



PSGR Krishnammal College for Women



UGC-certified College of Excellence • Autonomous • Affiliated to Bharathiar University • Accredited with 'A' Grade by NAAC • ISO 9001:2015 Certified • Ranked 10<sup>th</sup> in NIRF2020 by MHRD

# COMMUNITY COLLEGE

**Syllabus for Multimedia and Animation  
(Advanced Diploma level)  
2020-2021**

**Advanced Diploma in Multimedia and Animation**

**1 Year**

## 3D ANIMATION INDUSTRY

**SUBJECT CODE: YM19G09**

**CREDITS: 4**

**TOTAL HOURS: 60**

*Objective: To provide understanding of methods used in 3D animation and Animation Principles.*

### **Unit I (10 hrs)**

Introduction to 3D Animation – 3D Animation movies-3D animation techniques- History of Disney- Modelling digital objects that one can find reference for in the real world – Modelling hard surface and characters for 3D animated digital environments shading objects.

### **Unit II (15 hrs)**

Non-Linear Animation – Motion Path Animation – Graph Editor –Types of Tangents - Trax Editor – Dope Sheet – Action Editor -Using Clusters – UsingDeformers – Key Frame Animation Flow Path Objects – Snap Animation.

### **Unit III (15 hrs)**

Character Animation – Creating Walk Cycle – Creating Run Cycle – Female Walk – Male Walk – Four Leg Character Walk cycle – Four Leg Character Run cycle Lazy Walk –Brisk Walk –Facial Animation –Expressions.

### **Unit IV (10 hrs)**

Squash and Stretch – Anticipation – Staging – Straight ahead and Pose to Pose Animation - Follow through and Overlapping action – Slow out and Slow in – Arcs - Secondary Action- Timing – Exaggeration – Staging – Appeal

### **Unit –V (10 hrs)**

Implementing Principles of Animation to a Character Animation – Blocking key poses–Adding Inbetweens – Extremes - Adding more Details – Adding Squash and stretch – Adding Follow through- Exaggeting the Animation.

### **TEXT BOOK**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Richard Williams	Animators survival kit	Faber and Faber	2001

# FUNDAMENTALS OF RIGGING

**SUBJECT CODE: YM19G10**

**CREDITS: 4**

**TOTAL HOURS:60**

*Objective: To provide a basic understanding of the methods used in Rigging.*

**Unit I (10 hrs)**

Theory and fundamentals of character rigging for computer animation - Learning the basics of the Rigging and animation pipeline for film production

**Unit II (15 hrs)**

Rigging Workflow - Setting up the Character for Rigging – Topology for Rigging – Planning the Rig as per Animation Requirements .

**Unit III (15 hrs)**

Basic Rigging – Creating Bones– Skin weights Painting – Vertex Values in Skin weighting - Creating Bones For Four LegCharacter – Biped Rig – Quadruped Rig – Vehicle Rig – Facial Rig – Controls for Facial Rig

**Unit IV (10 hrs)**

Character Rigging – Creating Ik’s for Character – Creating bones for Character – Facial Rigging - Binding Shape – Binding & Weight for character – Full body IK.

**Unit V (10 hrs)**

Motion Data Processing - History of motion capture - recording actions of human actors, and using that information to animate digital character models in 2D or 3D computer animation.Real-Time Rendering (Scene graph, visibility, and culling). Animation Retargeting into Rigs.

**TEXT BOOK:**

S. No	Author	Title of the book	Publisher	Year & Edition
1.	Alias Wavefront	Rigging Characters for Animation	Alias Wavefront	2002

**REFERENCE BOOKS:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Sham Tickoo Purdue Univ	Mastering Autodesk Maya 2018	Autodesk	2018
2	Heikkila Elisabet	A Guide to Building a 3D Game Character	Wiley publishing	2017

## OCCUPATIONAL HEALTH AND SAFETY

**Subject Code: YM17G11**

**CREDITS: 4**

**TOTAL HOURS: 60**

**Objective:** *To understand the fundamentals of health and safety practices in workplace.*

**UNIT: I** (15 Hrs)

Introduction: Health and safety in workplace-understanding the organizations security policies and procedures-Importance of safe working practices pertaining to own occupations.

**UNIT: II** (10 Hrs)

Government Norms and policies: Illness, Accident, Fires-Evacuation of the premises-Organizations Health and safety knowledge session and drills.

**UNIT: III** (10 Hrs)

Identify safety and health problems in workplace-Security signals-Potential risk in workplace.

**UNIT IV:** (15 Hrs)

Precautionary Measures for personal health and safety in workplace-Opportunities for improving health, safety &Security.

**UNIT V:** (10 Hrs)

Organization Emergency Procedures-Reporting safety hazards-Identify and correct risk: illness-Accidents, Fires and other natural calamity.

### **TEXT BOOK:**

S. NO	Author	Title of the book	Publisher	Year & Edition
1.	Benjamin O Alli	Fundamental Principles of occupational Health and safety	International Labour Organization	2 <sup>nd</sup> Edition, 2008

**REFERENCE BOOK:**

<b>S. NO</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
<b>1.</b>	Jeremy W Stranks	Health and safety at work .An essential Guide for managers	Kogan page Ltd	9 <sup>th</sup> Edition 2010

# OPEN SOURCE SOFTWARE

**SUBJECT CODE: YM19G12**

**CREDITS: 4**  
**TOTAL HOURS: 60**

*Objective: To provide Knowledge about open source softwares.*

**Unit I** **(12hrs)**

Introduction to open source software. Why open source Editing is important – Easy access of Editing Software- List of Open source Softwares.

**Unit II** **(12hrs)**

Using open source software for video editing- Cut, Crop, Trim, Mix the visuals – Color correction – Create meaning for rough cut.

**Unit III** **(12hrs)**

Blender Software – Uses of Blender Software – Animation in Blender - Compositing in Blender – NLA Editor –Blender eevee, 2D in Blender.

**Unit IV** **(12hrs)**

Open Source Game Engines – Unreal – Unity – Workflow in Unreal and Unity – Blender to Unreal – Blender to Unity - Formats of Editing Software – Current Scenario in Editing – NLE & LE softwares.

**Unit V** **(12hrs)**

Export Formats – MOV, AVI and other output formats – Domestic Editing in open Source Software – Export to Tape – CD – DVD – Output Formats in HD – Advantages and disadvantages in using Open source Software.



**TEXT BOOK:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	John M.Blain	Blender Complete Guide Graphics	Blender Foundation	2016

**Refernce Book:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Sam Ockman, Chris DiBona	Open Sources	O'Reilly Media inc.	2012

## **RIGGING AND ANIMATION PRACTICAL - V**

**SUBJECT CODE: YM19P05**

**CREDITS: 4**

**TOTAL HOURS: 60**

1. Creating a bone setup for table lamp. **(4hrs)**
2. Using ik handle tool for the bones of the table lamp. **(4hrs)**
3. Using set driven option for the table lamp movement. **(4hrs)**
4. Creating controls for the table lamp to move. **(4 hrs)**
5. Designing skin bones with the table lamp. **(4hrs)**
6. Animating the table lamp to jump and move. **(4hrs)**
7. Modelling a small character. **(4hrs)**
8. Assigning bones for that character. **(4hrs)**
9. Using ik handle tool for leg and hand bones. **(4hrs)**
10. Using set driven set the values for bones. **(4 hrs)**
11. Assigning controls to the rigged bones. **(4hrs)**
12. Animating a Character throwing an object **(4hrs)**
13. Creating Jump Animation to a Character Rig **(4 hrs)**
14. Creating a walk cycle using a rigged character. **(4hrs)**
15. Applying Principles To Character Animation **(4 hrs)**

## **AFTER EFFECTS PRACTICAL - VI**

**SUBJECT CODE: YM19P06**

**CREDITS: 5**

**TOTAL HOURS: 75**

1. Creating a Parallax Effect on Photos. **(5 hrs)**
2. Designing a text animation. **(5 hrs)**
3. Developing a 3D layer and Camera animation. **(5 hrs)**
4. Designing a stabilized video. **(5 hrs)**
5. Removing a green screen and adding a back ground. **(5 hrs)**
6. Creating Rotoscopy **(5 hrs)**
7. Using tools for motion tracking. **(5 hrs)**
8. Creating a rough footage and using the wire removal option. **(5 hrs)**
9. Designing a motion graphics with basic effects. **(5 hrs)**
10. Creating Double act using Rotoscopy **(5 hrs)**
11. Creating a Distort Effect to Text Layer **(5 hrs)**
12. Creating Light effect to 3D layer **(5 hrs)**
13. Designing a CC particle world effect. **(5 hrs)**
14. Creating a water effect using CC particle world. **(5 hrs)**
15. Placing a Text on a Camera Tracked footage **(5 hrs)**

## **EDITING PRACTICAL - VII**

**SUBJECT CODE:YM19P07**

**CREDITS: 5**

**TOTAL HOURS: 75**

1. Importing Images and Video. **(5hrs)**
2. Designing a rough cut visual. **(5hrs)**
3. Inserting Audio to the visual effects. **(5 hrs)**
4. Creating a Transition Effects to the cuts. **(5 hrs)**
5. Applying Color Correction to Visual **(5 hrs)**
6. Creating Dynamic Effects to the visuals. **(5 hrs)**
7. Designing Key frame Animation. **(5 hrs)**
8. Developing Titles and creating effects. **(5 hrs)**
9. Changing colour visual to black and white. **(5 hrs)**
10. Converting Day light to Night light. **(5 hrs)**
11. Designing Mix Match Audio and Video. **(5 hrs)**
12. Developing and Mixing two different videos and add efx. **(5 hrs)**
13. Creation of Audio Effects using transitions & effects. **(5 hrs)**
14. Designing an End cardRoll Effect **(5 hrs)**
15. Developing and Exporting Video. **(5 hrs)**

# LIGHTS AND CAMERA ANGLES

**SUBJECT CODE:YM19G13**

**CREDITS:4**

**TOTAL HOURS:60**

*Objective: To provide a basic foundation of the methods and techniques of developing an Art.*

**Unit I (12 hrs)**

Creating Uvs- Uv Mapping-Linear Workflow- Specular Map- Bump Map - Shading groups- Materials-Maya Lights- Vray Lights-IES Light- Nodes and attributes- Hypershade

**Unit II (12 hrs)**

Types of lights-Physical Sun and Sky- Vray Image Based Lighting- Usage of techniques for each light linking- Lighting concepts from the real world applied to digital 3D environments - Character Animation Projects – Vray physical Camera Settings – Vray Camera Attributes for animation production..

**Unit III (12 hrs)**

Matching live footage lighting- Light attributes- Light fog- Intensity curves- Shadows- Depth map- Ray traced- Shadow Techniques- Light fog- Trouble- Shooting section for shadow problems.Vray Render Settings.

**Unit IV (12 hrs)**

Introduction to camera angles-Movement of Camera- Crane Shot- Handheld Camera- Steady Shot- Pan, Tilt, Tracking shot-Whip Pan-Working with Chroma-Green/Blue Screen Working with Audio- Capturing Audio while shooting- Recording Audio with HD/SLR Video Camera- Importance of Audio while shooting-Construction of a Shot- Color- Contrast- Deep Focus- Shallow Focus- Depth of Field- Exposure- Racking focus

**Unit V**

**(12hrs)**

Frame Rate- Telephoto shot-Zoom shot- Framing- Angle of Framing- Aspect Ratio- Level of Framing- Canted Framing- Following Shot- Reframing- Point-Of-View shot- Wide angle Lens Scale- Extreme long shot- Long shot-Medium long shot- Medium Close-up- Close-up- Extreme Close-up Space- Deep space- Frontality- Matte shot- Off-screen space- Shallow space.

**TEXT BOOK:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Lee Lanier	Advanced Maya Texturing and Lighting	sybex	2008

**Reference Book:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Joseph V. Mascelli	The Five C's of Cinematography: Motion Picture Filming Techniques	Silman-James Press	1998

# VISUAL EFFECTS TECHNIQUES

**SUBJECT CODE: YM19G14**

**CREDITS:4**

**TOTAL HOURS:60**

*Objective: To provide knowledge on visual effects and designing visual effects.*

## **Unit I**

**(12hrs)**

Visual Effects- Description- Types- Particles – Analysis- Size- Sand Effects – SmokeEffects-Fire Effects – Cloud Effects – Snow Effects - Adobe after Effects -Animation and Compositing.

## **Unit II**

**(12hrs)**

Fluid Effects-Coloring- designing Clouds Background – Designing Fog Effects – Explosion Effects– Fire Effects with flames - Space Effects and designs- Designing ThickSmoke - Motion Graphics - Effects and Preset of After Effects – Rotoscoping.

## **Unit**

**III**

**(12hrs)**

Titling – Matte Removal – Puppet wraps Animation- Designing Paint Effects – Coloring paints- Designing Trees and green effects –Designing Weather and seasons –Effects on seasons- Designing Glass image – Designing Different glass reflection- Designing Glow Effects – Liquid Effects and reflection design.

## **Unit IV**

**(12hrs)**

Particle Instancer Effect– Designing Ncloth effects – Designing Fur Effects-nclothConstrains.

## **Unit V**

**(12hrs)**

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

**TEXT BOOK:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Zoran Perisic	VisualEffects Cinematography	Zoran <i>Publisher</i>	1999

**Reference Book:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Jon Gress	Visual effects and compositing	New Riders	2014



## **EDITING AND DIGITAL COMPOSITION**

**SUBJECT CODE: YM19G15**

**CREDITS: 4**

**TOTAL HOURS: 60**

*Objective: To provide the Advanced level of editing, composition and animation of videos and audios.*

### **Unit I (12hrs)**

Introduction to Video Editing- Composition – Rule of Thirds- Non-Linear Video Editing – Introduction -Basic principles of film language and filmmaking.

### **Unit II (12hrs)**

Color Correction - Color theory - Editing and file formats-Film format and editing equipments - Practice in Digital capturing – Video transitions - Editing of a documentary film - Editing of an advertising film - Editing of short fiction and feature film.

### **Unit III (12hrs)**

Compositing- Layer-based compositing, Node Based Compositing- Blending modes and transparency - key frame-based animation - nested-compositions and the rendering pipeline – Render Passes- issues relating to compositing interlaced media.

### **Unit IV (12hrs)**

Camera Tracking- Placing 3D object in Live Footage– Shadow Pass - Proficiency with Adobe After Effects for animation and compositing - Role of motion graphics in effective information design - Using Photoshop and Illustrator in the After Effects workflow

### **Unit V (12hrs)**

Audio for Media- Introduction to Audio - Editing audio, Cutting, Pasting and merging - Dynamic, and Condenser Mics - Mic positions, recording techniques - audio Music & Narrative – Final shoots, output Formats – Reverb effects - Equalizing

**TEXT BOOK:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Jon Gress	Visual effects and compositing	New Riders.	2014

**REFERENCE BOOK:**

<b>S.No</b>	<b>Author</b>	<b>Title of the book</b>	<b>Publisher</b>	<b>Year &amp; Edition</b>
1.	Ed Pincus	The filmmaker's handbook	Penguin USA	1984

## **ADVANCED VFX PRACTICAL - VIII**

**SUBJECT CODE: YM19P08**

**CREDITS: 7**

**TOTAL HOURS: 105**

1. Creating a fire effect using particles. **(7hrs)**
2. Creating a smoke effect using particles. **(7hrs)**
3. Creation of a firework effect using dynamic effects. **(7hrs)**
4. Developing a lightning effect using dynamic effect. **(7hrs)**
5. Creating a shatter effect using dynamic effect. **(7hrs)**
6. Creating a VFX logo using dynamics. **(7hrs)**
7. Developing a small pond using fluid dynamics. **(7hrs)**
8. Creating a wake effect in the pond. **(7hrs)**
9. Floating an object in the pond. **(7hrs)**
10. Creating an ocean. **(7hrs)**
11. Creating a boat and making it to float on ocean. **(7hrs)**
12. Setting Keyframes for the boat . **(7hrs)**
13. Creating a window curtain using ncloth simulation. **(7hrs)**
14. Animating a flag using nconstraints. **(7hrs)**
15. Creating rain using nparticles. **(7hrs)**

## **3D ANIMATION, TEXTURING AND LIGHTING PRACTICAL - IX**

**SUBJECT CODE: YM19P09**

**CREDITS: 7**

**TOTAL HOURS: 105**

1. Creation bouncing ball using soft and rigid body. **(7 hrs)**
2. Using soft and rigid body to create wall of cards falling apart. **(7 hrs)**
3. Animation using nail constraint. **(7 hrs)**
4. Animation using aim constraint. **(7 hrs)**
5. Animation using constraints. **(7 hrs)**
6. Modelling a Watch and Applying Materials. **(7 hrs)**
7. Modelling a Jewel Design **(7 hrs)**
8. Unwrapping a Complex object and texturing. **(7 hrs)**
9. Creation of a Beverage bottle and applying Vray materials. **(7 hrs)**
10. Creating a mirror. **(7 hrs)**
11. Creating a 3 point Lighting for a Product. **(7 hrs)**
12. Create a directional light and assigning window shadow effects. **(7 hrs)**
13. Assigning morning and night effect to a room. **(7 hrs)**
14. Creation of a physical sun and sky light to a scene. **(7 hrs)**
15. Creating an image based lighting for a product. **(7 hrs)**