

# **Mahakaushal University, Jabalpur (M.P.)**



## **Scheme & Syllabus**

**For**

**B.Sc. with Research/honors**

**Animation & Multimedia**

**2023-24**

**Duration of Course: 4 Years**

**Examination Mode: Semester**

**Examination System: CBCS**

**Mahakaushal University  
Village-Aithakheda, Mukunwara Road, Post- Tilwara Jabalpur (M.P.) 482003**

## Credit Distribution

SEMESTER SYSTEM			Credits Required								
			Sem	MJ	MI	DSE	GEC/ OEC	AECC	SEC SB/VB	FW	Total Credit
Level 5	Certificate	1 <sup>st</sup> Year Pass (Sem I+Sem II)	I	6	6		4	4			<b>20</b>
			II	6	6		4	4			<b>20</b>
Level 6	Diploma	2 <sup>nd</sup> Year Pass (Sem III+Sem IV)	III	6	6		4		4		<b>20</b>
			IV	6	6		4		4		<b>20</b>
Level 7	Degree	3 <sup>rd</sup> Year Pass (Sem V+Sem VI)	V	6		4			4	6	<b>20</b>
			VI	6		8				6	<b>20</b>
Level 8	Honors/ Research	4 <sup>th</sup> Year Pass (Sem VII+Sem VIII)	VII	6	4	4				6	<b>20</b>
			VIII	6	4					10	<b>20</b>
<b>Total Credit</b>				<b>48</b>	<b>32</b>	<b>16</b>	<b>16</b>	<b>8</b>	<b>12</b>	<b>28</b>	<b>160</b>

SEMESTER SYSTEM			Credits Required								
			MJ	MI	DSE	GEC/ OEC	AECC	SEC SB/VB	FW	Total Credit	
Level 5	Certificate	1 <sup>st</sup> Year Pass	12	12		8	8			<b>40</b>	
Level 6	Diploma	2 <sup>nd</sup> Year Pass	12	12		8		8		<b>40</b>	
Level 7	Degree	3 <sup>rd</sup> Year Pass	12		12			4	12	<b>40</b>	
Level 8	Honors/ Research	4 <sup>th</sup> Year Pass	12	8	4				16	<b>40</b>	
<b>Total Credit</b>			<b>48</b>	<b>32</b>	<b>16</b>	<b>16</b>	<b>8</b>	<b>12</b>	<b>28</b>	<b>160</b>	

### For Regular Students Course Duration:

Min. Years for Completing UG Degree	3 Years
Min Years for Completing UG (Hons.) Degree	4 Years
Maximum Years for Completing UG Degree	6 Years
Max Years for Completing UG (Hons.) Degree	8 Years

## Faculty of Fashion & Animation

### Animation & Multimedia

Sem	Major	Minor	DSE	Open Elective/ Generic Elective	AECC	SEC		FW	Total Credits
						Skill Based	Value Based		
1	MJ-I (4+2)	MN-I (4+2)		OEC-I (4)	AECC-I (4)				20
2	MJ-II (4+2)	MN-II (4+2)		OEC-II (4)	AECC-II (4)				20
3	MJ-III (4+2)	MN-III (4+2)		OEC-III (4)		SECSB-I (4)			20
4	MJ-IV (4+2)	MN-IV (4+2)		OEC-IV (4)		SECSB-II (4)			20
5	MJ-V (4+2)		DSE-I (4)				SECVB (4)	Field Work (6)	20
6	MJ-VI (4+2)		DSE-II (4) DSE-III (4)					Internship (6)	20
7	MJ-VII (4+2)	MN-V (4)	DSE-IV (4)					Minor Project (6)	20
8	MJ-VIII (4+2)	MN-VI (4)						Major Research Project (10)	20
<b>Total Credits</b>	<b>48</b>	<b>32</b>	<b>16</b>	<b>16</b>	<b>8</b>	<b>8</b>	<b>4</b>	<b>28</b>	<b>160</b>

## Major/Minor

Course Code	Category	Paper	Credits
BBAA101T	Major	Basics of 3D Modelling & Texturing	4
BBAA101P	Major	Modelling and Texturing Lab	2
BBAA102T	Minor	History of Art & Animation	6
BBAA201T	Major	Animation Filmmaking Techniques	4
BBAA201P	Major	Film Making Lab	2
BBAA202T	Minor	Planning for Animation	4
BBAA202P	Minor	Basic Animation Lab	2
BBAA301T	Major	Visual Effects	4
BBAA301P	Major	Visual Effects Lab	2
BBAA302T	Minor	Classical Animation	4
BBAA302P	Minor	Animation Techniques Lab	2
BBAA401T	Major	Lighting & Rendering	4
BBAA401P	Major	Lighting & Rendering Lab	2
BBAA402T	Minor	Visual Narratives	4
BBAA402P	Minor	2D Digital Animation Lab	2
BBAA501T	Major	Advanced Compositing	4
BBAA501P	Major	Advanced Compositing Lab	2
BBAA601T	Major	Animation Production Concepts	4
BBAA601P	Major	Interactive Animation Techniques Lab	2
BBAA701T	Major	Audio Video Editing	4
BBAA701P	Major	Video Editing and Digital Intermediate Lab	2
BBAA702T	Minor	3D Compositing for Camera	4
BBAA801T	Major	Web Design	4
BBAA801P	Major	Web Design Techniques Lab	2
BBAA802T	Minor	Storytelling Using Multimedia	4

## Department Specific Elective

BBAA101D-I	DSE	Colour Theory	4
BBAA101D-II	DSE	Anatomy Study	4
BBAA102D-I	DSE	Colour Grading	4
BBAA102D-II	DSE	Matte Painting	4
BBAA103D-I	DSE	Basics of Videography	4
BBAA103D-II	DSE	Rigging & Animation	4
BBAA104D-I	DSE	3D Show Reel	4
BBAA104D-II	DSE	VFX for Production	4

### Skill Enhancement Course (Skill Based) (Any Two)

Course Code	Category	Paper	Credits
BBAA101SB	SEC-SB	Graphic Design Techniques	4
BBAA102SB	SEC-SB	Basic Photography	4
BBAA103SB	SEC-SB	User Interface	4
BBAA104SB	SEC-SB	Game Development	4
BBAA105SB	SEC-SB	Architectural Visualization	4

### Open Elective Compulsory Course/ Generic Elective Compulsory Course

Course Code	Category	Paper	Credits
OECC101-I	OEC	Fundamentals of Computer	4
OECC101-II	OEC	Environmental Studies	4
OECC102-I	OEC	Entrepreneurship	4
OECC102-II	OEC	Principle of Management	4
OECC103-I	OEC	Nutrition and Fitness	4
OECC103-II	OEC	Current Concerns in Public Health Nutrition	4
OECC104-I	OEC	Travel and Tourism	4
OECC104-II	OEC	Tourism Operation Software Skills	4

### Ability Enhancement Compulsory Course

Course Code	Category	Paper	Credits
AECC101	AECC	English Language-I	4
AECC102	AECC	English Language-II	4

### Skill Enhancement Course (Value Based) (Any One)

Course Code	Category	Paper	Credits
SECVB101	SEC-VB	Constitution of India	4
SECVB102	SEC-VB	Yoga in Life	4
SECVB103	SEC-VB	National Service Scheme (NSS)	4
SECVB104	SEC-VB	Health & Wellness	4
SECVB105	SEC-VB	Sports	4

## Field Work

<b>Course Code</b>	<b>Category</b>	<b>Paper/Description</b>	<b>Credits</b>
BFWF-501	FW	Field work is the process of observing and collecting data about people, cultures, and natural environments.	6
BFWI-601	FW	The aim of the internship provides a direction to the activities, helps to focus on a result, and to assess the result achieved.	6
BFWP-701	FW	The objective of the minor project is to provide an opportunity for students to undertake short research training outside the classroom to solve real-world issues.	6
BFWR-801	FW	Project objectives describe the desired outcome of a project, which is often a tangible object. It's beneficial to create objectives for your project because creating a specific goal for you helps everyone know what they're supposed to be working toward.	10

# **BBAA101T: Basics of 3D Modelling & Texturing**

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## **Unit-I**

**(12 Lectures)**

**Introduction to set modelling for film, gaming and television.** Set Modelling Overview and Objective: Modelling using Nurbs and Polygons in 3D software. Strategies of Modelling, Tips and Techniques of Modelling using Polygons. overview of Polygon selection and creation, Combining, separating and splitting. Editing polygons with Sculpting surface meshes, Colouring polygons with Blind data. Appendices Polygons menus using Polygons windows and editors with Polygons nodes.

## **Unit-II**

**(8 Lectures)**

**Introduction to in – organic, automotive modelling:** In-organic Modelling such as Solar systems, mountain, stage show background, gaming background. Automotive like car, bus and van with reference pictures. To create a model as it is in the picture.

## **Unit-III**

**(10 Lectures)**

**Basic texturing:** Advanced Materials Using Specialized Material Types. Unwrapping UVs and Using Pelt Mapping and Creating Baked Textures and Normal Maps. Working with Advanced Modelling and Light Tracing with Radiosity, Using Atmospheric and Render Effects. Retracing and mental ray effects with Batch and Network Rendering.

## **Unit-IV**

**(10 Lectures)**

**Texturing the model using UV mapping:** Texturing and Shading, Intro to Hyper shade, UV mapping overview, Mapping UVs, Modelling and Texturing effects, UVs menu reference, UVs windows and editors' reference, UVs tool reference, Nodes and Materials, General Utilities, Image Based mapping, Editing UVs, UV sets, UV unwrapping overview, UV by Photoshop and Corel – Colouring.

## **Unit-V**

**(10 Lectures)**

**Rendering the texture with shading:** Texturing and Shading by Unwrapping the Models. Gaming background Texturing, Digital texturing using Photoshop and Texturing via other 2D tools. Applying Mental Ray Shades to the model and Using Final Gather to Fine Tuning Mental Ray Shades.

## **Reference Books:**

- Kelly L. Murdock, “Kelly L. Murdock's Autodesk 3ds Max 2015 Complete Reference Guide”- Perfect Paperback ,2014.
- Kelly L. Murdock, “Autodesk Maya Basics Guide 2015”, 2014.
- William Vaughan, “Digital Modeling”-, First Edition.2004.



## **BBAA101P: Modelling and Texturing Lab**

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### **PROGRAM-1: Creating a 3D Scene from Primitives:**

- i. Preview Lights and to choose its Colors
- ii. Point light and its properties
- iii. Direction light and its properties
- iv. Spot light, penumbra angle, Barn doors and its settings
- v. Area light and its implementation in real-time environment.

### **PROGRAM-2: Understanding the NURBS Primitives:**

- i. Further introduction to the Maya GUI.
- ii. Polygon components (vertices, edges, faces).
- iii. Creating and editing geometry from primitives.
- iv. Groups and Hierarchies.
- v. Duplication vs. Instancing.

### **PROGRAM-3: Polygon mesh editing tools:**

- i. Additive vs. subtractive Modeling.
- ii. Manually manipulating component.
- iii. Splitting polygons vs. deleting edges.
- iv. Polygon extrusion.

### **PROGRAM-4: Working with Polygon Primitives:**

- i. Creating basic block of interior house.
- ii. Adding detail into interior house.
- iii. Modeling various types of props for interior.
- iv. Creating model of exterior building.
- v. Modeling various types of props for exterior.
- vi. Creating a 3D model of Urban.

### **PROGRAM-5: Materials and Texturing:**

- i. Understanding UV texture space.
- ii. Simple UV projection.
- iii. Introduction to materials and textures.
- iv. Basic lighting.

### **PROGRAM-6: Deformers:**

- i. Non-linear deformers.

- ii. Deformation order.
- iii. Hierarchies for animation

**PROGRAM-7: NURBS and spline-based Modeling:**

- i. Basic NURBS spline-based Modeling concepts.
- ii. NURBS to polygon conversion.
- iii. Boolean Modeling techniques.
- iv. Construction history.
- v. Essential steps to prepare a character model for animation

**PROGRAM-8: Modeling with Deformers:**

- i. Using Lattice.
- ii. Soft modification tool.
- iii. Combining meshes.
- iv. Using bevel plus and bevel edges.
- v. Create an extrusion curve.
- vi. Extrude along a curve.

**PROGRAM-8: Modeling with Deformers:**

- i. Creating a basic exterior of modern car.
- ii. Adding detail to exterior of modern car.
- iii. Modeling a basic interior of modern car.
- iv. Adding detail to interior of modern car.
- v. Unwrapping UV of exterior car using UV Texture editor.
- vi. Unwrapping UV of interior car using UV Texture editor.
- vii. Creating textures using image-editing software.
- viii. Assigning materials to the car mesh.
- ix. Optimizing 3d car model.

**Reference Books:**

- Autodesk Maya Press, “Learning Autodesk Maya 2016: Foundation”, John Wiley & Sons, 2015
- Todd Palamar, “Mastering Autodesk Maya 2016”, 1st edition, sybex, 2015

## **BBAA102T: History of Art & Animation**

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### **Unit-I**

**(14 Lectures)**

Prehistoric visual communications: Paleolithic to the Neolithic period, Lascaux, Altamira, Indian evidences. The earliest writing: Mesopotamian visual identification, Egyptian hieroglyphs. Pictographs to alphabets: North Semitic, Aramaic, Greek Etc. Asian contribution: Chinese calligraphy, Invention of paper and discovery of printing, Invention of movable type. Illuminated manuscripts: Celtic book design, Spanish pictorial expressionism, Gothic manuscripts Etc.

### **Unit-II**

**(16 Lectures)**

Early European block printing, Copperplate engraving Etc. German contribution: German illustrated books, Renaissance graphic design, Typographic movements, Graphic design of the Rococo Era, Contribution of Caslon and Baskerville, Origins of information graphics, The modern style, Giambattista Bodoni.

Twentieth century graphic design, Industrial revolution, Impact of technology upon visual communication, Revolution in printing, Development of photography, Photography as a communication tool, Victorian era graphic design, Development of lithography, Boston school of chromolithography, Victorian typography.

### **Unit-III**

**(14 Lectures)**

Early Attempts for Animation: Early attempts to imitate and reproduce motion, Cave paintings. Persistence of vision and Phi phenomenon, Early animation devices, Initial attempts to make animation, Photography, Motion picture.

### **Unit-IV**

**(13 Lectures)**

Birth of Animation: Experimental animations (Drawn, Stop motion) all over the world, Pioneer animators, Major animation studios.

### **Unit-V**

**(18 Lectures)**

Animation Techniques and Advancements: Animation techniques (Time lapse, stop motion, Cut-out, Silhouette, Cel), Technical advancements (Layer, Cel, Peg bar, combining live action with cartoon characters, Synchronized sound, Technicolor process, Multi-plane camera etc.)

## **Reference Books:**

- Meggs' History of Graphic Design: Philip B. Meggs, Alston W. Purvis
- Graphic Design History: A Critical Guide: Johanna Drucker, Emily McVarish
- Enchanted Drawings: The History of Animation: Charles Solomon
- The World History of Animation: Stephen Cavalier
- Cartoons: One Hundred Years of Cinema Animation: Giannalberto Bendazzi
- Of Mice and Magic: Leonard Maltin
- Before Mickey: The Animated Film, 1898-1928: Donald Crafton
- The Anime Encyclopedia: A Guide to Japanese Animation Since 1917: Lowry

## **BBAA201T: Animation Filmmaking Techniques**

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### **Unit-I**

**(10 Lectures)**

This chapter introduces the fundamentals of the art of animation film making. The students are given a brief knowledge and exposure over the Persistence of vision, Understanding the story, concepts and characterization and basic cell animation techniques which are implied to modern computer animation.

### **Unit-II**

**(8 Lectures)**

This unit discusses about the four basic techniques of animation film making like Hand-drawn animation, Cut-out animation, Model animation or Stop motion animation, Computer animation or computer-generated imagery.

### **Unit-III**

**(12 Lectures)**

This portion cover in brief over all the major types of animation implemented widely in Animation and film making industry such as Traditional animation or Classical 2D animation , Digital 2D animation, Digital 3D animation, Stop-motion animation, Mechanical Animation, Audio-Animatronics and Autonomatronics, Chuckimation, Puppetry Animation, Clay animation or Claymation , Zoetrope Animation, Cut-out animation, Sand Animation, Typography Animation, Paint-on-glass animation, Drawn-on-film animation, Experimental animation, Erasure animation, Pin-screen animation and Flip book Animation.

### **Unit-IV**

**(12 Lectures)**

The Flow of any animation production pipeline starting from Pre-Production which cover the concept, story, concept art, location study, characterization, character bible, concept art, story boarding and acting references through the production procedures which involves layout design, character animation, facial expressions - dope sheet cleanup, adding sound, visual

effects and finally passes through the post production procedures such as adding Background music, Color correction and rendering.

## **Unit-V**

**(8 Lectures)**

Every Student must involve themselves into a group of 4 to 5 members to create the complete record of inputs with their own concept for any type of animated film which must be ready to go for animation production.

### **Reference Books:**

- KitLaybourne, “The Animation Book: A Complete Guide to Animated Filmmaking- from Flip-books to Sound Cartoons to 3-D Animation” Published by, Three Rivers Press, 1998.
- Tony White, “How to Make Animated Films: Tony White’s Complete Master class on the Traditional principles of Animation”, Published by Elsevier 2009.
- Don Hahn, “The Alchemy of Animation: Making an Animated film in the Modern Age” Published, Disney Editions,2008.

## **BBAA201P: Film Making Lab**

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**Program 1: Basics of Video Camera:** Basics of Film Camera; Film Camera Handling; Setting ISO for various Shots; Setting Iris (Aperture) for various Shots; Setting Shutter Speed for various Shots; Setting White & Black Balance for various Shots; Steady-Cam Rig Operation; Slider Operation; Handling CP2 Lenses; Fixing the Video Camera in the Shoulder Rig; Fixing and handling the Follow Focus System; Fixing the Matte Box and LCD Display; Various Film Recording Formats; Using a Track and Trolley.

**Program 2: Concept and Budget:** Concept or Idea Generation; Writing a Documentary; Budgeting for a Short Film.

**Program 3: Script:** Professional Script Writing; Writing an Effective Screenplay; Production Logs and its Types; Choosing the Various Video Filters; Color Correction & Color Grading.

**Program 4: Storyboard:** Storyboarding for Film; Characterization; Crew & Casting; Production Planning.

**Program 5: Dialogue:** Dialogue Writing; Continuity and Hook Up; Shooting Script

**Program 6: Acting:** Location Management; Costume for Actors; Dubbing & Voice Over; Foley and Special Effects; Body language for Actors (rehearsals); Dialogue Delivery

**Program 7: Composition:** Properties & Asset Management; Background Music for the Film; Sound Effects for Film

**Program 8: Lighting:** Location Lighting and Light Continuity; Lighting for various Mood

**Program 9: Editing:** Capturing the rushes using cord and editing software Finish of shooting and take the rushes to editing to sequence it and finalizing the real cuts. Visual Effects Order the sequence according to the story and add effects, transitions, voice overs, subtitles and credit on his own creativity.

**Program 10: Final Presentation:** Film Distribution

## **Reference Books:**

- *Directing: Film Techniques & Aesthetics* 5th Edition by Michael Rabiger and Mick Hurbis-Cherrier (Focal Press (2013)).
- *Cinematography: Theory & Practice: Image Making for Cinematographers and Directors* 2nd Edition by Blain Brown (Focal Press – 2011)



## **BBAA202T: Planning for Animation**

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### **Unit-I**

**(10 Lectures)**

Techniques of animation, Different types of animation, Workflows of different types of animation, Pre-production, Production and Post-production stages, Types of animation, Experimental animations.

### **Unit-II**

**(10 Lectures)**

Developing idea/concept: Story, Basic elements of a story, Types of stories, Creating story ideas, Sources of storyline, Adaption, Character roles, Characterization, Dialogues, Basic structure of a story, Old and modern structures, Concept of acts, Theme, Subplots, Tone, Genre, Writing for different types and groups of audience, Animation script, Animation script Vs. Live action movie script, Shot, Scene, Sequence, Screenplay format, Elements of screenplay format, Montage.

### **Unit-III**

**(8 Lectures)**

Character designing, Features of a character, Types/Kinds of characters, Designing props and assets of character, Creating turnarounds/Character model sheets, Blueprints, Character size comparison charts, Character attitude poses.

### **Unit-IV**

**(12 Lectures)**

Storyboard, Definition, Importance of storyboarding, Different types of storyboards, Storyboard formats, Elements of storyboarding (Design, Colour, Light and Shadow, Perspective, Staging, Composition rules), Concept of panels and its usages, Floor plans, storyboarding movements, Illustrating camera techniques in a storyboard, Visual continuity, Transitions, Digital storyboarding.

### **Unit-V**

**(10 Lectures)**

Creation of Animatic: Scanning storyboard panels and synchronizing it with the sound tracks.

## **Reference Books:**

- The Encyclopedia of Animation Techniques: Richard Taylor
- How to Write for Animation: Jeffrey Scott
- Writing for Animation, Comics and Games: Christy Marx
- How to Draw Animation - Learn the Art of Animation from Character Design to Storyboards and Layouts: Christopher Hart
- The Art of the Storyboard - Storyboarding for Film, TV, and Animation: John Hart
- Exploring Storyboarding: Wendy Tumminello
- Don Bluth's Art of Storyboard: Don Bluth

## **BBAA202P: Basic Animation Lab**

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### **Module 1: Introduction to Experimental Animation**

History (Related to Stop-Motion Short Films), Mix Media Animation, stop – Motion Animation Techniques, Cut -out Animation and Flip Book. Step by Step Procedure for Stop-Motion Films, Case Studies of Stop-Motion films, Contemporary experiments by stop motion film makers.

### **Module 2: Software and Hardware Requirements**

Introduction to Animation Equipment- Light box, Line Test Machine, Punch Machine, Choosing DSLR / Video Camera and lenses, Animation Software, Frame Grabber, Stop-Motion Apps. Few experiments related to stop-motion animation to be done by students.

### **Module 3: Pre- Production Design (Planning & Design)**

Idea – Script- Treatment, Character Design, Prop Design/ Set Design, Storyboard Design, Animatics, Layouts of Character and sets.

### **Module 4: Production Design (Implementation)**

Clay Modelling, Paper Cut, Puppet making, Wire frame or Armatures, building of Sets, Making Properties, Creating Animation, collecting AVIs, Basic Editing on Movie Maker or any other software.

### **Module 5: Assignments**

Use of conventional and unconventional methods to create visual display and motion. Students working in groups/ individual try to find innovative methods of using tools. The following assignments to be submitted by the students: Flip Book, Animation Pre-production Film Designs, Animation Project with different media like; Paper, Clay, Sand, Colours etc. with proper editing.

### **Reference Books:**

- Stop Motion: Craft Skills for Model Animation by Susannah Shaw
- Timing for Animation by Harold Whittaker and John Halas
- The Advanced Art of Stop Motion by Ken A. Priebe

- The Kultz Book of Animation: How to Make Your Own Stop Motion Movies by Nicholas Berger and John Cassiday
- The Animator Inside of You How to Make Stop Motion and Clay Animation Basic Tricks and Tips by Chris Capps
- The Art of Aardman: The Makers of Wallace & Gromit, Chicken Run, and More By Peter Lord, David Sproxton
- Flipping Out: The Art of Flip Book Animation: Learn to illustrate & create your own animated flip books step by step by David Hurtado
- The Animation Bible: A Practical Guide to the Art of Animating from Flipbooks to Flash Paperback by Maureen Furniss

## **BBAA301T: Visual Effects**

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### **Unit-I**

**(8 Lectures)**

**Paint Effects:** Introduction to visor, Designing Paint Effects, colouring 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-II**

**(12 Lectures)**

**Particles and Fields:** Introduction to dynamics and explaining how it uses the rule of physics to simulate natural forces, overview of particles such as dots, streaks, spheres, blobby surfaces and other item, animating particle by using different types of fields, using different types of emitters to create effects such as steam, rain, fire, snow, cloud, smoke and explosion. 2D and 3D grid particle. Animating the particle using goal, To make the particle move with the surface and parent them, setting the color for particle, Instancing the geometry to particles, Instancing strokes from paint effects, Understanding the difference between Hardware render and software render.

### **Unit-III**

**(10 Lectures)**

**Soft Bodies and Rigid Bodies:** Understanding the behavior of soft body and rigid body, Rigid body Constraints of like nail, pin, hinge, barrier and spring. Painting the soft body weights tool, Change or turning off the constrain type, Convert rigid body animation to keys.

### **Unit-IV**

**(10 Lectures)**

**Fluid Effects:** Introduction to Fluid Effects, Coloring the fluids, Designing Clouds Background, Designing Fog Effects , Explosion Effects and Fire Effects with flames, Space Effects and designs, Designing Thick Smoke, Water effects with fluids, Fluid stimulation for special effects.

## **Unit-V**

**(10 Lectures)**

**Special Effects:** Designing Special Effects, designing effects of Fur and shape, Designing Fur Effects, Designing Cloth & Clothes and effects, Fire effects, Lighting, Shatter, Curve flow, Surface flow, Basics of n-dynamics and ncloth, Special effects rendering techniques.

### **Reference Books:**

- Ron Brinkman, “The Art and Science of Digital Compositing: Techniques for Visual Effects, Animation and Motion Graphics”, Morgan Kaufmann Publishers, Second Edition, 2008.
- Steve Wright, “Digital Compositing for Film and Video”, Focal Press, 2010.
- Lee Lanier, “Professional Digital Compositing: Essential Tools and Techniques”, Wiley Publishing Inc., 2010.
- Doug Kelly, “Digital Compositing in Depth”, Carioles Publication, 2003.
- Angie Taylor, “Creative After Effects 5.0”, Focal Press, 2002.

## **BBAA301P: Visual Effects Lab**

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**0 0 2**

### **PROGRAM – 1: Animation and Titling:**

- i. To understand interface of the layer-based software and the basic key framing.
- ii. Basic motion graphic elements
- iii. Animation (every student will create their own animation using transformation tools and apply key frames for 150 frames)
- iv. Title Animation (Student will create titling using given footage by faculty).
- v. Titling (own titling just using texts)

### **PROGRAM – 2: Color Correction, Color grading & Tint:**

- i. To understand color correction options and methods.
- ii. Color Correction (using given footage by faculty).
- iii. Night Conversion (using given footage by faculty).
- iv. Night Conversion (using given footage by faculty).
- v. Night Conversion (student will shoot his/her own footage and use it for day to night conversion)

### **PROGRAM – 3: Basic Compositing:**

- i. Compositing tools and properties.
- ii. Compositing (using given object by faculty) normal with animation.
- iii. Compositing (using given object by faculty) Green Screen.
- iv. Compositing (own footage) normal with animation.
- v. Compositing (own footage) green screen

### **PROGRAM – 4: Rotoscopy:**

- i. Tools and techniques of doing a Rotoscopy.
- ii. Rotoscopy (using given footage by faculty)
- iii. Rotoscopy (using given footage by faculty)
- iv. Doing rotoscoping in own footage 150 frames

### **PROGRAM – 5: Retouch /Paint:**

- i. To understand the paint tools
- ii. Retouch (using given object by faculty)
- iii. Wire removal (using given object by faculty)
- iv. Doing retouch in own footage 150 frames.

**PROGRAM – 6: Tracking:**

- i. To understand the tracking tools.
- ii. Tracking (using given object by faculty)
- iii. Match move (using given object by faculty)
- iv. Stabilization and camera shake (using given object by faculty)
- v. 5.Matchmove with own footage 250-300 frames

**PROGRAM – 7: 3D Compositing:**

- i. To understand 3d compositing techniques.
- ii. Compositing (using given object by faculty) Green Screen.
- iii. Compositing (using given object by faculty)
- iv. Compositing (own footage) normal with animation
- v. Compositing (own footage) green screen.

**PROGRAM – 8: Particle Effects:**

- i. To understand the Effects and particles
- ii. Effects (using given object by faculty) normal with Animation
- iii. Particle Compositing (using given object by faculty) Green Screen.
- iv. Compositing (own footage) green screen using effects.

**PROGRAM – 9: Show reel:**

- i. How to make show reels with break-downs.
- ii. The student will create a mini show reel (3-4min including breakdowns) using the skills he  
learned in this subject.
- iii. learned in this subject.
- iv. The student will submit the final output in cd for screening.
- v. Experts will review each student output and lecture about advanced compositing.

**Reference Books:**

- Mark Christiansen, "Adobe® After Effects® CC Visual Effects and Compositing Studio Techniques" 1st Edition, Peachpit Pearson Education, 2014.
- Jon Gress, "Visual Effects and Compositing" 1st Edition, Published by New Riders, 2015



## **BBAA302T: Classical Animation**

**L T P**  
**4 0 0**

### **Unit-I**

**(8 Lectures)**

2D Animation Overview –Script, Storyboard, Soundtrack, Track Breakdown, Designs, Animatic, Layouts, Dope Sheets and Production Folders, Pencil Tests, Pose Tests, Clean-Up, Ink and Paint, Backgrounds, Checking, Final Shoot/Composite, Final Edit and Dub, The Tools of the Trade, Lightbox, Peg Holes and Peg Bars, Field Sizes.

### **Unit-II**

**(12 Lectures)**

Principles of Animation- Key Poses, Breakdowns, and Inbetweens, Timing, Charts, Slowing-In and Slowing-Out, Extreme Positions, Arcs and Paths of Action, Holds, Emphasis, Anticipation, Weight and Weighted Movement, Flexibility and Fluid Joint Movement, Overlapping Action, Generic Walks, Keys, Passing Position, Inbetweens, Walk Cycles, Personality Walks and Timing, Runs and Run Cycles, Personality Runs and Timing, Silhouetting, Dialogue and Lip Sync, Laughter, Takes, Eyes and Expressions.

### **Unit-III**

**(8 Lectures)**

Animating Step by Step - Key Poses, Attitude and Dynamics, In-betweenes, Adding Mouths, Staging, Camera Angles, Working with Characters, Extreme Action, Clean-Up, Drawing for Animators, Drawing Terminology.

### **Unit-IV**

**(12 Lectures)**

2D Animation Basics - Keys, Inbetweens, and Timing, Charts and In-between Counting, Straight Ahead Animation, Slowing-In and Slowing-Out, Working in Thirds, How to In-between, Paths of Action, Superimpositions, Multiple Superimpositions, Dope (Exposure) Sheets and Production Folders, The Dope Sheet, Frame Lines, Animator's Notes, Audio Breakdown, Animation Layers, Shooting or Camera Instructions, Rules for Dope Sheets, The Production Folder, Special Instructions, Material Used From Other Scenes, Material Used in Other Scenes, Attached Dope Sheet, Flipping and Peg Bars, Using Peg Bars, Top Pegs vs. Bottom Pegs, Bottom Pegs Flipping, Top Pegs Flipping, Whole Scene Flipping.

## **Unit-V**

**(10 Lectures)**

Case studies of classical animation based short films, animation appreciation, International Animation Artists, and Discussion on Animation Film Festivals. Assignment: Students have to create an 11 seconds of classical animation scene using the light box.

### **Reference Books:**

- Animator's Survival Kit – Richard Williams
- Cartoon Animation – Preston Blair
- The Illusion of Life – Frank Thomas & Olie Johnstan
- Chuck Amuck! and Chuck Reduces by Charles M. (Chuck) Jones
- Animation: Pencil to Pixel by Tony White
- Timing for Animation by Harold Whitaker
- The Animation Book: A Complete Guide to Animated Filmmaking--From Flip Books to Sound Cartoons to 3- D Animation by Kit Laybourne

## **BBAA302P: Animation Techniques Lab**

**L T P**  
**0 0 2**

### **Practical:**

- 1) Bouncing Ball Animation
- 2) Pendulum Animation
- 3) Bird Flight Animation
- 4) Jump Animation
- 5) Walk Cycle in Side View
- 6) Run Cycle in Side View
- 7) Perspective Walk
- 8) Front Walk
- 9)  $\frac{3}{4}$  Walk
- 10) Double Bounce Walk
- 11) Skipping
- 12) Head Turn Animation
- 13) Animal Walk
- 14) Weight Animation
- 15) Effects Animation: Flames and Smoke
- 16) Layout Design & Background Painting

### **Reference Books:**

- Muybridge's Animals in Motion by Eadweard Muybridge
- Muybridge's Human Figure in Motion by Eadweard Muybridge
- Animator's Survival Kit – Richard Williams
- Cartoon Animation – Preston Blair
- The Illusion of Life – Frank Thomas & Olie Johnstan
- Cartoon Animation – Preston Blair

## **BBAA401T: Lighting & Rendering**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Understanding The Basic of Lighting:** Understanding the Art of Lighting. Understanding the color and composition, Understanding Lighting with the basic of Color and composition. 3d Lighting, Omni, spot light, direct light. Introducing Modifiers and Using the Modifier Stack. Drawing and Editing 2D Splines and Shapes - Modeling with Polygon

### **Unit-II**

**(10 Lectures)**

**Knowing the Different Types of Lighting and Object Transforming:** Applying the Correct Light for the project. Linking and Unlinking the Lights Using Light Fog and light Glow. Environment and Volume Fog, Lighting an Interior with sunlight. Creating and Editing Primitive Objects and Selecting Objects. Setting Object Properties, Using Layers and the Scene Explorer and Transforming Objects. Adjusting Pivoting and Aligning and Snapping, Cloning Objects and Creating Object Arrays.

### **Unit-III**

**(10 Lectures)**

**Other Type of Lights Adjustment for Rigging:** Preparing for Successful Light rigs - 1-2-3 Light Rig. Interior Light set and Exterior Light Set. Environment Light Set and Layered Based Light set. Working with the Schematic View, Using Animation Layers and the Motion Mixer to Understanding Rigging and Working with Bones.

### **Unit-IV**

**(10 Lectures)**

**Retracing With Mental Ray:** Retracing with 3D Software and Mental Ray, Retracing with Mental Ray - Reproducing water Reproducing Glass- Reproducing Marble floor - Working with HDRI

## **Unit-V**

**(10 Lectures)**

**About Illumination and Shaders:** Working with global illumination. Final gather and mental ray shaders, Understanding indirect Illumination. Applying Caustics and Applying Mental Ray Shaders. Using Final Gather and Fine-Tuning Mental Ray Shaders

### **Reference Books:**

- Kelly L. Murdock, “Kelly L. Murdock's Autodesk 3ds Max 2015 Complete Reference Guide”, Perfect Paperback, 2014.
- Todd Palamar “Mastering Autodesk Maya 2016”, Autodesk Official Press, First Edition
- Jeremy Birn, “Digital Lighting and Rendering”, New Riders, 2013.
- Kelly L. Murdock, “Autodesk Maya Basics Guide 2015”, 2014.

## **BBAA401P: Lighting & Rendering Lab**

**L T P**  
**0 0 2**

### **PROGRAM 1: Lighting the 3D model using Basic lighting:**

- i. Module content Preview Lights and to choose its Colors
- ii. Point light and its properties
- iii. Direction light and its properties
- iv. Spot light, penumbra angle, Barn doors and its settings
- v. Area light and its implementation in real-time environment.

### **PROGRAM 2: Various Lighting Techniques:**

- i. Software Lighting Techniques
- ii. Light Intensity and Digital Colors
- iii. Light Linking & Object Linking.

### **PROGRAM 3: Rendering:**

- i. Introduction about Renderer Nodes
- ii. Interior scene lighting using GI renderer - Criteria 1
- iii. Interior scene lighting using GI renderer - Criteria 2

### **PROGRAM 4: Product Lighting & Environment Lighting:**

- i. Three Point Lighting Technique
- ii. Lighting a product using three-point lighting techniques
- iii. Photons and Caustics Lighting Methods
- iv. Global Illumination and Final Gathering
- v. Photons and Caustics Lighting Methods

### **PROGRAM 5: Advanced Rendering materials:**

- i. Advanced Materials for GI rendering
- ii. Light Baking for Games
- iii. Exploring Paint Effects features
- iv. Layer Based Rendering and its Memberships

### **PROGRAM 6: Exterior and IBL Rendering:**

- i. Image Based Lighting for a 3D Object
- ii. Rendering an Exterior using Image based Lighting
- iii. Optimization techniques for lighting the scene.

### **PROGRAM 7: Intro to Multi-pass rendering:**

- i. Creating multiple pass rendering for 3D objects
- ii. Customizing lights, Import and export settings.
- iii. Materials and lighting techniques used for 3D tracking.

**PROGRAM 8: Multi-pass Composition:**

- i. Compositing Multiple pass rendering in to a single image/Video in image editing tool
- ii. Compositing Multiple pass rendering in to a single image/Video in compositing tool
- iii. Lighting a Photo-realistic scene based on a live Reference-Portfolio creation-1
- iv. Lighting a Photo-realistic scene based on a live reference-Portfolio creation-2

**Reference Books:**

- Jeremy Birn , “ Digital Lighting and Rendering ” , 3rd Edition , New Riders , 2013 .
- Lee Lanier , “ Maya Studio Projects Texturing and Lighting ” 1 st Edition, Sybex, 2011.

## **BBAA402T: Visual Narratives**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

Understanding sequential art, Storyboarding examples, Thumbnail examples, animatic examples.

### **Unit-II**

**(10 Lectures)**

Comics and graphic novels, Brief history, Major contributors, Frequently used terms.

### **Unit-III**

**(10 Lectures)**

Narrative exercises, Single page comics, 24-hour comics.

### **Unit-IV**

**(10 Lectures)**

Panel design and camerawork, Understanding distance and cropping, POV examples.

### **Unit-V**

**(10 Lectures)**

Story structure and narrative arc, Essential components of a story, Assignment- Creating a one-page comic, Assignment- Creating a multi-page comic (More than 2 pages).

### **Reference Books:**

- Ken Drawing words and writing pictures – by Jessica abel and Matt madden
- Graphic storytelling and visual narrative – Will eisner



## **BBAA402P: 2D Digital Animation Lab**

**L T P**  
**0 0 2**

### **Practical:**

1. Introduction to Digital Animation
2. Digital Animation Softwares
3. Compare differences between Paperless Animation and Traditional Animation
4. Basic Tools for Digital Animation
5. Use of Camera and Pegs
6. Digital Rough Animation Techniques
7. Working on Characters
8. Working on Digital Backgrounds
9. 2D Digital Rigging
10. Ink & Paint
11. Symbol Based Animation using Library
12. Construct multi-layered scene
13. Working on Sound & Voice Over
14. Compositing for 2D Digital Animation
15. Final Cut

**Assignment**-Student will prepare approx. 15to 20 Seconds of Animation using proper timing, spacing and acting. The situation, action & dialogue would be provided to every student.

### **Reference Books:**

- The Animation Book: A Complete Guide to Animated Film Making- From Flip Books to Sound Cartoons to 3D By Kit Laybourne and John Cane Maker
- Animation Unleashed: 100 Principles Every Animator, Comic Book Writers, Film Makers, Video Artist and Game Developer by Ellen Besen& Bryce Hallett
- Creating Characters with Personality: For Film, TV, Animation, Video Games and Graphics Novels by Tom Ban Croft and Glen Keane
- Producing Animation by Catherine Winder and Zahra Dowlatabadi

- *Creating Animated Cartoons with Character: A Guide to Developing and Producing Your Own Series for TV, the Web, and Short Film* by Joy Murray
- *Animation from Pencils to Pixels: Classical Techniques for the Digital Animator* by Tony White
- *The Animation Book: A Complete Guide to Animated Filmmaking*
- *Adobe Animate CC Classroom in a Book 2018*, release by Pearson (English, Paperback, Russell Chun)

## **BBAA501T: Advanced Compositing**

**L T P**  
**4 0 0**

### **Unit-I**

**(12 Lectures)**

**Rotoscopy & Keying:** In this unit, Students explore the rotoscopy involves creating shapes which are used to isolate or mark elements in footage, such as characters, vehicles, buildings etc. This method of creating selections allows to perform specific operations like color correction, adding additional layers, dynamic effects etc. Rotoscopy is the first step in the process of digital compositing. Students explore keyer techniques which involve Luma key and Chroma key. This topic covers a wide knowledge about the RGB channels and its uses. It's a unique technique teaches the fastest and most accurate way to extract an object. This method is used to perform specific operations like color correction, adding multiple layers, foreground and background compositing, dynamic effects etc.

### **Unit-II**

**(10 Lectures)**

**2D & 3D Tracking:** In this unit, student will explore the tracking the footage. This concept teaches the how to track the live footage in 2D and 3D, it also teaches the techniques involved in this process. This method teaches the student how to track the camera in 2D and 3D layers for compositing. We teach origins of 3D tracking technologies lie in the science of photogrammetry, the scientific method of calculating positions and distances of points referenced in one or more images

### **Unit-III**

**(12 Lectures)**

**Live Action Compositing:** In this unit, Students explore live action compositing techniques. It covers how to composite various different layers into single image. In this session, students will learn at three general areas where CGI elements are composited. First up is straightforward CGI compositing where a CGI object has been created and needs to be composited into the scene. Second, we will take a look at set extension, a rapidly expanding technique in filmmaking. Thirds, we will look at the match move, where separate programs are used to analyze the live action and provide terrain and camera data for the CGI programs.

## **Unit-IV**

**(8 Lectures)**

**Stereoscopy Pipeline and Its Process:** In this Unit, Student will explore the pipeline of stereoscopy. In this session we cover the workflow of stereoscopy which follows the four major departments such as Rotoscopy, Matte Extraction, Clean plate and Stereo conversion process.

## **Unit-V**

**(8 Lectures)**

**Rendering and Output Formats:** This is the stage where we teach about the bit depth of colors and various output formats with aspect ratio. In this session we teach how to put render for broad casting and filming (size differs).

### **Reference Books:**

- Ron Ganbar, “Nuke 101: Professional Compositing and Visual Effects”, Peachpit Press; Second Edition, 2014.
- Steve Wright, “Compositing Visual Effects”, Focal Press; Second Edition, 2011.
- Steve Wright “Digital Compositing for Film and Video”, Focal Press; Third Edition, 2010
- Ron Brinkmann, “The Art and Science of Digital Compositing”, Morgan Kaufmann Publishers In; Second Revised Edition, 2008

## **BBA501P: Advanced Compositing Lab**

**L T P**  
**0 0 2**

### **PROGRAM 1: Working with Nodes:**

- i. Adding and editing nodes.
- ii. Loading images in to the scene.
- iii. Transformations and editing footage settings
- iv. Building node trees and making connections
- v. Merging the nodes to the viewer and editing viewer properties

### **PROGRAM 2: Color Correction and Grading:**

- i. Basic Color correction for the footages.
- ii. Color grading using Grade node.

### **PROGRAM 3: Tracking & Stabilization:**

- i. Tracking: Tracking preferences and viewer tools
- ii. Stabilization using transform, Rotation & Scaling.
- iii. Automatic versus Manual Tracking
- iv. Corner pin 2D for Match moving
- v. Transforming masks with tracking data
- vi. To analyze and fix the jitter in the video

### **PROGRAM 4: Rotoscopy and wire removal:**

- i. Creating Roto for the image and for the video
- ii. Working with channels and RGB
- iii. Working with Stroke and shape list
- iv. Curve editor and Dope sheet for animation

### **PROGRAM 5: Matte Removal:**

- i. Keying techniques – with Keylight
- ii. Keying techniques- with Primatte
- iii. Keying techniques- with ultimate

### **PROGRAM 6: Stereoscopic Effect:**

- i. Loading multiple views in to the scene
- ii. Splitting and merging of footages in the scene
- iii. Usage of Anaglyph to create stereoscopic effect
- iv. Shuffle views, join views and fixing the views

- v. Rendering the stereoscopic scene

#### **PROGRAM 7: 3D Compositing:**

- i. Setting up a 3D scene
- ii. Using 3D viewer
- iii. Setting up the 3D geometry for 3D compositing
- iv. Applying texture and materials for the geometry
- v. Creation of custom camera and light settings in the scene

#### **PROGRAM 8: Live Action Compositing:**

- i. 3D Set Extension using compositing
- ii. Wire removal using the video footage
- iii. Matte removal using the keying techniques
- iv. Integration of 3rd party 3D tools for advance compositing.

#### **PROGRAM 9: Particles & Python Scripting:**

- i. Gizmos and basic python expressions
- ii. Customizing the nodes using python scripts
- iii. Creating custom panels and advance compositing
- iv. Creating particles using emitter
- v. Properties of particles and effects in Python
- vi. Effects: Wind, Turbulence, Gravity
- vii. Particle direction and bounce on the surface
- viii. Expressions to change the flow of particles
- ix. Compositing the particles over the footage

#### **Reference Books:**

- S. Lee Lanier, “Digital Compositing with Nuke”, 1st edition, Focal Press, 2015.
- Steve Wright, “Digital Compositing for Film and Video: Production Workflows and Techniques”, 4th Edition, Routledge press, November 28, 2017

## **BBAA601T: Animation Production Concepts**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Pipeline:** This unit deals with the concept of pipeline and different stages of graphics pipeline. This will start them on the process of working in an environment with other team members.

### **Unit-II**

**(10 Lectures)**

**Interactions:** This unit deals with the interactions between various teams in a project, the significance of communication and an introduction into the approval methodologies.

### **Unit-III**

**(10 Lectures)**

**Dependencies:** This unit deals with the dependencies between the teams in projects varying from simple 2D animations to complex film production in 3D. During this unit, they will know how the risks affect project success and the pitfalls that need to be avoided.

### **Unit-IV**

**(10 Lectures)**

**Artifacts:** This unit deals with the identification of various artifacts in the various production processes in the different types of animation. This will help them organize their work better in order to be an effective project team member.

### **Unit-V**

**(10 Lectures)**

**Process:** This unit deals with the overall process and explains how things should move and what the importance of each of the events is in the process. This also deals with the case study in any one of the production processes.

## **Reference Books:**

- Ranjit Singh, "The Art of Animation Production Management", MacMillan India, First Edition, 2013.
- Williams, R, "The Animator's Survival Kit", Faber and Faber Ltd, First Edition, 2001.
- Kupeeberg, M, "A Guide to Computer Animation", Focal Press, First Edition, 2002.
- Scott, J, "How to write for Animation", The Overlook Press, First Edition, 2002.



## **BBAA601P: Interactive Animation Techniques Lab**

**L T P**  
**0 0 2**

**Program 1: Introduction to animation:** History of animation: Types of animation: case study; Understanding and learning the principles of animation through the view of different animation films: case study

**Program 2: Flip Book:** Drawing simple flip book with minimum 30 pages; Drawing a detail flip book with minimum 30 pages following the principles of animation

**Program 3: 2D Software Interface:** Understanding the 2d software interface; Drawing tools, pen tools and other necessary tools to create any drawing in the frames

**Program 4: Frame by frame animation:** Creating frame by frame animation for a short animation (maximum 10 sec with simple drawing; Creating simple frame by frame animation for a short animation (maximum 20 sec with color drawings and background).

**Program 5: Tween:** Creating simple animation with shape, classic & motion twining; Creating simple animation with shape and classic tween together.

**Program 6: Ball animation:** Drawing the ball with gradient color; Creating key frames for the animation sequence; Creating stretch and squash for the ball animation; Creating timing and motion for the ball animation; Giving tween to the sequence of ball animation; Creating the shadow layer for the ball animation.

**Program 7: Character drawing and creating symbols:** Drawing simple character with pen tool or shape tool; Preparing the character for animation: dividing each body parts into symbol; Creating symbols, types of symbols

**Program 8: Human walk cycle:** Drawing the cycle sheet for a human walk cycle; Creating the key frames for the walk cycle; Giving the tween to the figure with normal walk cycle; Creating four different types of walk cycle (jump, run, tip toe, crawl).

**Program 9: Animal walk cycle:** Drawing cycle sheet for an animal walk cycle; Drawing an animal and dividing the body parts into symbols; Creating the key frames for the walk cycle; Creating four different types of walk cycle (jump, run, tip toe, crawl).

**Program 10: Lip Synchronization:** Knowing the alphabets and its movements; Creating the mouth shapes for each letter and movements of the lips; Creating expression and emotion in character; Synchronizing character mouth shape according to the dialogue.

**Program 11: Creating a short animation film:** Drawing the detail storyboard for the animation film; Drawing the background in layers and symbols; Creating the characters in turn around; Creating the props Creating the scenes with tween and animation; Completing the whole animation film with background music and dialogues.

### **Reference Books:**

- Frank Thomas and Odie Johnson, *The Illusion of Life: Disney Animation*, Disney Editions; Rev Sub edition, 2014
- Williams, R. *The Animator's Survival Kit*. Revised Edition, Faber & Faber, 2011

## **BBAA701T: Audio Video Editing**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Understanding of Film and Video Editing:** Study of different kinds of NLE Editing systems AVID & FCP and file formats, SD & HD Video Formats and study of the using of Editing equipments, cue sheet & Video cutlist reports, Understanding Interfaces, saving project Setting scratch Disc and Loading Bin, Working with different formats and Studying of Editing tools and accessories, Importing Video and Audio sample rates, frame rates, DV/HDV/HD formats. Understanding inserts – overwrite, marking In and Out, Non -Linear Techniques Adding & Deleting, Moving Edits in time line – Cut, Copy, and Paste.

### **Unit-II**

**(10 Lectures)**

**Principles of Film and Video Editing:** Working with Bins Organizing your footages ,viewing clips of rush videos Separation of ok takes and deletion of NG takes Assembly of Rushes in story order & story Board , Basic systems in Video Editing , The shot, The Scene, Sequences , Study of Transitions , Study of optical effects , Study of video effects, Using of bridging shot - Cut away and cutting in action – smooth cut ,Cutting on movement - Inter cutting- Parallel cutting and constructive editing, Montage ,Creative editing ,Real time and Artificial time, rhythm-pace-space, Creative editing. Basic Transitions,visual Effects and Optical effects, Understanding Editing modes in off and on line.

### **Unit-III**

**(10 Lectures)**

**Editing Specialization Exercises:** Editing Decision ,Editing Functions , Combination of timing , Pacing , Rhythm & Tempo, time code Editing Split Edits Drag & Drop Editing ,smooth cut, constructing a lucid continuity , constructing physical continuity , Slow and fast motion actions, change in image size and camera angle, sense of screen direction, , Editors cut, match cut, movement and look, The cut away ,The reverse shot, imaginary compositions, Exciting images, Cumulative effect, Direct contrast and matching Tone. Montage making, Extending & Reducing Clips Rendering setting Effects Applying, Bridging the action.

## Unit-IV

(10 Lectures)

**Basic Audio Tools for Video Editing:** Actual Sound, continuous sound track , Relational Editing , Dialogue counterparts , Editing Dialogue sequence , Natural Rhythm, Adding ambience sound, Effects, Bridging the dialogue , Controlling the volume between the channels ,True and natural presentationist to audio mixing, sweetening, and sound design ,Study of Background music, Voice dubbing, Effects dubbing, synchronous and non-synchronous sounds, using special sounds effect, Re-recording and Mixing and power of sound, sound as a counter point, mechanism of sound in editing of films creating the mixed track, according to Camera movement and Visual Audio Techniques..

## Unit-V

(10 Lectures)

**Colour Correction and Final Delivery:** Harsh cut jerky cut Cause and effect Smooth Continuity Sound edit Dramatic cure punctuation and Amplification, Song Editing, Specific goals, Transition & Sound. Action sequences, Physical conflict, Timing, rate of cutting, problems in editing action sequence, Russian montage, French montage and American montage Montage as a Transitional device Emotional significance Arranging the visuals slow and fast Pleasing Visual Continuity Dissolves, wipes, realistic dialogue.

### Reference Books:

- Ken Dancyger, “The Technique of Film and Video Editing” Focal Press, 2010
- Roy Thompson, Christopher J. Bowen “Grammar of the Edit” Focal Press, 2013
- Bobbie O’Steen , “The Invisible Cut: How Editors Make Movie Magic” Michael Wiese Productions; 1st edition 2009
- Gael Chandler, “Film Editing: Great Cuts Every Filmmaker Should Know”, Michael Wiese Productions 2009
- Howard M. Traminen, “The Audio Encyclopedia”. Howard W. Sams& Co. 2nd edition 1969
- Don Davis and Carolyn Davis, “Sound System Engineering” Focal Press; 3 editions 2006

## **BBAA701P: Video Editing and Digital Intermediate Lab**

**L T P**  
**0 0 2**

### **PROGRAM 1: Editing Software:**

- i. Understanding the interface video editing software.
- ii. Creating a new project and importing video footage into the bin and labelling them.
- iii. Setting up a mark in & mark out in source monitor and inserting the video into timeline.

### **PROGRAM 2: Cut to Cut:**

- i. Applying the techniques of cut to cut and cutaway.
- ii. Applying the techniques of jump cut.
- iii. Creating a match cut for the video footage.

### **PROGRAM 3: Audio Editing:**

- i. Recording audio formats.
- ii. Editing recorded audio using audio editing software.
- iii. Adding audio effects to the clips to sync with the video files.
- iv. Creating an audio sync using audio transitions method.

### **PROGRAM 4: Special Effects:**

- i. Applying special effects to the video clips placed on the timeline.
- ii. Creating special transitions to the video clips placed on the timeline.
- iii. Adding title to the desired video clip.

### **PROGRAM 5: Titling:**

- i. Creating titling animation for a Trailer.
- ii. Creating titling animation for a Video Song.
- iii. Creating a complete video song with lyrics.
- iv. Creating a start & end titles /credits title for a short-film.

### **PROGRAM 6: Advanced Titling:**

- i. Titling - Rolling
- ii. Titling - Crawling
- iii. Slip Edit Trimming
- iv. Slide Edit Trimming.

### **PROGRAM 7: Animation:**

- i. Animation - Speed Duration
- ii. Animation - Setting keys for animation

- iii. Animation - Multiple Techniques.

**PROGRAM 8: Video Transitions:**

- i. Transitions - Working on Zoom & Dissolve Transition
- ii. Transitions - Working on Page Peel & Slide Transition
- iii. Transitions - Working on Stretch & Wipe Transition.

**PROGRAM 9: Video Effects:**

- i. Chroma Key - Editing a green/blue matte video footage with key effects.
- ii. Creating different effects to video clips using distort effects
- iii. Altering color correction and grading to video clips based on the scene..

**Reference Books:**

- Andrew Faulkner, “Adobe Premiere Pro CC Classroom”, 1st edition, Adobe Press, 2017
- Aaron Goold, “The Video Editing Handbook”, 1st edition, Independently published, 2017

## **BBAA702: 3D Compositing for Camera**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

Analyse and study various 3D composition for cameras, camera tracking concept study.

### **Unit-II**

**(10 Lectures)**

2D and 3D camera Tracking.

### **Unit-III**

**(10 Lectures)**

Fundamentals of 3D Tracking.

### **Unit-IV**

**(10 Lectures)**

VFX Compositions and its implementation.

### **Unit-V**

**(10 Lectures)**

Render various 3D Compositions.

### **Reference Books:**

- Autodesk 3ds Max 2018 Complete Reference Guide by Kelly L. Murdock
- Autodesk 3ds Max 2018 A Comprehensive Guide by Sham Tickoo (Author)
- Autodesk Maya 2018 Basics Guide Paperback by Kelly Murdoch
- Autodesk Maya 2018A Comprehensive Guide by Tickoo Sham

## **BBAA801T: Web Design**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Interface, Scripting, Usage of Images:** HTML - HTML Basics: Introduction to HTML elements-Basic tags, Attributes, Creating HTML page- Formatting, HTML links, List types and its tags, Creating HTML tables, Adding pictures, HTML and page accessibility, Colors and background, Advance HTML, Use of Frames and Forms in web pages, Formatting web pages by using GIF- JPEG getting web and clip arts, Use of interlinks.

### **Unit-II**

**(12 Lectures)**

**Planning And Designing Static Web Pages:** Web designing, Designing and Planning Web Pages , Creating Pages with HTML ,Working with Text,Formatting Web Pages with ,Style Sheets (CSS),Working with Graphics, Overall Site Design and Management, Web Authoring Tools, Uploading/FTP, Flash Enhancements, Incorporating/Embedding Video, Accessibility, Introduction to Dreamweaver, Properties Inspector and Panels- The Document Window, The Status Bar, The Document Toolbar, Coding Toolbar, Creating a Root Folder, Creating a Website with Frames, Rollovers and Other Image Trick- Drawing Image Maps, Designing with Cascading Style Sheets.

### **Unit-III**

**(8 Lectures)**

**Dynamic Web Content, Scripting:** Basics of dynamics web designing, Action script 2.0- Movie clip animation with scriptWeb animation in action script, Basics of flash gaming script, Advanced flash action script 3.0.

### **Unit-IV**

**(10 Lectures)**

**E-Learning Techniques:** E – Learning - Basic E-learning Theory -Basic Graphics Theory - Basic graphics tools training using different software's -Basic sketching skills training -Tips N Tricks of fast creations- - Clients Specification Study -SB creation -Graphics Content creation-



Media Rich Creation Techniques -Review Techniques -Final QA /Testing -Packaging techniques -Industry overview - Industry Exposure Visits.

## **Unit-V**

**(10 Lectures)**

**Web Hosting & Publishing:** Illustrations, Publishing website, Hosting portals, ERP in portals, Maintenance of Management Information System through websites, Creating Flash for E-learning, Interface designs.

### **Reference Books:**

- Modern Web Essentials Using JavaScript and HTML5, David Pitt, published May 2014.
- Tablet Web Design Best Practices, Mobify,2013
- “Losing Our Religion: The Liberal Media's Attack”, S. E. Cupp, Rupa Release, Edition I, 2001
- “Media Planning and Buying – Principles and Practice in the Indian Context”, by ArpitaMenon, MacMillan India Public Limited, First Edition, 2007
- Spring Into HTML and CSSAuthor: Molly E. Holzschlag [Emeritus]Publisher: Addison-Wesley Professional

## **BBAA801P: Web Design Techniques Lab**

**L T P**  
**0 0 2**

### **PROGRAM 1: Structure & Lists:**

- i. Understanding Creating a structure of the web page layout.
- ii. Creating basic wireframe layout using Adobe Photoshop.
- iii. Creating lists using basic HTML coding.

### **PROGRAM 2: Tables & Forms:**

- i. Creating web layouts using tables method in Adobe Dreamweaver.
- ii. Creating forms using Dreamweaver

### **PROGRAM 3: Cascading Style Sheet:**

- i. Working on the basics of Cascading Style Sheet.
- ii. Creating a basic layout using CSS styling.
- iii. Creating basic links for buttons using HTML coding.

### **PROGRAM 4: Static Commercial:**

- i. Creating rough paper work layout of a commercial static webpage for the genre.
- ii. Creating different sitemap layout of a commercial static webpage for the genre.
- iii. Creating banner advertisements related to commercial products for the static web-pages.
- iv. Designing approved commercial static responsive web-pages using HTML CSS.

### **PROGRAM 5: Static Non - Commercial:**

- i. Creating rough paper work layout of a non-commercial static webpage for the genre.
- ii. Create different sitemap layout of a non-commercial static webpage for the genre.
- iii. Creating banner ads and pop-up advertisements related to non-commercial products for the static web-pages.
- iv. Designing approved non-commercial static web-pages using HTML CSS

### **PROGRAM 6: Dynamic Commercial:**

- i. Create a rough paper work layout of a commercial dynamic webpage for the genre.
- ii. Create rough paper work layout of a non-commercial dynamic webpage for the genre.
- iii. Create different sitemap layout of a commercial dynamic webpage for the genre.
- iv. Creating banner ads and pop-up ads related to genre for the dynamic web-pages.
- v. Adding up banner ads and pop-up ads in dynamic webpage designs.

### **PROGRAM 7: Dynamic Non - Commercial:**

- i. Create different sitemap layout of a non-commercial dynamic webpage for the genre.
- ii. Designing approved commercial dynamic responsive web-pages using HTML CSS
- iii. Creating banner ads and pop-up ads related to non-commercial products for the dynamic webpages.
- iv. Designing approved non-commercial dynamic web-pages using HTML CSS.

**PROGRAM 8: Online Portfolio:**

- i. Creating blueprints for a creative portfolio.
- ii. Creating flowchart for a creative portfolio.
- iii. Creating sitemaps for a creative portfolio.
- iv. Designing approved designs using software's Flash and Photoshop.

**PROGRAM 9: Static Responsive:**

- i. Creating blueprints, flowchart, sitemap for a creative responsive static page.
- ii. Designing approved designs using software's Flash and Dreamweaver.

**Reference Books:**

- Jon Duckett "HTML and CSS Design and Build Websites" Paperback Wiley (18 November 2011).
- McFarland "Dreamweaver CS6 The Missing Manual", Shroff/O'Reilly; First edition (27 August 2012)

## **BBAA802T: Storytelling using Multimedia**

**L T P**  
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### **Unit-I**

**(10 Lectures)**

Story, Different Components of a Story, researching for the Story, Internet as a Medium for Storytelling, Creating a Script from Story.

### **Unit-II**

**(10 Lectures)**

Introduction to Multimedia, Understanding Different Elements of Multimedia, Use of Multimedia Elements in Storytelling, Using Different Categories of Authoring Tools.

### **Unit-III**

**(10 Lectures)**

Image Editing Software, Word Processing Software, Video Editing Software, Audio Editing Software.

### **Unit-IV**

**(10 Lectures)**

Introduction to Storyboarding, Perspective Drawing, Drawing from a Script, Animatic Basic.

### **Unit-V**

**(10 Lectures)**

What is Interface, Principles of Designing, Essential Requirement for Multimedia Story, Linear Vs Non-Linear Interaction.

### **Reference Books:**

- New Introduction to Multimedia by Ramesh Bangia (Khanna Book Publishing Co. Pvt. Ltd)
- Web Design in a Classroom by Jeremy Osborn, Jennifer Smith
- Mass Communication in India by Keval J. Kumar
- Adobe Photoshop CC Classroom
- Web Design in a Classroom by Jeremy Osborn, Jennifer Smith
- The Design Process by Karl Aspelund
- Design Thinking by Gavin Ambrose/Paul Harris
- Screenplay: The Foundations of Screenwriting by Syd Field

# **Department Specific Elective**

## **BBAA101D-I: Colour Theory**

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### **Unit-I**

**(10 Lectures)**

**History of Colors:** Brief History of colors, Color fundamentals, What is colour, Primary Colours, Secondary Colours, Tertiary Colors, Properties of colour, Hue Value, Tints and Shades, Saturation, Tones, neutral Colours, Theories of Colors.

### **Unit-II**

**(10 Lectures)**

**Colour Characteristics:** Physics of Colour, Colour Temperature: Warm Colours, Cool Colours, Theory, Colour Systems, Colour Wheel, Munsell, Goethe theory, Runge theory Itten theory, color mixing and color discernment, colour effects: Subtractive Colour, Additive Colour.

### **Unit-III**

**(10 Lectures)**

**Colour Harmonies:** Relationships / Harmonies, Monochromatic, Analogous, DiadTriad Tetrad Complementary, Split Complementary, Achromatic and Polychromatic, chemistry of color, Contrast of hueLightdark contrast Cold, warmcontrast, Complementary contrast, Simultaneous contrasContrast of saturation, Contrast of extension.

### **Unit-IV**

**(10 Lectures)**

**Colour Psychology:** Color Symbolism, Color Psychology, Historical& Contemporary use of Color, Local color and subjective use of color, Emotional effects of colours Personal Colour preferences, Harmony and Contrast colours.

### **Unit-V**

**(10 Lectures)**

**Colour Unity:** Theories of Successive and Simultaneous Contrast, Additive and Subtractive colours, Expressive Perceptual Colour, Colour Unity, Disunity, Twelve steps gray and do only primaries, red, yellow, blue, Additive and subtractive principles of color theory.

## **Reference Books:**

- Albers, Joseph, “The Interaction of Color”, Yale University Press, Revised edition Sep 1975.
- Eiseman, Leatrice, “Messages and Meanings, A Pantone Color Resource”, Han Books Press, 2006.
- Itten, Johannes, “The Elements of Color”, New York, John Wiley & Sons, Inc, 1970.
- Koenig Becky, “Color Workbook”, Upper Saddle River, NJ: Prentice Hall, 2003

## **BBAA101D-II: Anatomy Study**

**L T P**  
**4 0 0**

### **Unit-I**

**(8 Lectures)**

**Skeleton Study:** 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-II**

**(10 Lectures)**

**Measurement Of Anatomy:** 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-III**

**(12 Lectures)**

**Male and Female Anatomy:** Comparing muscle of male and female anatomy basic different of male anatomy, and female anatomy, muscle formations on skeleton, comparing feature, head, chest, hip, and pelvic, hand and elbow position, line difference of male and female

### **Unit-IV**

**(10 Lectures)**

**Posing And Balance:** Human body movements, balance of movement, life of action, forms and postures, Casual possess, sports movements, dancing movements, rest poses, walking movements for old man young man, different walking styles.

### **Unit-V**

**(10 Lectures)**

**Movement Study:** Live movement study, study human movements in different places, beach, market, road, speed line drawing. Deep study of movement, movement study for painting, statue, story board, and illustration.



## **Reference Books:**

- Peter Gottfried Bammes, “Complete Guide to Life Drawing”, Search Press, October 1, 2011.
- George B. Bridgman, “Constructive Anatomy”, Dover Publications, June 1, 1973.
- David K, “The Human Figure”, Penguin Books; Reissue edition Sept 15, 1975.
- Eliot Goldfinger, “Human Anatomy for Artists”, Oxford University Press, 1st edition November 7, 1991.

## **BBAA102D-I: Colour Grading**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Telecine Coloring Works:** In this unit we teach about Cathode-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**

**(10 Lectures)**

**Primary and Secondary Color Corrections:** 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**

**(12 Lectures)**

**Mask, Matte, Track:** In this unit, student will learn the evolution of digital color correction tools with advanced technique 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 term of color to save the time in the production process.

### **Unit-IV**

**(10 Lectures)**

**Digital Intermediate Process:** In this unit, student 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**

**(8 Lectures)**

**Preserving the Quality of the Image:** After learning this program, students will gain knowledge about the DI importance and the scope of work.

### **Reference Books:**

- Steve Hullfish, “the Art and Technique of Digital Color Correction”, 1st Edition
- Jack James, “Digital Intermediates for Film and Video”, Kindle Edition
- Alexis Van Hurkman, “Creative Grading Techniques for Film and Video”, Kindle Edition.

## **BBAA102D-II: Matte Painting**

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### **Unit-I**

**(8 Lectures)**

**Introduction To Matte Painting:** 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 Wacom Tablet, converting paper to Digital, file format and file size, Aspect Ratio, 2K Resolution.

### **Unit-II**

**(12 Lectures)**

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

### **Unit-III**

**(12 Lectures)**

**Perspective Concepts:** In this unit covering the concept of Perspective, types of perspective, understanding the significance 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**

**(8 Lectures)**

**Colour Concepts:** 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**

**(10 Lectures)**

**Image Composition:** Background making in 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

## **Reference Books:**

- Brian Sum, Shaddy Safadi, Levi Hopkins, "Digital Painting Techniques: Volume 5", 3D Total Publishing, 2013.
- John Montague, "Basic Perspective Drawing: A Visual Approach", John Wiley publication, 6th Edition, 2013.
- David B. Mattingly, "The Digital Matte Painting Handbook", Sybex publications, 1986
- David Luong, Damien Mace, Milan Schere, "d'artiste Matte Painting 3", Ballistic, 2013

## **BBAA103D-I: Basics of Videography**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Introduction of Camera:** Introduction to the Camera: History and types of cameras, Camera lenses – fixed focus length versus zoom lenses, common lens filters, Technicalities of photography – composition, exposure, light sensitivity, depth of field, Portraiture – landscape, product in advertisements, photo feature, electronic imaging devices – Photo Conductive Tube, Charge Couple Device (CCD).

### **Unit-II**

**(10 Lectures)**

**Videography Equipment:** Camera mounts and Camera Operations: Mounting plates, Variety of heads, friction heads, fluid heads, cradle heads. Variety of bases – pedestals, tripods, dollies, cranes, camera mounts for Teleprompters.

### **Unit-III**

**(10 Lectures)**

**Introduction To Camera Parts:** Recording sound on camera: In-built microphones in a camera, adjusting audio channels, Recording live sounds on camera Practical. The students are required to: Take still photos emphasizing different portraitures, Practice camera exercises and composition, camera angles, camera movements (pan, tilt, zoom).

### **Unit-IV**

**(10 Lectures)**

**Videography Techniques:** Fundamentals of Composition: TV picture cutoff , Types of shots – extreme close up, close up, mid close up, mid shot, mid long shot, long shot, extreme long shot , Central point of interest and horizontal balance , Rule of thirds , Principle of lead rule , Shot angles , Creating compositional emphasis.

## **Unit-V**

**(10 Lectures)**

**Lighting Techniques:** Psychology of light Human Vision, Light Sources Setting Mood through Lighting. Lighting as a Story Element, Visual Environment Dealing with Natural Lighting Directional Effect of Light, Lighting design process Controlling the Intensity of Light, Color and Color Temperature of Light Three-point lighting, High-Key lighting & Low Key lighting Indoor and Outdoor Lighting Reflectors, Role of reflectors Techniques.

### **Reference Books:**

- Ahluwalia, Kris. Mickiewicz, “Cinematography”, Initial publication, Third edition, 2005
- Paul Wheeler, “Digital Cinematography”, Focal press, 2002.
- Paul Wheeler, “High Definition Cinematography”, Focal press, 2007.
- Rob Hummel, “American cinematographer manual”, ASC Press, 2001.

## **BBAA103D-II: Rigging & Animation**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Concept of Rigging:** Understanding the rigging IK and Fk Constraints. Forward Vs. Inverse Kinematics, A simple leg example. Forward Kinematics with Simple leg example. Inverse Kinematics, Constraints Working with Locators. Adding Pole Vector constraints to the elbows and constraining the wrists to locators. Testing the character, Rigging Methods and Process. Create the IK handles, Restricting the heel rotation, Build a foot control hierarchy. Creating a control attribute and Set Driven Key, Adding Selection handles for Arms and shoulders

### **Unit-II**

**(10 Lectures)**

**Introduction to IK Solver and IK Chain:** Introduction to IK rotate plane solver, working with the IK Rotate Plane solver. Creating the arm joints and setting preferred angle, setting up the IK Rotate Plane solver. Translating the end effector of the IK chain.

### **Unit-III**

**(10 Lectures)**

**Bending and Twisting of Knee:** IK and FK combination foot, Skeleton set-up-Setting up Single Chain IK- Parenting the IK and Orient constraints Parenting the IK - Bending toes and twisting the knee. Adding attributes.

### **Unit-IV**

**(10 Lectures)**

**Animation Principles:** Animation Principles and Process, Basic Animation with types of Balls. Working with Animation Editor and Tools. Animation Basics, Key frame Animation, Nonlinear Animation, Path Animation, Motion Capture Animation Geometry Caching with Animation Layers, Animation Menus, Animation Tools, Animation Windows and Editors-Animation Nodes.



## **Unit-V**

**(10 Lectures)**

**Animating Two Leg and Four Leg with Dialogues:** Advanced Character Animation with Two Leg Animation (walk, run, Jump, Wight lifting etc.). Four Leg Animation (walk, run, Jump) Lip sync Animation. Single Character Animation with Dialogues, Two or more-character interacting animation with Dialogues. Work Flow with Graph, Trax, Dope

### **Reference Books:**

- Susan JolliffeNapier, “Anime from Akira to Princess Monoke: Experiencing Contemporary Japanese Animation”, Palgrave Macmillan Limited, 2007.
- Richard Williams, “The Animator's Survival Kit”, Faber & Faber, Limited, 2004

## **BBAA104D-I: 3D Show Reel**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Concept For the Film and Character Modeling:** Students are expected to create concept for their short film. Character for the short film should be designed along with the concept. They have to get the approval of the concerned faculty member's approval

### **Unit-II**

**(10 Lectures)**

**Story Boarding:** The Story line is briefed in the paper as drawing with the shorts and scenes.

### **Unit-III**

**(10 Lectures)**

**Clay Modeling:** The character in the short film is made in the clay and photo shot is done.

### **Unit-IV**

**(10 Lectures)**

**Creating the Background:** Creating a basic set and background design based on the story line.

### **Unit-V**

**(10 Lectures)**

**Final Film:** Finally, the character and the background and the animated sequence is combined together to achieve the final output.

### **Reference Books:**

- Susan JolliffeNapier, "Anime from Akira to Princess Monoke: Experiencing Contemporary Japanese Animation", Palgrave Macmillan Limited, 2007.
- Richard Williams, "The Animator's Survival Kit", Faber & Faber, Limited, 2004

## **BBAA104D-II: VFX for Production**

**L T P**  
**4 0 0**

### **Unit-I**

**(10 Lectures)**

**Introduction For Visual Effects:** Pre visualization, Concept art Basics of Particles, Introduction to Fields, Paint effects, Fluids, Basic concept of Camera tracking, Basic of digital & matte painting, Basic of Rendering concepts, Basic of Composting.

### **Unit-II**

**(10 Lectures)**

**Visual Effects and Composting:** Learning of 3D Particles, Particles attributes, User define attributes, rendering with alpha channels, Paint effects, Special effects, Fluids, instance, learning of composting, Rotoscopy, Retouching, Chroma keying, Crowd replace, Camera mapping, Fluid dynamics, Sky replacement.

### **Unit-III**

**(10 Lectures)**

**Tracking:** 2D tracking, 3D tracking, Telecine, Color sampling, Color grade, Matching, Lighting, Keying, Shadow extraction, Hard body physics, Basic of Camera animation, Matte tracking, Body tracking, Face tracking, Ray tracing, Basic motion capture, Green matte painting, Basic of motion capturing.

### **Unit-IV**

**(10 Lectures)**

**Advanced Visual Effects:** Basic of match moving, Live shot with green matte and removing green matte, adding a matte paint to live shot, bringing live footage into composting and adding 3D elements like fire, water, Particles stimulation and other field behaviour

### **Unit-V**

**(10 Lectures)**

**Visual Effects Production:** On reference with story board and script of Production visual effects taken place by Motion capturing, creating visual set, Explosions, Match movie, adding

3D elements and other component like dust debris particles with original shots to the production, which is done in Post production works.

### **Reference Books:**

- Doug Kelly, “Digital Compositing in Depth”, Coriolis Publication, 2003.
- Angie Taylor, “Creative After Effects 5.0”, Focal Press, 2002.
- Ron Brinkmann, “The Art and Science of Digital Compositing: Techniques for Visual Effects, Animation and Motion, Morgan Kaufmann Publishers, 2008.
- Steve Wright, “Digital Compositing for Film and Video”, Focal Press, 2010.

# **Skill Based: Skill Enhancement Courses**

## **BBAA101SB: Graphic Design Techniques**

**L T P**  
**4 0 0**

### **Module 1: Logo Design:**

- i. Creating a paper work of different logos on the genre.
- ii. Tracing the layout of the approved designs in digital format.
- iii. Applying suitable color for the digital designs.
- iv. Designing approved different logos on the genre.

### **Module 2: Visiting Cards:**

- i. Creating a paper work of different Visiting cards on the genre.
- ii. Tracing and designing the approved layout of designs in digital format.

### **Module 3: Brochures (A4 Size, A4 2-Fold, A4 3-Fold):**

- i. Creating a paper work of brochures on the genre.
- ii. Tracing the layout of the approved designs in digital format.
- iii. Applying suitable color for the digital designs.
- iv. Designing approved brochures of varied sizes.

### **Module 4: Print Advertisement - Black & White, Color:**

- i. Creating a paper work of advertisement flyers on the genre.
- ii. Tracing the layout designs in digital format and applying suitable colors.
- iii. Creating a paper work of poster advertisement on the genre.
- iv. Tracing the layout designs in digital format and applying suitable colors.

### **Module 5 Letter Head:**

- i. Creating paper work of letter head designs.
- ii. Tracing the layout designs in digital format, designing and applying suitable colors.

### **Module 6: Package Design:**

- i. Creating a paper work of package designs on the genre.
- ii. Tracing the layout of the approved designs in digital format.
- iii. Designing approved package designs with suitable colors and text.

### **Module 7: Matte Painting:**

- i. Create a different scenic view of a green pasture or a haunted village.
- ii. Designing approved scenic view in digital format using the designing software.

### **Module 8: Montage:**

- i. Create different montages on the topic Indian culture or eradication of poverty in the world.

- ii. Compiling the approved pictures or materials using the designing software.

**Module 9: Black & White to Color:**

- i. Converting a black & white picture into colored using the image editing software.

**Module 10: Newsletter:**

- i. Creating a paper work of newsletter on the genre.
- ii. Tracing and designing the approved layout of designs in digital format.

**Module 11: Webpage Design:**

- i. Creating a paper work of webpage designs on the genre.
- ii. Designing the layout of the approved designs in digital format.

**Module 12: Color Correction:**

- i. Creating a paper work of art designs on the genre.
- ii. Applying different colors to them by using suitable color modes.

**Reference Books:**

- Ellen Lupton "Graphic Design: The New Basics: Second Edition, Revised and Expanded", Princeton Architectural Press; Revised and updated edition (14 July 2015).
- David Dabner "Graphic Design School: A Foundation Course for Graphic Designers Working in Print, Moving Image and Digital Media", Thames & Hudson Ltd; 5th Revised edition (28 July 2014).

## **BBAA102SB: Basic Photography**

**L T P**  
**4 0 0**

### **Module 1: Basics of Camera:**

- i. How to handle Camera properly and take a shot
- ii. Setting Aperture, Shutter Speed and ISO for different Shots
- iii. White Balance and Shooting Modes in D-SLR Camera.

### **Module 2: Flash & Lights:**

- i. How to use 3 Point Lighting using Cool Lights
- ii. Flash settings and Operations
- iii. Use of Reflector, Cutter and Diffuser Handling
- iv. Use of Light Meter.

### **Module 3: Outdoor (Landscape & People):**

#### **Outdoor – Landscape**

- i. Photo-shoot of Outdoor (Landscape)around the MKU Campus.
- ii. Color correction to the taken photos according to his creativity.

#### **Outdoor – People**

- iii. Photo-shoot of Outdoor (People)around the MKU Campus.
- iv. Color correction to the taken photos according to his creativity.

### **Module 4: Outdoor (Birds & Animals):**

#### **Outdoor – Birds/Animals**

- i. Photo-shoot of Outdoor (Birds/Animals) around the MKU Campus
- ii. Color correction to the taken photos according to his creativity.

### **Module 5: Outdoor – Monuments:**

#### **Outdoor – Monuments**

- i. Photo-shoot of Outdoor (monuments).
- ii. Color correction to the taken photos according to his creativity.

### **Module 6: Photo Language and Portrait:**

#### **Photo Language and Portrait:**

- i. Photo-shoot of photo language concept and portrait photography around the MKU campus.
- ii. Color correction to the taken photos according to his creativity.

### **Module 7: Freezing Moment and Panorama Special:**

#### **Freezing Moment and Panorama Special**



- i. Photo-shoot of freezing moment and panorama. Student will take pictures of their own using
- ii. panorama concepts round the MKU campus.
- iii. Color correction to the taken photos according to his creativity.

### **Module 8: Special Effects & Indoor Photography:**

#### **Special Effects & Indoor Photography**

- i. Product photography
- ii. Macro photography
- iii. Event photography
- iv. Night photography
- v. Festival photography.

### **Reference Books:**

- Kathy Burns-Millyard," Digital Photography Basics: A Beginner's Guide to Getting Great Digital Photos", 2014, second edition, published by electronic perceptions.
- DK,"The Beginner's Photography Guide", 2015, 2ndEdition, published by Penguin UK.

## **BBAA103SB: User Interface**

**L T P**  
**4 0 0**

### **Module 1: Introduction to UI (All hand sketch):**

- i. Basic introduction about UI.
- ii. Analyzing existing UI.
- iii. Understanding and differentiation of IOS, Android and windows platforms.

### **Module 2: Understanding current scenario and problem analysis with UI (All hand sketch):**

- i. Understanding the design principles (clear focus on application, minimum complexity, prioritize content)
- ii. Work structure & flow and hierarchy.
- iii. Layouts, fronts, composition, color, propositions.
- iv. Contrast window and Tagline differences.

### **Module 3: Understanding Design Principles:**

- i. Mental Model, Metaphors, Explicit and Implies Actions.
- ii. Direct Manipulation, User Control, Consistency.
- iii. Aesthetic Integrity.

### **Module 4: Introduction to iPhone / IOS guides:**

- i. Formatting content, Touch Controls, Hit Targets.
- ii. Text Size, Contrast, Spacing, High Resolution, Distortion.
- iii. Organization, Alignment.
- iv. Deference, Clarity, Use Depth to Communicate.

### **Module 5: Introduction to OS X guides:**

- i. Basic designing OS X, App styles and Anatomy.
- ii. Starting and Stopping, Modality.
- iii. Interoperability, Feedback and Assistance, Interaction and input.
- iv. Animation, Branding, Color and Typography.
- v. Icons and Graphics, Terminology and Wording.
- vi. Integrating with OS X.

### **Module 6: Introduction to Android guides:**

- i. Design metaphor
- ii. Material designing, Creative vision
- iii. Animation, style, Layout.

- iv. Components, Patterns, Usability.

**Module 7: Introduction to Windows guides:**

- i. Controls, Messages, Visuals.
- ii. Commands, Interaction, Experiences.
- iii. Text, Windows, Environments.

**Module 8: Create an Existing Website for Desktop with UI Guides. (Paper sketch and wireframe) On given below Topics:**

- i. Travel
- ii. Banking
- iii. Entertainments
- iv. Education
- v. Government
- vi. Corporate.

**Module 9: Create an Existing Website for Mobile Computing with UI Guides. (Paper sketch and wireframe) On given below Topics:**

- i. Travel
- ii. Banking
- iii. Entertainment
- iv. Education
- v. Government
- vi. Corporate.

**Module 10: Choosing Area and Creating Own Website For Desktop with UI Guides (Choose any Three from given below):**

- i. Travel
- ii. Entertainment
- iii. Education
- iv. Corporate.

**Module 11: Choosing Area and Creating Own Website For Mobile Computing with UI Guides (Choose any Three from given below):**

- i. Banking
- ii. Entertainments
- iii. Government
- iv. Corporate.

## **Reference Books:**

- Donald A. Norman, *The design of everyday things*, Currency Doubleday press, 2015
- Shneiderman, Ben, and Catherine Plaisant, “*Designing the User Interface: Strategies for Effective Human-Computer Interaction*”, 4th ed. Addison Wesley, 2014.

# **BBAA104SB: Game Development**

**L T P**  
**4 0 0**

## **Module 1: Essential concepts of Scripting:**

- i. Behaviors of game objects
- ii. Basic C# scripting
- iii. Introducing scripting in unity.

## **Module 2: Building Block of Scripts:**

- i. Method instead of function
- ii. Introducing Classes
- iii. Passing values between the classes
- iv. Using objects and classes in game script.

## **Module 3: Details of Variables:**

- i. Understanding component property in scripts
- ii. Displaying public variables in inspector panel
- iii. Multi-word variable names
- iv. Common – built – in variable types
- v. Variable scopes

## **Module 4: Methods' Properties:**

- i. Using method in a script
- ii. Specifying methods parameters
- iii. Passing & Returning value from the method
- iv. Start () and Update () methods.

## **Module 5: Decision making in games:**

- i. Condition testing using if statement
- ii. Usage of Foreach loop
- iii. Usage of while loop.
- iv. Storing game objects in array
- v. Storing game objects in list.
- vi. Using dot syntax in unity script
- vii. Accessing components own variables and methods
- viii. Accessing another game objects and its components.

## **Module 6: State Machine for the game:**

- i. Setting up the state manager controller

- ii. Modify the state manager
- iii. Adding OnGUI() to state manager
- iv. Creating a button to pause the game
- v. Destroying and keeping the game objects of the scene.

#### **Module 7: Movement and Collision scripts:**

- i. Moving the players using rigid bodies
- ii. Creating and loading prefabs using scripts
- iii. Creating scores for winning the games
- iv. Creating player script.

#### **Module 8: Player Scripts:**

- i. Firing a bullet in the game
- ii. Rapid firing the enemy
- iii. Player's animation trigger scripts
- iv. Controlling player movements through script.

#### **Reference Books:**

- Terry Norton, "Learning C# by Developing Games with Unity 3D Beginner's Guide", second edition, Packt Publishing Limited, 2015.
- Michelle menard, "Game development with unity" 2 nd edition, Cengage Learning PTR, 2015.

## **BBAA105SB: Architectural Visualization**

**L T P**  
**4 0 0**

### **LIST OF EXPERIMENTS: -**

#### **Module 1: Introduction to work area:**

- i. User interface, user interface components.
- ii. Viewports, viewports configuration.
- iii. Working in the user interface.
- iv. Creating objects, quad menu.
- v. Aligning objects, reference coordinate system.

#### **Module 2: Shapes and Editable Poly:**

- i. Creating shapes, editable splines.
- ii. Working with extrude modifier, taper modifier, lathe modifier.

#### **Module 3: Creating the plane, Compound objects, Material:**

- i. Creating the plan, Boolean compound object.
- ii. Working with pro Boolean, terrain.
- iii. Using the scatter compound object, loft compound object.
- iv. Working with deformations, deform scale, shape merge.
- v. Types of materials, shaders, naming materials.
- vi. UVW map modifier, applying architectural material.

#### **Module 4: Sketch Exercise 1 (Exterior):**

- i. Solid Modeling, Extrusions and Booleans
- ii. Mesh Modeling, Thicknesses and 3D Faces
- iii. Creating 3D blocks for Windows and Doors
- iv. Path Extrusions.

#### **Module 5: Importing AutoCAD to 3D Software:**

- i. Legacy Import.
- ii. Viewports and Creating Cameras.
- iii. Basic Rendering.

#### **Module 6: Lighting and Exposure Control in 3D Software:**

- i. Creating Standard Lights.
- ii. Rendering Environment.
- iii. Rendering Background.

- iv. Daylighting System in 3D Software Design.
- v. Exposure Control.

#### **Module 7: Materials in 3D Software:**

- i. Material Types.
- ii. Material Editor (compact mode).
- iii. Material Parameters.
- iv. Applying materials from Libraries.
- v. Creating custom Standard Materials.
- vi. Object Mapping Coordinates.
- vii. Bitmap Bump Mapping.
- viii. Procedural mapping.
- ix. Transparent and Reflective Materials.

#### **Module 8: Test Rendering and Network Rendering:**

- i. Rendering Engine Options
- ii. Rendering Regions and Selected Objects
- iii. Mental Ray Indirect Illumination Parameters
- iv. Saving and Reusing Final Gather.
- v. Generating Photon Maps.

#### **Module 9: Completion and Interior Lighting:**

- i. Enclosing the Model to Avoid Light Leaks.
- ii. 2. Utilizing Clipping Planes in with Cameras.
- iii. 3. Importing or Merging Furniture.
- iv. 4. Exterior Daylighting with Mental Ray Sky Portals
- v. 5. Interior Photometric Lights.

#### **Reference Books:**

- Roger Cusson and Jamie Cardoso, “Realistic Architectural Visualization with 3ds Max and mental ray”, Second Edition, 2015.
- Brian L. Smith, “3ds Max 2008 Architectural Visualization: Beginner to Intermediate”, 3<sup>rd</sup> edition, 2015.