowledge of current trends and best practices in the graphic design industry
4. **Practical Syllabus:**

- Advanced blending modes
- Smart Objects and Smart Filters
- Advanced retouching and healing techniques
- Advanced photo compositing techniques
- Creating realistic photo effects
- Manipulating lighting and shadows
- Color correction and grading techniques
- Advanced typography techniques
- Creating custom type treatments
- Text effects and layer styles
- Designing posters and promotional materials
- Creating branding and identity systems
- Designing magazine spreads and editorial layouts

5. **References:**


6. **Co-Curricular Activities:**

1. Seminars, Group Discussions, Quizzes and Debates etc.

2. Design Competitions

3. Field Trips and Studio Visits

4. Design Exhibitions or Showcases

5. Invited Lectures and Presentations on related topics by field experts/industrial experts.
SEMIESTER-III

COURSE 7: BASICS OF ANIMATION

Theory

Credits: 3

3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding Animation Principles
   2. Familiarity with Animation Techniques
   3. Proficiency in Animation Software
   4. Creation of Basic Animations
   5. Building their portfolio and pursue further studies or a career in animation

2. **Syllabus:**

   **UNIT – I**
   
   History of animation, Science of animation, technology of animation, psychology of animation,

   **UNIT – II**
   
   Principles of animation, Animation theory, squash and stretch, anticipation, Staging, straightahead and pose to pose, follow through and overlapping action, slow-in and slow-out, arcs, secondary action, timing, execution, solid drawing and appeal.

   **UNIT – III**
   
   Types of animation, Traditional animation, 2D vector based animation, 3D computer animation, Motion graphics, Stop motion animation

   **UNIT – IV**
   
   Working with animation workflow, story creation, scripting, scene preparation, locations and characters, props and sets, lighting and sound design for animation

   **UNIT – V**
   
   Using camera for animation, understanding camera structure and lenses, lighting for animation, layout design, working on resolution, frame rate, aperture, focal length,

3. **Skill Outcomes:** Students after successful completion of this course will be able to:

   1. Character Design and Animation
   2. Storytelling and Narrative Skills
   3. Time Management and Organization
   4. Knowledge of Animation Software
SEMESTER-III  
COURSE 7: BASICS OF ANIMATION  
Practical                                                        Credits: 1                                                        2 hrs/week

4. Practical Syllabus:
   - Principles of animation
   - Working on camera
   - Working on lights
   - Working with sound
   - Making stop motion animation

5. References:
   1. "The Animator's Survival Kit" by Richard Williams
   2. "Character Animation Crash Course!" by Eric Goldberg
   3. "Cartoon Animation" by Preston Blair
   4. "Timing for Animation" by Harold Whitaker and John Halas

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Organize animation contests or challenges where students can showcase their skills and creativity
   3. teamwork, collaboration, and communication skills
   4. Organize visits to animation studios, exhibitions, or industry events
   5. Invited Lectures and Presentations on related topics by field experts/industrial experts.
1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   Knowledge and utilize components to create interactivity and manipulate animation using several animation tools and techniques in this course.

2. **Syllabus:**

   **UNIT I**
   
   

   **UNIT II**
   

   **UNIT III**
   
   Filters, Shape Tween, Shape Hint Tween, About Mask, Layer Mask, Ease in and Ease out Animation, Working Frame - by - Frame Animations, Working on Tween Animation, Character creation - Animation - Creating Storyboard, Creating any Cartoon Character, Creating Background Scenes, Using Bone Setup Tool, Lip Movements, Adding Audio to Scene, Publish Movie, Publish Setting.

   **UNIT IV**
   

   **UNIT V**
   
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Understand and apply the symbols, animation keys
2. Analyze the shapes and articulated motions, Navigation menus and interactive movieclips
3. Evaluate the developed project
4. Practical Syllabus:
   1. Creating Web Banners in Adobe Flash
   2. Creating a Logo Animation in Adobe Flash
   3. Creating Frame by Frame animation
   5. Create Lip Sink to Characters
   6. Using filters & Special effects
   7. Create a scene by using Mask layers animation

5. References:
   1. The Animator’s Survival Kit by Richard Williams, Straus & Giroux Pub. (U.S.A)
   2. Flash Professional CC Class Room In a Book - Pearson

6. Co-Curricular Activities:
   - Demonstrate or exhibit the graphics animation and school projects
   - Seminar/workshop on E-Learning and 2D Animation
   - Study tour to visit 2D animation production house
SEMESTER-IV  
COURSE 9:  FUNDAMENTALS OF FILM MAKING

Theory                                                                 Credits: 3                                                                 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding the Language of Film
   2. Proficiency in Technical Skills
   3. Scriptwriting and Storytelling
   4. Cinematography and Camera Techniques
   5. Film Analysis and Critique

2. **Syllabus:**

   **UNIT I**

   The history of Indian cinema and world cinema, the film making fundamentals, what is a role of a film maker, the film industry in India, the art and science of film making, the technology and equipments, introduction to script development: how to write a good script, inspiration to a story, research, commercial storytelling, how to work on a project, time management

   **UNIT II**

   Research material for script development, interesting journals; inspirational music: how to let your mind free, ready to strike ideas when they hit; surf internet; research by studying the time period; characters, customs, fashions, technologies, values of the world, how to make yourself organized, find a quiet place, ambience which will make you inspire, avoid needless distraction, writing is a part of focus, be prepared with note pad; developing a premise: the set is to develop story structure for the movie. Fiction or nonfiction genre format plot type.

   **UNIT III**

   Working with the writer, story structure, preproduction: breaking down the script determining the budget; securing the financing, scouting locations, casting; hiring the crew; securing equipment; scheduling the shoot dates

   **UNIT IV**

   Establish home base where production efforts can be coordinated. resources for the set up; legal consultations, budgeting: choose a business formula; plan; form a company, getting the appropriate quote for equipments, locations, personnel, cast and crew, shape the budget; working with the line producer; tips to keep budget low.

   **UNIT V**

   Lining the script; scene breakdown sheets; determine the number of shooting days; making the daily schedule; finalizing the schedule; production process, introduction to location design, finding location; securing a location community relations; film commissions; during production
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Understanding the film production process
2. Scriptwriting and storytelling
3. Camera operation and cinematography
4. Production design and art direction
SEMESTER-IV
COURSE 9: FUNDAMENTALS OF FILM MAKING

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:
   • Single short film
   • Process film
   • Visual continuity film
   • Observation film
   • Short film (2 to 3 minutes)

5. References:
   1. The filmmaker’s handbook: a comprehensive guide for the digital age (2013 edition) by Steven ascher and Edward pincus

6. Co-Curricular Activities:
   • The teacher can guide students in understanding screenplay structure
   • Assign film analysis projects to students
   • Camera angles, lighting, composition, and other technical aspects of filmmaking
   • Guest lectures and industry visits
   • Film festivals and showcases
SEMESTER-IV
COURSE 10: NUENDO

1. **Learning Outcomes**: Students after successful completion of this course will be able to:
   1. Understanding of Nuendo Interface
   2. will learn how to effectively record and edit audio using Nuendo
   3. Nuendo offers powerful MIDI sequencing capabilities
   4. will learn about the principles and techniques of audio mixing using Nuendo
   5. Post-Production and Sound Design

2. **Syllabus**:

   **UNIT – I**
   
   Introduction to Nuendo, The Getting Started, System requirements and installation, Minimum requirements, hardware installation, setting up system for audio production, hardware and its drivers.

   **UNIT – II**
   
   Recording audio - Creating a new project, Setting up the VST Connections, Level settings and recording, Playback, Recording modes with cycle off, Cycle recording, Stacked recording

   **UNIT – III**
   
   Editing audio - Event operations, Event envelopes, processing audio, recording and editing MIDI, Introduction, Creating an Instrument Track, Browsing sounds, MIDI recording, MIDI playback, recording modes with cycle off, Cycle recording, The Key Editor, The Controller lane

   **UNIT – IV**
   
   Working with loops - Loop Browser, Adding loops, making copies, Insert into Project, external MIDI instruments, setting up MIDI devices, setting up VST connections for external instruments, Monitoring external MIDI instruments, Recording MIDI and external instruments

   **UNIT – V**
   
   Mixing and effects – Introduction, Setting levels, Setting pan, Mute and solo, Adding EQ, Audio effects, About automation, Exporting, Surround production, Surround buses, Setting up a surround mix, Recording in surround, Exporting a surround file.

3. **SKILL OUTCOMES**: Students after successful completion of this course will be able to:
   1. Audio Recording and Editing
   2. MIDI Sequencing and Virtual Instruments
   3. Audio Effects and Processing
   4. Post-production for Film and Video
4. Practical Syllabus:

- Recording audio
- Editing audio
- Recording and editing MIDI
- Working with loops
- Mixing and effects
- Surround production

5. References:

1. "Nuendo Power!" by Robert Guérin
2. "The Mixing Engineer's Handbook" by Bobby Owsinski
3. "Mixing and Mastering with Cubase" by Matthew Loel T. Hepworth
4. Online Courses and Video Tutorials: Platforms like Udemy, LinkedIn Learning, and YouTube offer a wide range of Nuendo courses and video tutorials created by industry professionals

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Invite industry professionals or experienced sound engineers to deliver guest lectures or workshops
3. Peer Learning Sessions
4. Organize visits to professional recording studios or sound production facilities
SEMMESTER-IV
COURSE 11: SCENCE OF SOUND

Theory
Credits: 3
3 hrs/week

1. Learning Outcomes: Students after successful completion of this course will be able to:

1. Understanding the Nature of Sound
2. Explore the fundamental principles of acoustics
3. Sound Production and Perception
4. Sound Measurement and Analysis
5. Problem Solving and Critical Thinking

2. Syllabus:
UNIT – I
Introduction to Sound – Theory of Recording – Fundamentals of Electronic Sound Spectrum and Frequencies – Elements of Recording. Definition and nature of sound; sound and its relevance use and importance in communication

UNIT – II
Units of Sound – Structure of Recording – Types of Formats – True Sound Reproduction – Conversion

UNIT – III
Sources of sound, microphones and their types and uses, assessment of quality of sound

UNIT – IV
Sound engineering techniques, dead air, sound and silence, integration of sound and visual, sound messaging.

UNIT – V
Sound in the era of multimedia – application in the media platforms and formats – soundbytes and AV clips on Internet, SMS and MMS etc.

3. Skill Outcomes: Students after successful completion of this course will be able to:

1. Understanding of the Properties of Sound
2. Ability to Analyze and Measure Sound
3. Familiarity with Sound Waves and Waveforms
4. Understanding of Musical Acoustics
4. Practical Syllabus:

- Studio setup
- Acoustics
- Sound isolation material
- Studio wiring
- DAW
- Mikes & preamps
- Audio interface
- Basics of recording

5. References:


6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Invite professionals from the field of acoustics or sound engineering to deliver guest lectures
3. Conduct hands-on experiments and demonstrations in class to help students visualize and comprehend various sound phenomena
4. Organize workshops where students can actively engage in activities related to sound
SEMESTER-V
COURSE 12: STORY BOARD DESIGN

| Theory | Credits: 3 | 3 hrs/week |

1. **Learning Outcomes**: Students after successful completion of this course will be able to:
   
   1. Understanding the Purpose of Storyboarding
   2. Knowledge of Storytelling Techniques
   3. Mastery of Visual Communication
   4. Collaboration and Communication Skills
   5. Time Management and Deadline Adherence

2. **Syllabus**:

   **UNIT – I**

   Studying colors and color mediums to understand the formal structure of color through analysis of color theory and notation.

   **UNIT – II**

   Experience of color through experiments in various mediums: Poster colors, water colors, Pastels, Acrylic, Color Harmonies: Complementary, Split Complementary, Warm Colors, Cool Colors, Hue, Tint and Shades etc.

   **UNIT - III**

   Sketching: Indoor and outdoor Studies, Landscape in pencil Crayons, Pen and ink, Water Color, Poster colors etc. Introduction to gesture drawings, Quick Figures, 5-minute figure studies.

   **UNIT - IV**

   Story Boarding: To understand the formal structure of story through storyboard drawings, creating storytelling images, working with single images to tell stories and do gag drawings, Structuring a scene, Finding ways to have progression and punctuation in a sequence.

   **UNIT - V**

   Cartoon Character Anatomy: Cartoon Drawing, Proportions, Weight and Balance, Stick figures, Gesture drawing, Expressions.

3. **Skill Outcomes**: Students after successful completion of this course will be able to:

   1. learn how to communicate ideas visually using various techniques such as composition
   2. Sketching and Illustration
   3. learn about composition, color theory, typography, and other elements that contribute to visual aesthetics and readability
   4. Production Process
SEMESTER-V
COURSE 12: STORY BOARD DESIGN

Practical                                                        Credits: 1 2 hrs/week

4. Practical Syllabus:

1. Exploring different types of storyboards (film, animation, advertising)
2. Studying the basic elements of a storyboard (frames, panels, camera angles, composition)
3. Understanding visual communication principles (lines, shapes, colors)
4. Learning to convey emotions and moods through visual elements
5. Practicing different drawing styles and techniques
6. Exploring different camera angles and their effects on storytelling
7. Studying shot composition techniques (rule of thirds, leading lines)
8. Analyzing the impact of camera movement on storyboarding
9. Refining and polishing the final storyboard

5 References:

5. The Storyboard Artist: A Guide to Freelancing in Film, TV, and Advertising” by Giuseppe Cristiano

6. Prepare to Board! Creating Story and Characters for Animated Features and Shorts” by Nancy Beiman

7. Storyboarding Essentials: SCAD Creative Essentials by David Harland Rousseau

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Assign students to work in teams on storyboard design projects
3. Arrange visits to relevant places such as animation studios
4. Workshops and Skill-building Sessions
SEMMESTER-V
COURSE 13: CHARACTER ANIMATION

Theory Credits: 3 3 hrs/week

1. Learning Outcomes: Students after successful completion of this course will be able to:

   1. Understanding Animation Principles
   2. Proficiency in 3D Animation Software
   3. Animation Workflow and Pipeline

2. Syllabus:

   **UNIT – I**

   Terminology for 3D Animation: Timeline, Key frame, Frame rate, Poses, Line of action, Working with 3d Rigs: Importance of poses, Creation of poses from REFERENCES images, Importance of familiarizing with the rig’s controllers, Understanding the body mechanics: COG (Center of gravity), Importance of line of action and balance in a pose, what is twinning? Silhouette and its application in creating a perfect pose, Positive and negative spaces

   **UNIT – II**


   **UNIT - III**

   Principles of traditional animation applied to 3D computer animation: Squash and Stretch, Timing, Anticipation, Staging, Follow Through and Overlapping Action, Straight Ahead Action and Pose-to-Pose Action (Keyframes), Slow In and Out, Arcs, Exaggeration, Secondary action, Appeal

   **UNIT - IV**


   **UNIT - V**

   Animation constraints. Animating the body: Body language, Action, Reaction, Push and Pull, Lift, Throw. Discuss the use of video REFERENCESs in animation
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Keyframe Animation
2. Lip Sync and Facial Animation
3. Acting and Performance
4. Scene Composition and Cinematography
5. Portfolio Development
SEMESTER-V
COURSE 13: CHARACTER ANIMATION

Practical                                                        Credits: 1            2 hrs/week

4. **Practical Syllabus:**
   - Camera setting for layout
   - Camera animation
   - Squash and Stretch
   - Working with Trax Editor
   - Throwing an axe
   - Animating flying text
   - Path animation
   - Basic relationships: Constraints
   - Basic relationships: Set – Driven key
   - Working with full body IK animation rig

6. **References:**
   a. *The Storyboard Artist: A Guide to Freelancing in Film, TV, and Advertising* by Giuseppe Cristiano
   b. *Prepare to Board! Creating Story and Characters for Animated Features and Shorts* by Nancy Beiman
   c. *Storyboarding Essentials: SCAD Creative Essentials* by David Harland Rousseau

6. **Co-Curricular Activities:**
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Assign students to work in teams on storyboard design projects
   3. Arrange visits to relevant places such as animation studios
   4. Workshops and Skill-building Sessions
1. Learning Outcomes: Students after successful completion of this course will be able to:
   1. Fundamental understanding of photography
   2. Mastery of camera settings
   3. will develop an eye for composition and learn how to create visually compelling images
   4. will understand the ethical responsibilities of photographers

2. Syllabus:
   UNIT – I
   A comprehensive history of cameras from pinholes to point-and-shoots, understanding of camera history, ending with an analysis of the options available to you today. The two essential elements in any photograph workflow as we explore camera function via lenses and filters. camera and lens combination options, diaphragm and aperture, then move on to master f-stops and focal strength.

   UNIT – II
   how to use your camera, beginning with a comprehensive review of your camera’s viewing system, mastering techniques for adjusting both depth of field and shutter speed. Understanding most effective photographic techniques of visual organization and storytelling.

   UNIT – III
   Image capture, explore the mechanics behind how images are recorded digitally, including a brief bit of context regarding how they’re captured on actual film. Understanding digital image sensors and will begin to additionally understand the intricacies of film exposure as well.

   UNIT – IV
   Esthetically pleasing exposure. The role your equipment plays in exposure determination then move on to master the 5 basic exposure modes as we continue to help you achieve that perfect, well-lit shot. Workflow and image editing, workflow and image editing in post-production, the phase of work that begins with the camera and the capture of images in raw, jpeg or tiff formats.

   UNIT – V
   Using natural and available light, working with both natural and artificial light, learning how to use daily basis light through the eyes of an ever-diligent photographer. Examining the various types of flash units and how they work, using appropriate flash lighting to its best advantage. From pop-up flash to wireless, working on the perfect artificial lighting scenario to capture whatever mood you’re hoping to achieve in your future shots.
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. principles of composition and how to effectively frame their subjects
2. Exposure and Lighting
3. understand how to adjust white balance settings to achieve accurate and desired colors in different lighting conditions
4. learn to see photographic opportunities in their surroundings
4. **Practical Syllabus:**
   - Portrait shoot
   - Experimentation with shutter speed
   - Experimentation with appreture
   - Different light (day light, flash light, night light)
   - Experimentation with iso

5. **References:**
   1. Understanding Exposure, 3rd Edition: How to Shoot Great Photographs with Any Camera by Bryan Peterson
   5. The Photographer’s Eye: Composition and Design for Better Digital Photos by Michael Freeman

6. **Co-Curricular Activities:**
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Organize group outings to interesting locations where students can practice their photography skills under the guidance of the teacher
   3. Hold regular photography contests or challenges within the class
   4. Photography exhibitions
   5. Invited Lectures and Presentations on related topics by field experts/industrial experts.
SEMESTER-V
COURSE 14: AV PRODUCTION

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:
   1. Knowledge of AV Equipment
   2. Proficiency in using editing software to assemble and edit audio and video content
   3. Scriptwriting and Storytelling
   4. Production Techniques
   5. Collaboration and Teamwork

2. **Syllabus:**

   **UNIT – I**

   **UNIT – II**

   **UNIT – III**

   **UNIT – IV**

   **UNIT – V**
3. SKILL OUTCOMES: Students after successful completion of this course will be able to:

1. Understanding AV Production Principles
2. operate different types of cameras effectively, including DSLR cameras, camcorders, and digital cinema cameras
3. Audio Recording and Editing
4. understand the editing workflow, including importing footage, organizing media, trimming, transitions, adding effects, and exporting the final product
4. Practical Syllabus:

- Introduction to audio and video equipment.
- Basic camera operations and settings.
- Introduction to audio recording techniques.
- Camera techniques and shot composition.
- Lighting principles and techniques.
- Directing talent and managing the production process.

5. References:

   b. The Complete Guide to Film and Digital Production: The People and The Process" by Lorene Wales:
   c. Video Production Handbook" by Gerald Millerson and Jim Owens

6. Co-Curricular Activities:

   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Film screenings and analysis
   3. Guest lectures and workshops
   4. Field trips and location shoots
1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding of AV Production Processes.
   2. Visual and Aesthetic Principles
   3. gain knowledge and skills in audio production, including recording techniques, voice-over narration, sound design, and mixing
   4. understand copyright laws, licensing requirements, and ethical considerations related to AV content creation
   5. Audience Engagement and Distribution

2. **Syllabus:**

   **UNIT – I**

   Video Pre-Production Process: Pre-production, Shooting and post-production, white balance, Aperture, Shutter speed, and focus in a video camera to optimize the picture quality in video.

   **UNIT – II**

   utilize different shot types including the wide shot, establishing shot, long shot, medium shot, close up, point-of-view, and over-the-shoulder.

   **UNIT - III**


   **UNIT - IV**

   Types of Cameras: HD Cameras, Basics of Film Camera, Difference between Film Camera and Digital Camera, DSLR and HDSLR Cameras, Lighting, Psychology of light, Visual Environment, Directional Effect of Light, Lighting design.

   **UNIT - V**

   Introduction to Adobe Premiere: Introduction and history of evolution of the specialized stream called Editing. User Interface, Basic Editing knowledge.
3. SKILL OUTCOMES: Students after successful completion of this course will be able to:

1. story structures, character development, and effective storytelling techniques specific to the audio-visual medium
2. create visually appealing videos, ensuring proper framing, lighting, and audio quality
3. visual design principles and how to apply them to audio-visual content
4. Post-production and Editing
4. Practical Syllabus:

1. Overview of camera equipment, lighting, and audio devices
2. Setting up your recording environment
3. Techniques for capturing high-quality audio and video footage
4. Conducting interviews and managing on-camera talent
5. Managing multiple camera angles and shots
6. Introduction to video editing software (e.g., Adobe Premiere Pro)
7. Basic video editing techniques (cutting, trimming, transitions)
8. Enhancing audio quality (cleaning up noise, adding music and sound effects)
9. Adding graphics, titles, and subtitles

5. References:

1. In the Blink of an Eye: A Perspective on Film Editing" by Walter Murch
2. YouTube: An Insider's Guide to Climbing the Charts" by Alan Lastufka and Michael W. Dean

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Film screenings and analysis
3. Guest lectures and workshops
SEMESTER-V
COURSE 15: 3D ANIMATION

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes**: Students after successful completion of this course will be able to:
   
   1. Understanding of 3D Animation Principles
   2. Proficiency in 3D Animation Software
   3. Modeling and Texturing Skills
   4. Collaboration and Communication
   5. Animation projects that showcases their skills and creativity

2. **Syllabus**:

   **UNIT – I**

   Layout Design – working on principals of animation – Camera settings in Maya - Setting up Scene for rendering. & Rendering concept

   **UNIT – II**

   Basic animation – Animation types – Key frame Animation – understanding Animation Work Flow

   **UNIT - III**

   Nonlinear Animation: Introduction to Nonlinear Animation – Understanding Trax editor – Creating poses – working with poses - Creating clips – working with clips – Modifying clips – Blending clips

   **UNIT - IV**

   Working on: squash and stretch and timing, Staging and exaggeration, Follow through understand the fluid movement of cloth and hair, Mechanics. Effect of forces and weight, working on acting basics. Mastering emotions

   **UNIT - V**

3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Proficiency in 3D Modeling
2. Rigging and Character Animation
3. Lighting and Rendering
4. Portfolio Development
4. Practical Syllabus:

1. Creating and manipulating objects
2. Working with the timeline
3. Key frame animation
4. Understanding the animation timeline
5. Animation curves and tangents
6. Using the Graph Editor for fine-tuning animation

References:

* Disney Animation: The Illusion of Life”, Ollie Johnson & Frank Thomas (1995)
* The Animator’s Survival Kit”. Richard Williams, Faber & Faber, (2002)
* Animating with Maya: 3D Animation and Visual Effects for Film and Video” by Holman Wang

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Workshops and Demonstrations
3. Assign group projects that require students to work together in teams
4. Competitions and Showcases
SEMMESTER-VII
COURSE 16: ADVANCED CHARACTER ANIMATION

Theory: 3 hrs/week
Credits: 3

1. Learning Outcomes: Students after successful completion of this course will be able to:
   1. Understanding Animation Principles.
   2. Proficiency in 3D Animation Software.
   3. Animation Workflow and Pipeline.

2. Syllabus:

   UNIT – I


UNIT – II


UNIT - III


UNIT - IV

Intermediat animation and timing techniques – Building stronger poses and timing – review of animation curve editing tools and techniques – working with motion curves, keys and tangents - working on graph editor, trax editor and dope sheet.

UNIT - V

Introduction to motion capture – working on motion capture files – Cartoon animation – snappy animation – realistic animation.

3. Skill Outcomes: Students after successful completion of this course will be able to:
   1. Keyframe Animation.
   2. Lip Sync and Facial Animation.
   3. Acting and Performance.
   4. Scene Composition and Cinematography.
   5. Portfolio Development.
SEMESTER-VII
COURSE 16: ADVANCED CHARACTER ANIMATION

Practical Credit: 1 2 hrs/week

4. Practical Syllabus:
   - Layout scene setup and camera animation
   - Walk cycle
   - Run cycle
   - White and Jump

5. References:
   a. Animating with Maya: Advanced Techniques" by Timothy Albee
   b. Learning Autodesk Maya 2022: A Comprehensive Guide to Character Animation and Rigging" by Dariush Derakhshani and Jarrett King

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Assign students to work in teams on storyboard design projects
   3. Arrange visits to relevant places such as animation studios
   4. Workshops and Skill-building Sessions
1. **Learning Outcomes:** Students after successful completion of this course will be able to:
   
   1. Understanding Live Integration pipeline
   2. Proficiency in Live integration Software
   3. Live Integration Workflow

2. **Syllabus:**

   **UNIT – I**


   **UNIT – II**

   Understanding visual effects pipe line - Understand the basic principles of match moving - matching the perspective in a 3D animation program - integrating 2D and 3D - Understand the core principles of photogrammetric - key concepts and procedures involved with 2D tracking - identify and correct problems with 2D tracking.

   **UNIT - III**

   camera calibration - underlying mechanisms involved with calibration – Solve Cameras – working on 2D tracking - understand what a “good” calibration looks like and how to achieve it in a match moving program - Understand the core concepts of camera calibration –Understand the concepts and procedures used in automatic tracking - Working on automatic tracking.

   **UNIT - IV**

   working on cameras and lenses – film gate sizes and lens distortion – basic process of integrating the solution from a match moving program into a 3D scene - adjust the coordinate system - perform final checks of the match move - strategies for delivering scenes

   **UNIT - V**

   using tracking markers - highly recommend to work on green screen - Understand the various aspects of a match mover's job- Matchamation blends techniques from animation and rotoscoping - Demonstrate the techniques that make matchamation, object tracking and geometry tracking difference between object tracking and geometry tracking - Demonstrate alternate ways of using match move data
3. **SKILL OUTCOMES**: Students after successful completion of this course will be able to:

1. Key frame Animation
2. Lip Sync and Facial Animation
3. Acting and Performance
4. Scene Composition and Integration
5. Portfolio Development
4. Practical Syllabus:
   - Moving from 3D to 2D and back again.
   - Evaluating the Footage, Defining the Camera.
   - Adding Rough Geometry and Refining the Camera.
   - Evaluating and Adjusting the Camera, Calibration, and the Optics of Photography.
   - Anatomy of a 2D Track, Track Stationary Objects, Track “True” 3D Positions.
   - Evaluating the 3D Nulls, 3D Space.
   - Tracking Markers for a Green Screen or Blue Screen, Blending Cameras in Maya.

6 References:
   c. Composite a 3D object into video footage with Boujou, Maya and After Effects by Alanmonroig.
   d. The Invisible Art of Camera Tracking by Tim Dobbert

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Assign students to work in teams on storyboard design projects
   3. Arrange visits to relevant places such as animation studios
   4. Workshops and Skill-building Sessions
1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding Facial Expressions
   2. knowledge of the underlying facial anatomy and the role it plays in creating different expressions
   3. Creating Realistic Facial Expressions
   4. Blend Mode Techniques
   5. Artistic Interpretation

2. **Syllabus:**

   **UNIT – I**


   **UNIT – II**

   Hierarchies, Transformations, Scale and Pose. - Naming Conventions - Facial Rigging for Key Frame Animation: Techniques - Facial Rig Mechanics – Facial Rig Controls - Facial Rigging for Key Frame Animation.

   **UNIT - III**


   **UNIT - IV**

   Implemented Muscle Actions – Inner Brow Raiser (both sides) - Outer Brow Raiser (both sides) – Brow Lowerer (both sides) – Eyes Closed (both sides) – Nose Winkler – Upper Lip Raiser (both sides) - Lip Corner Puller (both sides) - Lip Stretcher (both sides) - Lip Corner Depressor (both sides) - Chin Raiser - Lip Tightener - Lip Puckerer.
UNIT - V

Introduction to lip sync - The Lip Sync Process - Determine the Speech Pattern - Analyze the Audible Dialog to Determine Phonemes - Use Timing Table to Set Frames - Getting the Finished Animation - Phoneme Dropping Guidelines - Synchronization Time and Artistic Freedom - Creating Data Structures - Collecting Information – Discussion – Conclusion.

3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Understanding Facial Expressions
2. Facial Analysis and Interpretation
3. Acting and Performance Skills
4. Facial expressions can contribute to the development of emotional intelligence
SEMESTER-VII
COURSE 17: FACIAL EXPRESSIONS & BLEND MODES

PracticalCredits: 12 hrs/week

4. Practical Syllabus:
   - Creating blend shapes for facial animation
   - Know the Importance of Group. Creating Controller’s for the object.
   - Doing Exercises on Spacing and Timing.
   - Follow Through Animation.
   - Anticipation Actions for face expressions. Follow Through and Over Lapping Setting
   - Working on ovals Working on mouth shapes and lip-sync

5References:
   a. The Art of Maya: An Introduction to 3D Computer Graphics (Paperback)
      Autodesk Maya Press
   b. Stop Staring: Facial Modeling and Animation Done Right" by Jason Osipa

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Assign students to work in teams on storyboard design projects
   3. Workshops and Skill-building Sessions
SEMESTER-VII
COURSE 17: SFX & DYNAMICS

Theory Credits: 3 3 hrs/week

1. Learning Outcomes: Students after successful completion of this course will be able to:
   1. Understanding of Dynamics Concepts
   2. Proficiency in Maya Dynamics Tools
   3. create and control dynamic simulations, including setting up particle emitters, defining rigid body properties
   4. Integration with Other Maya Features

2. Syllabus:

   **UNIT – I**

   What is dynamic simulation? Discuss the application of dynamic simulation in animation movies and visual effects, Movement with forces, Different types of forces involved in motion: Applied force, Frictional force, Tension force, Normal force, Air resistance force, Spring force, Gravitational force etc.

   **UNIT – II**

   What is Particle system? Study of Particles: Emitters, Animating particles, Render the particles, Goals, Multiple goals, Particle instancer, nParticle, nParticle collisions, Simulating water using particles, Applying fluid behavior to particles to create ink or dust-like effect

   **UNIT - III**

   Soft and Rigid Bodies: Soft bodies, Rigid bodies, Rigid body constraints, Edit rigid body constraints, Springs, Soft and rigid body limitations, Edit rigid body attributes

   **UNIT - IV**

   Maya nucleus, Introduction to nCloth, nCloth constraint, Introduction to nHair, Introduction to fluid effects: Clouds, Fire, Smoke, creating an ocean etc.

   **UNIT - V**

   Using dynamics simulation in animation movies to simulate cloth, water, fire, ropes etc. Combining digitalplates with live action footage: Final composite using a compositing softwares
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Understanding of Special Effects Principles
2. Proficiency in Maya Dynamics
3. Integration with Other VFX Elements
4. Problem-Solving and Troubleshooting
5. Portfolio Development
4. Practical Syllabus:

- Understanding the different types of simulations (particles, fluids, cloth, rigid bodies)
- Introduction to the Maya Dynamics interface and tools
- Working with particle attributes (size, color, lifespan, etc.)
- Creating fluid containers and emitters
- Controlling fluid behavior with forces and fields
- Setting up cloth objects and constraints
- Creating tearable cloth effects

6 References:

   a. Maya Studio Projects: Dynamics" by Todd Palamar
   b. Mastering Autodesk Maya 2016: Autodesk Official Press by Todd Palamar

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Workshops and Demonstrations
3. Guest Lectures and Industry Experts
4. Study Groups and Peer Learning
1. **Learning Outcomes:** Students after successful completion of this course will be able to:
   1. Understand the fundamentals of lighting in 3D animation
   2. Master the lighting tools and features in Autodesk Maya
   3. Create realistic lighting setups
   4. Understand the importance of composition and cinematography in lighting

2. **Syllabus:**

   **UNIT – I**

   Introduction to Lighting & Rendering, Basic Lighting, 3 point lighting, light types, rendering a frame, rendering activities table, Assigning shading groups to objects
   Creating and texturing shading groups, Opening related windows and editors, using the Shading Group tool

   **UNIT – II**

   Lighting a Scene, How lights work in Maya, Creating lights, Linking lights, Using the Light Linking tool, Light types Ambient lights, Directional lights, Point lights, Spot lights, Common light attributes, Intensity Sample section, Common Attributes, Shadows section

   **UNIT - III**

   Rendering an animation - Animation attributes (Render Globals), Output Extensions, Special Effects (RenderGlobals), Resolution attributes (Render Globals: defaultResolution), Understanding the Shading Group Editor, Creating shading groups, Selecting shading groups, Adding items to a shading group, Removing items from a shading group, Renaming shading groups, Changing the color assignment, Using the Shading Groups Editor

   **UNIT - IV**

   Loading the Connection Editor, Navigating a node network, Making connections, Breaking connections, Connection Editor menu and button options, Using the Relationship Selecting objects and lights, Light linking, Assigning shading groups to objects, Rendering Flags. Selecting objects, textures, and materials, Setting Rendering Flags
UNIT - V
Batch Rendering. Batch rendering from the command line, Batch rendering within Maya Using Image Planes, Creating a camera, Attaching an image plane, Using the Multilister, Using drag and drop, Loading an image, Deleting image planes, Loading a scene in the image plane Image plane attributes, Placement attributes for attached image planes, Placement attributes for fixed image planes.

3. SKILL OUTCOMES: Students after successful completion of this course will be able to:
   1. fundamental lighting principles, such as color theory, light intensity, shadows, and reflections
   2. using Maya's lighting tools and features
   3. analyze a scene and determine the lighting requirements based on the mood, setting, and storytelling needs
   4. Shadow and Reflection Control
   5. Rendering and Optimization
SEMESTER-VII

COURSE 18: LIGHTING FOR ANIMATION

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:

- Lit up the scene for animation
- 3 pont lighting
- Rendering activities
- Render-node swatches
- Single frame rendering & Batch rendering

7 References:

   a. Mastering Autodesk Maya 2018 by Todd Palamar
   b. Maya Lighting and Rendering by Aaron F. Ross

6. Co-Curricular Activities:

   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Organize workshops where students can learn advanced lighting techniques from industry professionals or guest speakers
   3. Assign group projects that require students to work together on lighting scenes or sequences
1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding Rendering Concepts.
   2. Proficiency in Maya Rendering Tools
   3. Shading and Materials

2. **Syllabus:**

   **UNIT – I**
   Overview of the rendering process - Different rendering techniques and algorithms - Understanding the importance of rendering in 3D graphics - Exploring the Maya Render Settings window

   **UNIT – II**
   Configuring render resolution and aspect ratio - Understanding image formats and compression options - Setting up render passes and render layers

   **UNIT - III**
   Overview of Maya's material creation workflow - Understanding different material types (lambert, blinn, etc.) - Working with texture maps (color, bump, specular, etc.) - Types of light sources (point lights, spotlights, area lights, etc.)

   **UNIT - IV**
   Overview of different renderers in Maya (Arnold, Mental Ray, etc.) - Understanding the strengths and limitations of each renderer - Setting up renderers in Maya and configuring render settings

   **UNIT - V**
   Using render layers to isolate different elements in a scene - Setting up render passes for compositing purposes - Configuring render layer and pass settings in Maya

3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

   4. Lighting and Illumination Techniques
   5. Material Creation and Shading
   6. Texturing and UV Mapping
   7. Render Optimization and Workflow
   8. Problem Solving and Troubleshooting
4. Practical Syllabus:

- Understanding the rendering pipeline
- Configuring render settings in Maya
- Understanding image formats and resolutions
- Batch rendering and render queuing
- Image-based lighting and HDRI

5. References:

   a. Introducing Autodesk Maya 2020" by Dariush Derakhshani
   b. Rendering with Maya and Arnold: The Definitive Guide to Rendering with Arnold in Autodesk Maya" by Lee Lanier

6. Co-Curricular Activities:

   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Workshops and Demonstrations
   3. Assigning group projects that involve rendering in Maya
   4. Industry Visits and Guest Lectures
SEMESTER-VII
COURSE 19: DRAWING & DIGITAL ART

Theory Credits: 3 3 hrs/week

1. Learning Outcomes: Students after successful completion of this course
   @ have a very good knowledge of basics of drawing and material handling
   and understanding. @ understand the inner form of human anatomy to get knowledge
   for illustration
   @ gaining the composing knowledge of landscape and cityscape drawing and
   painting. @ create own character design and concept for animation

2. Syllabus:

   UNIT – I

   Drawing basics, material handling and understanding, teaching variety of lines, vertical, horizontal,
diagonal, curved lines, dotted lines, and basic shapes, forms, geometrical shapes and non geometrical
shapes, drawing balance, paper balance, freehand drawings, creating image using combinations of
different lines,

   UNIT – II

   Understanding skeleton forms, head, rib bone, pelvic bone, hand and fingers, legs, Three views of the
head and the skull, The study of different views of skeleton, movement of bones, front, back, side views of
skeleton.

   UNIT - III

   Measurement of anatomy, male and female, head calculation measurement, eye calculation
measurement, different of male anatomy measurement and female measurement, comparing male and
female face measurement horizontal and vertical balance of anatomy

   UNIT - IV

   Introduction of Perspective, importance of Perspective, perspective terminology, horizon line, eye level,
vanishing point, view point, orthogonal line, ground line, picture plane, Types of perspective views,
One point perspective, Two point perspective, Three point perspective, bird's view, worm's view.

   UNIT - V

   Head types, cartoon eyes, cartoon noses, cartoon mouths, cartoon ears, hands and feet, body types and
proportions, developing a cartoon character out of an object, various action poses of a cartoon character,
2D background design, landscape, cityscape and seascape, colorful background design, layer alignment,
creating shots for scene.
3. SKILL OUTCOMES: Students after successful completion of this course will be able to:

5. Understanding basic concept of digital art
6. Create different types of patterns
7. Designing basic cartoon characters
8. Creating storyboards for commercials
4. **Practical Syllabus:**
   - Understanding digital file formats and resolution
   - Fundamentals of digital drawing
   - Utilizing layers and brushes in digital art
   - Understanding color theory and its application in digital art
   - Exploring different painting styles and techniques
   - Incorporating storytelling elements in illustrations

5. **References:**
   1. Digital Art Masters" series by 3DTotal Publishing
   2. The Digital Art Book" by Imagine Publishing

6. **Co-Curricular Activities:**
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Case study of understanding the human anatomy for illustration
   3. Group discussion on the pros and cons of digital art and manual art flexibility and usage of software
1. **Learning Outcomes:** Students after successful completion of this course
@ have a very good knowledge of basics of drawing and material handling
and understanding. @ understand the inner form of human anatomy to get knowledge
for illustration
@ gaining the composing knowledge of landscape and cityscape drawing and
painting. @ create own character design and concept for animation

2. **Syllabus:**

**UNIT – I**

Introduction of Graphics design – About Photoshop, Getting Started with Photoshop, Working with
Basic selection, Working with Images, Layer concepts, Colour correction – Photo retouching

**UNIT – II**

Painting in Photoshop, Working with the pen tool, Mask effect, Effective Title making, Creating special
effects – Creating Web templates, Exporting your work to various formats. Using HDR toning for
images, variations, filters and gallery.

**UNIT - III**

Introduction of Illustrator, Interface of Illustrator, Dynamic Design Tools, Digital Designing works,
Front, page design, Making Clipart, Tracing techniques, Business cards, Banners and posters. Using
shapes and lines to complete digital works.

**UNIT - IV**

Vector Art Design principles, Logo/Flier Design, Working with Text, Colour and Graphics and Layout,
Handling Page Elements, Multiple Pages, Typography for any digital work like brochures, Pamphlets etc

**UNIT - V**

Image compositing, print ads making, Magazine, Adjusting Print Settings, color grading for printing
work and vector for digital printing, Title creation for various designs.
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

9. Understanding basic concept of digital art
10. Create different types of patterns
11. Designing basic cartoon characters
12. Creating storyboards for commercials
4. **Practical Syllabus:**

- Understanding digital file formats and resolution
- Fundamentals of digital drawing
- Utilizing layers and brushes in digital art
- Understanding color theory and its application in digital art
- Exploring different painting styles and techniques
- Incorporating storytelling elements in illustrations

6. **References:**

3. Digital Art Masters" series by 3DTotal Publishing
4. The Digital Art Book" by Imagine Publishing

6. **Co-Curricular Activities:**

1. Seminars, Group Discussions, Quizzes and Debates etc.

5. Case study of understanding the human anatomy for illustration

6. Group discussion on the pros and cons of digital art and manual art flexibility and usage of software
1. **Learning Outcomes**: Students after successful completion of this course
   @ Understanding of Visual Design Principles
   @ Proficiency in Digital Painting Software
   @ Concept Development.
   @ Advanced Compositing Skills

2. **Syllabus**:

   **UNIT – I**

   Introduction about Matte Painting, Understanding the difference between Concept Art and Fantasy Art, thumbnail sketching and ideation, layout sketching by hand drawing, working in software using the Pen Tablet, converting paper to Digital, file format and file size, Aspect Ratio, 2K Resolution.

   **UNIT – II**

   This is unit, student learning about Brush stroke, ruler and grid, Rule of third, gradients, Light, shadow, Layers concept, smudge, blur, Overlays, texture, various shapes and sizes of brushes, working with paint tools, mask and layer adjustments.

   **UNIT - III**

   In this unit covering the concept of Perspective, types of perspective, understanding the significance of vanishing point, Linear Perspective with one point, two points and three points, above eye level, below eye level, Collage techniques, working with atmospheric perspective.

   **UNIT - IV**

   Understanding the colour composition, colour perspective, colour shades by atmosphere lighting, highlight, mid tone, shadow, hue and saturation, creating canvas, working with colour correction, merge by colour tone and proportion.

   **UNIT - V**

   Background making paint material and software layer distribution, Image composting, understanding the Depth of field, Multi-plane set up in composting, matte layers extractions Matching with 3d objects or live action.

3. **SKILL OUTCOMES**: Students after successful completion of this course will be able to:

   1. Understanding Digital Painting Techniques
   2. will develop skills in creating imaginative and detailed concept art that effectively
communicates the desired visual style and atmosphere.

3. Photo manipulation techniques to integrate and blend different elements into their paintings.

4. Problem-Solving and Creative Thinking
4. **Practical Syllabus:**
   - Working on principles of composition, perspective, color theory, and lighting.
   - Familiarization with popular digital art software used for matte painting, such as Adobe Photoshop,
   - Photo Manipulation Techniques
   - Learning the specific techniques used in matte painting
   - Exploring the role of matte painting in visual effects
   - Exploring advanced techniques in digital matte painting, such as matte painting for 3D environments

7. **References:**
   5. The Digital Matte Painting Handbook" by David B. Mattingly
   6. Mastering Digital Matte Painting" by Alp Altiner

6. **Co-Curricular Activities:**
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   5. Case study of understanding the matte painting and its importance
   6. Participate in workshops, and learn from experienced artists.
   7. Group discussion on creative and technical aspects of matte painting
SEMESTER-VII
COURSE 20: 3D SHORT FILM MAKING

Theory.................................. Credits: 3.................................. 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course
   @ Understanding of 3D Animation Techniques
   @ Proficiency in 3D Modeling
   @ Rigging and Character Animation
   @ Lighting and Rendering Techniques

2. **Syllabus:**

   **UNIT – I**

   Introduction to Maya: Familiarize yourself with the Maya interface, navigation, and basic tools.

   **UNIT – II**

   Modeling: Learn the fundamentals of 3D modeling, including creating and manipulating objects, using polygons, NURBS, and subdivision surfaces.

   **UNIT - III**

   Texturing and Shading: Explore techniques for applying textures, creating materials, and using shaders to enhance the visual appearance of your 3D models.

   **UNIT - IV**

   Lighting: Understand different types of lights, their properties, and how to effectively light your scenes to achieve the desired mood and atmosphere.

   **UNIT - V**

   Animation: Dive into the principles of animation and learn how to bring your 3D models to life through keyframing, timing, and motion curves.

3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:
   8. understanding story structure, character development, and effective pacing.
   9. gain skills in generating and refining ideas for your films. This involves creating concept art, storyboards, and mood boards to visualize their vision.
   10. Adding visual effects, titles, and finalizing the output for distribution.
   11. provide insights into the professional practices and standards of the animation industry.
4. Practical Syllabus:

- **Rigging:** Discover the process of rigging, which involves creating a digital skeleton for your 3D characters and setting up controls for their movement.
- **Character Animation:** Apply your animation skills to create compelling performances for your characters, focusing on body mechanics, facial expressions, and storytelling.
- **Effects and Dynamics:** Explore Maya's dynamic simulation capabilities to add realistic physics-based effects, such as fluid simulations, cloth dynamics, and particle systems.
- **Rendering and Compositing:** Learn about rendering settings, different rendering engines, and how to composite your final 3D shots using software like Autodesk Arnold or other rendering plugins.
- **Post-production and Editing:** Understand the post-production process, including editing, sound design, and color grading, to bring your 3D short film together.

8. References:


6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Create a club where students can watch and analyze short films
3. Encourage students to participate in local or national film festivals and competitions.
4. Group discussion on creative and technical aspects of 3D Short film making
MAJOR COURSE: 19 (A) VIDEO EDITING

1. Learning Outcomes: Students after successful completion of this course will be able to:

12. Work on basic principles involved in editing
13. tools and techniques available in standard Non-linear video editing
14. Basic skills in color grading

2. Syllabus:

UNIT – I

Color TV and video recording, Origin of television systems NTSC, PAL, SECAM, History of formats of video - B&C, VHS, SVHS, U-matic, Beta etc. Modern developments - DV.HD Tapeless media HD & LR

UNIT – II

Shooting script and editing script, Cut and shot transition, Match cut, Jump cut, Scene transitions, Editing rushes, Online, Linear AB roll, Logging, Advantages and disadvantages, Editing software, Non-linear softwares. Audible sound, Clapboard synchronization

UNIT - III

Continuous shots, Concept of time and space, Introduction to video editing, Jump cut and editing principles, Time and space concepts

UNIT - IV

Overview of what is meant by “Color Timing”, History of color manipulation from early hand color techniques, three strip, Hazeltine, early telecine color timing, Where we are today: Digital intermediate (DI), Color, Da Vincietc. - 4:4:4/4:2:2 etc. 10bit vs. 8bit, resolution etc. DI, Film vs Video latitude, First hands-on session with color. Controlling specified areas of the image through use of secondaries, Shapes vs keys, Tonal ranges, Tracking

UNIT - V

Color grading, Creating mood for the scene: Tinting footages, Exposure adjustments, Brightness and contrast

3. SKILL OUTCOMES: Students after successful completion of this course will be able to:

15. Analysis Modern developments - DV.HD Tapeless media HD & LR
16. Create Shooting script and editing script
17. Develop time and space concepts
18. Analysis color Timing
19. Create Color grading
SEMESTER-VIII
COURSE 21: VIDEO EDITING

PracticalCredits: 1 2 hrs/week

4. Practical Syllabus:
   - Introduction to Adobe Premiere
   - Basic Editing Techniques
   - Applying Transitions and Effects
   - Color Correction and Grading
   - Text and Graphics
   - Advanced Editing Techniques
   - Exporting and Delivery

8 References:
   b. HD Cinematography: Focal Press
   c. Nonlinear Editing: Bryce Button (Focal Press)

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Assign students various video editing projects that align with the curriculum
   3. Conduct workshops and demonstrations where teachers showcase different video editing techniques and software tools
   4. Organize group projects where students collaborate with their peers and teachers to edit videos collectively
1. **Learning Outcomes:** Students after successful completion of this course will be able to:
   1. Work on Digital Intermediate (DI) softwares
   2. Will be able to work on post production of motion picture films.

2. **Syllabus:**

   **UNIT – I**

   In this unit we teach about Cathode, a ray tube (CRT) system, an electron beam is projected at a phosphor coated envelope, producing a spot of light the size of a single pixel.

   **UNIT – II**

   In this unit, Students explore how the Primary and Secondary color correction affects the whole image intensities of RGB and highlights of the entire frame, with these we teach the advanced techniques of color correction and well established digital painting techniques in the era of digital cinematography.

   **UNIT - III**

   In this unit, students will learn the evolution of digital color correction tools with advanced techniques of using point shapes to isolate color adjustment in the specific area of the image. We also teach color keying to isolate the colors in the image. We teach special training for automation on tracking the image in terms of color to save time in the production process.

   **UNIT - IV**

   In this unit, students will explore the color of Bit Depth with Look Up Table (LUT). We teach about the Color grading is the process of altering and enhancing the color of a motion picture, video image, or still images either electronically, photo, chemically or digitally.

   **UNIT - V**

   In spite of all, after this program students will gain knowledge about the DI importance and the scope of work.

3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:
   1. Understanding the various types of projection and its technology used in theatres
   2. Students explore how the Primary and Secondary color correction affects the whole image intensities of film
   3. Explore the color of Bit Depth with Look Up Table (LUT).
   4. Explore other techniques like rotoscoping and keying methods to enhance the color grading in films.
   5. Understanding the complete methodology of post-production and color grading process.
4. Practical Syllabus:
   - Color temperature and white balance
   - Color grading styles and aesthetics
   - Exploring primary and secondary color correction techniques
   - Working with histograms, waveforms, and vector scopes
   - Correcting skin tones and other common color issues

9 References:

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Film Screening and Analysis
   3. Practical Color Grading Workshops
   4. Guest Lectures and Industry Experts
   5. Film Festival Participation
SEMESTER-VIII  
COURSE 22: AUDIO EDITING

Theory Credits: 3  3 hrs/week

1. Learning Outcomes: Students after successful completion of this course will be able to:
   6. Proficiency in Audio Editing Software
   7. Learn essential techniques for editing audio files
   8. Acquire knowledge and skills related to audio mixing and mastering processes
   9. Skills and knowledge to create a portfolio of audio editing projects that demonstrate proficiency and creativity

2. Syllabus:

   **UNIT – I**
   Physiology of sound, Audible sound spectrum, Creative use of sound, Aesthetic applications, Recognizing realistic sound for artistic fulfillment, Discussion on soundtracks in different films.

   **UNIT – II**
   Different methods of recording sound: Recording sound in controlled situation, Playback, Prerecording, Dubbing, Post synchronization, Voice recording, Microphones for location recording, Microphone for studio recordings

   **UNIT - III**
   Sound design for animation, Historical voice talent in animation, Casting voice talent, Working with voice actors, Recording dialog, Synchronization, The role of music in animation, Functions of SFX in animation, Discussion on soundtracks in different animation films.

   **UNIT - IV**
   Basic audio editing techniques and concepts, Conversion of files from one format to another, mono to stereo conversions, Audio special effects, Audio plug-ins.

   **UNIT - V**
   Introduction to digital audio workstation: Midi and digital sound, Basic mixing techniques, Introduction to mastering, Delivery formats.

3. Skill Outcomes: Students after successful completion of this course will be able to:
   1. Analysis on soundtracks in different films
   2. Develop different methods of recording sound
   3. Create sound design for animation
   4. Analysis basic audio editing techniques and concepts
   5. Analysis digital audio workstation
SEMESTER-VIII
COURSE 22: AUDIO EDITING

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:
   - Introduction to Adobe Premiere
   - Basic Editing Techniques
   - Applying Transitions and Effects
   - Color Correction and Grading
   - Text and Graphics
   - Advanced Editing Techniques
   - Exporting and Delivery

10 References:
   a. Practical recording Techniques: Bartlett, Bruce and Jenny Bartlett
   b. Audio and Video Systems: R. G. Gupta
   c. Acoustics: Mackenzie

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Invite professionals from the audio editing industry to share their experiences
   3. Workshops and Demonstrations
   4. Assign group projects that require students to collaborate on audio editing assignments
SEMESTER-VIII
COURSE 22: VISUAL EFFECTS

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes**: Students after successful completion of this course will be able to:

   1. Understanding of VFX Principles
   2. Proficiency in industry-standard software and tools used in visual effects production
   3. Visual effects challenges and find creative solutions to achieve the desired effects
   4. Learn how to meet deadlines and deliver high-quality work within given constraints.

2. **Syllabus**:

   **UNIT – I**

   Introduction to Visual effects, Difference between visual effects and special effects, Chroma key compositing - Principles of chroma key compositing, Pulling the matte using keyer. Despill operation to avoid spill contamination (hue operation), Garbage mattes to support keying, Colour correction and composite the foreground and background, Chroma shoot, Materials used for chroma screen, Lighting techniques for chromashoot, Shooting the chroma. Advantages of video cameras with little compression (4:2:2,4:4:4) for chroma shoots, motion tracking in chroma screen for camera movements

   **UNIT – II**

   Color correction and color grading: Primary and secondary color correction, Correcting and matching shots, Basic color grading, Colour balancing of elements, Vignettes

   **UNIT - III**

   Rotoscopying - Uses and advantages of rotoscopying, Creating rotos with splines, Hierarchical parent and childroto shapes, Interpolation technique, Keyframerotos, Final inspection, Rotoscope motion blur and semi transparency

   **UNIT - IV**

   Tracking: Motion tracking, Motion stabilization, Mocha tracking, Camera tracking in After Effects, Set extensions, Problems faced during tracking, Time-stretching, time-remapping and time warp effects

   **UNIT - V**

   How to approach and plan a VFX shot? Other VFX applications - Morphing, Adding atmospheres, Crowd replication, Basics of stereo compositing. What is a Vfx breakdown?
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

5. Create motion tracking in chroma screen for camera movements
6. Develop color correction and color grading
7. Analysis advantages of rotoscoping
8. Analysis problems faced during tracking
9. Create a Vfx breakdown
SEMESTER-VIII
COURSE 22: VISUAL EFFECTS

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:

- Basics of Match moving – 2D tracking process
- Pre multiplied and non pre multiplied alpha compositing
- Multipass: Specular pass, Diffuse pass, Occlusion pass, Shadow pass, Reflection pass, Composed different passes
- Image blend modes and color correction techniques
- High Dynamic Range Imagery (HDRI) for photorealistic lighting and reflection mapping
- Import 3D objects from 3D softwares
- Composite 2D elements and 3D elements in 3D composite

11 References:

   a. Compositing Visual Effects: Steve Wright
   b. Digital Compositing for Film and Video: Focal Press
   c. Match moving: The Invisible Art of Camera Tracking: Tim Dobbert
   d. Maya Professional Tips and Techniques: Lee Lanier

6. Co-Curricular Activities:

   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Workshops and Masterclasses
   3. Film Screening and Analysis
   4. Industry Visits and Internships
SEMESTER-VIII
COURSE 23: MOTION GRAPHICS

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding of Motion Graphics Principles
   2. Proficiency in Motion Graphics Software
   3. Design and Animation Skills
   4. Technical Knowledge and Problem-Solving
   5. Professional Portfolio Development

2. **Syllabus:**

   **UNIT – I**

   Intro to Compositing tools - Compositing Pipeline- Orientation/Basics - Compositing Essentials - Intro3D Matte painting- image processing techniques

   **UNIT – II**


   **UNIT - III**

   3D cameras - 3D Compositing techniques - Digital matte painting critique - motion tracking camera - Camera & Planar tracking - using movement to control scene changes - Using Depth of Field in 3D Camera - Motion Track & Composite 3d Models Into Live Action Footage - stabilizing the footage.

   **UNIT - IV**

   2D tracking - 3D calibration - automatic tracking - interactive tracking - camera setting formatchmoving - setfitting - matchamation - tracking mattes - refining real time

   **UNIT - V**

   Intro to rendering Tolls - Final gathering of all items - rendering Formats for 2D and 3d - Animating Maps - Working on Audio - Rendering Techniques- Render queue, Advanced rendering, Pre renderingand proxies
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

1. Understand Concept in Compositing and VFX
2. Get well versed knowledge in Rotoscopy
3. Understanding on Camera tracking and its usage
4. Understanding on match Moving Techniques
5. Knowledge of Final Gathering and get final Rendered Output
SEMESTER-VIII
COURSE 23: MOTION GRAPHICS

Practical Credits: 1 2 hrs/week

4. **Practical Syllabus:**
   - Introduction to industry-standard software (e.g., Adobe After Effects, Cinema 4D)
   - Creating smooth and dynamic animations using keyframes
   - Understanding typographic principles for motion graphics
   - Designing visually appealing and engaging text compositions
   - Exploring shape layer properties and techniques
   - Creating seamless transitions and compositing multiple elements
   - Integrating 3D elements into 2D compositions
   - Presenting and sharing the final motion graphics project

**12 References:**
   a. Block, Bruce. The Visual Story. Focal Press
   b. Katz, Steven. Film Directing Shot by Shot. Michael Wiese Productions

6. **Co-Curricular Activities:**
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Workshops and Guest Lectures
   3. Organize portfolio review sessions where students can showcase their work
   4. Assign group projects that require students to collaborate and work together on motion graphics assignments
SEMESTER-VIII  
COURSE 23:  CAMERA TRACKING  
Theory  
Credits: 3  
3 hrs/week  

1. **Learning Outcomes:** Students after successful completion of this course will be able to:
   
   1. Understanding of Camera Tracking Concepts
   2. Proficiency in Camera Tracking Software
   3. Ability to Capture High-Quality Tracking Data
   4. Troubleshooting and Workflow Optimization
   5. Practical Application of Camera Tracking

2. **Syllabus:**

   **UNIT – I**

   What is tracking movement? what are the fundamental steps off cameratracking? what are the different kinds of motion tracking? how to lock an image to another moving image? why was the technique developed? how did the process of tracking start? the 3d tracking tools that became a milestone for the art of tracking.

   **UNIT – II**

   How to use the pointtracker? what is single point tracking? what are the different types point trackers and how they work? when to use 3d tracking? how does the tool work? how does it process the footage? why is it one of the best option in after effects?

   **UNIT - III**

   How to extract the camera motion from the footage? how to use the track panel? how to attach content into a scene containing a solved camera? creating track points to use the attach point.

   **UNIT - IV**

   What is meant by tricky screen replacements? advanced screen replacement in after effects. how does screen replacement work in mocha? how does the 3d tracker work? how to add elements to a 3d track? how to resize or move the target to attach content to different location?

   **UNIT - V**

   How to track elements to background and lighting? how to tweak the materials? how to create text and track to the motion picture? what is multi-pass rendering? what is pre-rendering and compositing? and how to conduct advanced tracking on it. Understanding after effects basics and how does the advance tracking work on it. how to export to after effects? How to adjust in after effects?
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

5. Understanding of Camera Tracking Fundamentals
6. Proficiency in Camera Tracking Software
7. Workflow for Camera Tracking
8. Troubleshooting and Problem Solving
9. Creative Application of Camera Tracking
SEMESTER-VIII

COURSE 23: CAMERA TRACKING

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:
   - Using pin tracking attach the points.
   - Using any software attach the model to the footage.
   - Analyze the given footage and extract the cameramotion.
   - Submit demo reel on camera track

13 References:
   a. Match moving: the invisible art of camera tracking by tim dobbert
   b. Real time camera tracking for augmented reality application by harold wuest
   c. Video tracking: theory and practice by emilio maggio and andrea cavallaro

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Organize a workshop where students can learn the basics of camera tracking
   3. Assign camera tracking projects to students
   4. Invite professionals or experts in the field of camera tracking
1. Learning Outcomes: Students after successful completion of this course will be able to:

1. Understanding of Camera Equipment
2. Composition and Framing
3. Visual Storytelling
4. Technical Proficiency
5. Professional Ethics and Practices

2. Syllabus:

UNIT – I

What is the role of a cinematographer? history of cinematography. what are the basic principles of cinematography? what are the elements of cinematography? what are the abilities and skills a cinematographer should have? what are the different types of motion picture camera? the camera techniques and operations used in cinematography. what is meant by the terms analogue and digital? what is the importance composition, filing the frame and point of view?

UNIT – II

What is composition with and compositional balance? what is meant by rule of thirds and 180 degree rule? what is a shot? what are the types of shots and what are their uses? understanding some basic camera angles. how properly conveyed motion can bring alive a scene. what are the concepts of framing? the important terminologies of the film shooting process.

UNIT - III

What is the importance of visual story-telling in cinematography? how is it used to create different aesthetic effects? what is meant by academy ratio and wide screen ratio? what is anamorphic process? how to identify basic camera moves? what are the different types of camera movements? what is steadicam and static camera? what is panning and zooming shot? what is the use and advantage of tracks and trolley? what is crane shot and when to use? what is tracking shot? what are its advantages and disadvantages?

UNIT - IV

The basic technical knowledge about the usage of the lenses. what are the different types of lenses? what is the use of filters? the importance of selecting proper lenses. what is meant by twin lens reflex and single lens reflex? what are the core concepts of exposure? what is manual exposure? understanding the triangle of exposure. what is depth of field and what are the different types of focuses? the factors that determine the depth of field? what is hyper focal distance? what is exposure metering?
UNIT - V

The quality of lighting required for a shot, what is the direction of the lighting? how to control the lighting in order to get desired result? what is inverse square law of lights? what is meant by conventional, soft, diffused, bounce, hard or creative lighting? the difference between indoor/outdoor and day effect/ night effect? what are the different kinds of lights? how to control light intensity? how to create emotional impact using light? what is a reflector and what is its role?

3. SKILL OUTCOMES: Students after successful completion of this course will be able to:

5. Learn how to effectively use various camera equipment and accessories to capture high-quality visuals.

6. understand the importance of visual elements in enhancing the overall story and creating a compelling cinematic experience

7. lighting setups, and overall aesthetics to create a distinct visual language for projects

8. Finding creative solutions to achieve the desired visual outcomes

9. Working on practical projects and build a portfolio of your cinematography work
SEMESTER-VIII
COURSE 24: CINEMATOGRAPHY

Practical | Credits: 1 | 2 hrs/week

4. Practical Syllabus:

- Take at least 5 shots that convey a visual story.
- Analyze the given video clips
- take 7 shots that describes the whole theme
- Convey a story though a short video.

14 References:

a. filming the fantastic: a guide to visual effects cinematography by mark sawicki
b. Cinematography theory and practice: image making for cinematography by blain brown
c. Reflections: twenty-one cinematographers at work by Benjamin Berger

6. Co-Curricular Activities:

1. Seminars, Group Discussions, Quizzes and Debates etc.
2. Film Screenings and Analysis
3. Conduct practical workshops where students work alongside their teachers to learn various cinematography techniques
SEMESTER-VIII

COURSE 24: ADVANCED COMPOSITING

Theory Credits: 3 3 hrs/week

1. Learning Outcomes: Students after successful completion of this course will be able to:

1. Understanding the Nuke Interface
4. Advanced Node-based Compositing
5. Build a strong portfolio of compositing work that showcases a range of skills and techniques

2. Syllabus:

UNIT – I

Getting started with nuke. what are the different components of the graphic user interface? understanding the use of nodes, the viewer, framecycler. introducing nuke’s keying nodes. how to use huekeyer? what is image based keyer? what is the role of keylight in animation? combining keyer nodes using the tree. how to use the project settings panel? how to set up a high-resolution stereo script? compositing a stereo project. how to render and view stereo trees?

UNIT – II

How to setup 3d scene? moving images with a 3d scene. what is reconcile 3d? how to transform 3d data into 2d data? how to calculate reflection movement using camera tracking? how does 3d tracking work in nuke? loading a pre-generated cameratracker node. how to aligning the scenes? how to create the reflection? building a camera projectionscene. how to tweak the geometry? how to animate the camera? what is meant by tweaking the texture? Using a spherical transform to replace sky. compositing outside the scan line render node.

UNIT - III

What are the safety areas? how to build the gizmo’s tree? how to create a user knobs? how to scripte with a little tcl? how to test the gizmo’ tree- wrapping in groups? manipulating the nuke script in atext editor. how to turn a group into a gizmo? how to use the viewer input process? what are the basics of python scripting? how to create a button with python? how to add a hot key? how to make customization stick with menu?

UNIT - IV

How to work with process trees? how to create a simple process tree? how to merge images? inserting and manipulating nodes in the tree. how to changing properties and render them? what is meant by delving deeper into the merge node? creating animation with keyframes working with channels. how to work with contact sheets? using the bounding box to speed up processing. how to use linking properties with expressions? slapping things together and working on foreground over background.
UNIT - V

How to work with process trees? how to create a simple process tree? how to merge images? inserting and manipulating nodes in the tree. how to changing properties and render them? what is meant by delving deeper into the merge node? creating animation with keyframes introducing rotopaint’s interface. what is meant by the term curve editor? what is split-screening and how to twin it with roto? how to combine paint? how to use roto in animation? what is the use the dope sheet?

3. SKILL OUTCOMES: Students after successful completion of this course will be able to:

4. learn the various tools, features, and workflows within Nuke and how to navigate its interface effectively

5. Rotoscoping skills will be developed to manually create precise mattes for objects and characters

6. adjust tonal values, and enhance the overall look of your composites using various color grading and correction techniques

7. integrating 3D elements into live-action footage or creating realistic camera movements

8. organizing your node tree, utilizing channels and passes effectively, and optimizing render times
SEMESTER-VIII

COURSE 24: ADVANCED COMPOSITING

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:
   
   - Create a simple compositing.
   - Multi layer compositing – minimum 200 frames.
   - Work on real film footages.

5 References:
   
   a. Nuke 101: professional compositing and visual effects by ron ganbar
   b. Digital compositing with nuke by lee lanier
   c. The art and science of digital compositing by ron brinkman

6. Co-Curricular Activities:
   
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Workshops and Demonstrations
   3. Field Trips or Studio Visits
   4. Collaborate with industry partners to provide students with opportunities to work on real-world compositing projects
SEMESTER-VIII
COURSE 25: GREEN SCREEN SHOOTING

Theory                                                        Credits: 3
3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding Green Screen Technology
   2. Equipment and Setup
   3. Troubleshooting and Problem-solving
   4. Creative Applications
   5. Collaboration and Communication Skills

2. **Syllabus:**

   UNIT – I

   what is seamlessvfx? why is it essential to plan the shoot according to visual effect shots? how to plan cost effective shoot? what is pre-visualisation? what is chroma range? what is colour separation overlay? the usage and types of green screen. what is gaffer tape and where is it used? what is travelling matte technique or optical printing? the experimentation of background colours. when was green or blue screen first used? what cgi? what is bayer pattern?

   UNIT – II

   the consideration of colours of the elements while shooting on green screen. what colours should be avoided? when do you intentionally use the same coloured elements? why the selection of green screen paint important? how to build and paint a green screen? the requirement of colour sampling. how to light green screen properly? why is it important to match lighting? how to match lighting and shadows of the fore-ground and background? how to cast or extract shadow?

   UNIT - III

   how to match lighting for outdoor shoots? what is light scattering? what is meant by light spill? why the directions of light should match? why should camera be 'lockedoff' in a position? the importance camera matching and how it should be taken care off. what is camera mapping? matching the depth of field trackers and markers. how does tracker work? what is 2d tracking? how to place tracking markers? what is planer tracking and matte tracking? how to place body and facial trackers?

   UNIT - IV

   what is alpha channel? what is the purpose of rotoscoping in vfx? what are the tools required to begin rotoscoping? how to shoot for match moving? what is inverse match moving? why is essential to match direction. quality and ratio?

   UNIT - V

   what is motion capturing? what is in-shot motion capture? what is motion capture primer? how to create virtual props? how to remove objects? how to create photo-real animals, creatures, digital crowd, fire, water? what is crowd replication what is node-based compositing? what is compositing primer? what is warping and where is it used? what is garbage matting? what is compositing without matte
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

5. Understanding Green Screen Basics
6. how to properly set up the equipment to achieve the best results
7. understand the importance of shooting at the appropriate angle and distance from the green screen to achieve seamless compositing
8. Adjust color grading, apply visual effects, and integrate the subject seamlessly into new backgrounds
9. Gain insights into the overall workflow of a green screen project
SEMESTER-VIII
COURSE 25: GREEN SCREEN SHOOTING

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:
   - eliminate the green screen from the given footage
   - give proper lighting in the given footage
   - Conduct a chroma shoot. (a) plain chroma shoot (b) with tracker marker and (c) with half sets and props

16 References:
   1. the green screen handbook: real-world production techniques by Jeff foster
   2. greenscreen made easy: keying and compositing techniques for indie filmmakers by Jeremy Hanke & Michele Yamazaki

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Organize a scriptwriting competition where students create original scripts for green screen shooting
   3. Host a green screen film festival where students can showcase their final projects or short films created during the course
   4. Invite industry professionals or experts in green screen shooting to give guest lectures or workshops
SEMESTER-VIII
COURSE 25: MATCHMOVING TECHNIQUES

Theory Credits: 3 3 hrs/week

1. **Learning Outcomes:** Students after successful completion of this course will be able to:

   1. Understanding Green Screen Technology
   2. Equipment and Setup
   3. Troubleshooting and Problem-solving
   4. Creative Applications
   5. Collaboration and Communication Skills

2. **Syllabus:**

   **UNIT – I**

   Understanding the importance of Matchmoving for integrating CG elements into live action footage. The movement ensures the angles of 3D rendered output are the same angles of the live footage. Basic application with matchmoving capabilities. Basics of tracking algorithm, basics of motion tracking algorithm.

   **UNIT – II**

   Matchmoving is related with motion tracking or camera solving, rotoscoping and photogrammetry. Template matching, basics of 2D & 3D camera tracking, ground plane determination. Reconstruction. Tracking mattes. Study and making of live footage.

   **UNIT - III**

   Hard body physics, Basic of Camera animation, Matte tracking, Body tracking, Face tracking, Raytracing, Basic motion capture, Green matte painting, Basic of motion capturing. Basic features of placing tracking points based on the footage.

   **UNIT - IV**

   To discover 2D tracking and how to make every track count. Work step by step through each stage calibration. Understand how real cameras work. Explore the match mover’s role on a live action set. To learn the matchamation, match your CG character or object with your live action plate. Learning basic compositing.

   **UNIT - V**

   Learning to track the motion of an object seen in the footage. Apply matchmove data for painting, compositing and lighting. Examine how 3D movies affect match moving. Learn how 3D/stereo movies are made and how it affects matchmovers, advanced matchmoving capabilities and algorithm.
3. **SKILL OUTCOMES:** Students after successful completion of this course will be able to:

5. Understanding the importance of Matchmoving for integrating CG elements into live action footage
6. Matchmoving is related with motion tracking or camera solving, rotoscoping and photogrammetry
7. Basic Camera animation, Matte tracking, Body tracking, Face tracking
8. Compositing and lighting process helps them to know what is really going on in footage
9. how visual effects and compositing process is done in production
SEMESTER-VIII
COURSE 25: MATCHMOVING TECHNIQUES

Practical Credits: 1 2 hrs/week

4. Practical Syllabus:
   - Understanding the role of a matchmover in the production pipeline
   - Camera and Tracking Basics
   - Geometry and Calibration
   - Advanced Tracking Techniques
   - Integration and Matchmoving Workflow

17 References:

6. Co-Curricular Activities:
   1. Seminars, Group Discussions, Quizzes and Debates etc.
   2. Conducting Practical Matchmoving Workshops
   3. Assign students matchmoving projects that require them to track and integrate computer-generated elements into live-action footage
   4. Guest Lectures and Industry Visits