Pre Revision

Study & Evaluation Scheme

Of

Bachelor of Science (Animation)
B.Sc. Animation

[Applicable for the Batch 2018-19]

College of Computing Sciences and Information Technology

TEERTHANKER MAHAVEER UNIVERSITY

N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001

Website: **www.tmu.ac.in**

B.Sc. ANIMATION
Semester I

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
01	BSA 101	Fundamentals of Computers and MS- Office	3	1	0	4	40	60	100
02	BSA-107	Fundamentals of Animation and Design	3	1	0	4	40	60	100
03	BSA 108	Graphic Design –I (Corel Draw)	4	1	0	5	40	60	100
04	BSA 109	Concept of Graphics and Illustration (Illustrator)	3	1	0	4	40	60	100
05	BSA 149	English Communication & Soft Skills – I	2	0	2	3	40	60	100
06	BSA 155	Fundamentals of Computers & MS- Office (LAB)	0	0	4	2	50	50	100
07	BSA 156	Graphic Design : CorelDraw & Illustrator (LAB)	0	0	8	4	50	50	100
		TOTAL	15	4	14	26	300	400	700

B.Sc. ANIMATION
Semester II

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
01	BSA-206	Drawing for Animation	3	1	0	4	40	60	100
02	BSA 207	Graphic Design – II (Photoshop)	4	1	0	5	40	60	100
03	BSA 208	Principles and Techniques of Animation	3	1	0	4	40	60	100
04	BSA-209	Script Writing & Story Boarding	3	1	0	4	40	60	100
05	BSA 253	Principles and Techniques of Animation (LAB)	0	0	6	3	50	50	100
06	BSA 254	Graphic Design – II Adobe Photoshop (LAB)	0	0	6	3	50	50	100
07	BSA 249	English Communication & Soft Skills – II	2	0	2	3	40	60	100
	TOTAL		15	4	14	26	300	400	700

Semester III

S. No.	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
01	BSA -304	Audio & Video- Editing: Tools & technology	3	1	0	4	40	60	100
02	BSA -306	Flash: Animation and Interactivity	3	1	0	4	40	60	100
03	BSA -308	Production Process of 2D Animation	2	1	0	3	40	60	100
04	BSA 349	English Communication & Soft Skills – III	2	0	2	3	40	60	100
05	BSA 353	Flash: Animation and Interactivity LAB	0	0	6	3	50	50	100
06	BSA -354	Audio & Video -Editing: Tools & technology LAB	0	0	6	3	50	50	100
07	BSA- 355	2D Animation Project	0	0	8	4	50	50	100
	TOTAL		10	3	22	24	310	390	700

B.Sc. ANIMATION
Semester IV

S. No	Course Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
01	BSA -401	3D Max Modeling	4	1	0	5	40	60	100
02	BSA -406	Animation in 3D Max	3	1	0	4	40	60	100
03	BSA -404	Advanced Modeling- Z Brush	3	1	0	4	40	60	100
	BSA -407	AutoCAD Architectural Design							
04	BSA 451	Autodesk 3D Max(LAB)	0	0	6	3	50	50	100
05	BSA 455	Advanced Modeling- Z Brush (LAB)	0	0	6	3	50	50	100
	BSA 456	AutoCAD Architectural Design (LAB)							
06	BSA 457	Architectural walkthrough Project (LAB)	0	0	6	3	50	50	100
07	BSA 499	English Communication & Soft Skills – IV	2	0	2	3	40	60	100
	TOTAL		12	3	20	25	310	390	700

B.Sc. ANIMATION
Semester V

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
01	BSA 509	Autodesk Maya I – Modeling & Texturing	3	1	0	4	40	60	100
02	BSA 510	Autodesk Maya II –Lighting and Rendering	3	1	0	4	40	60	100
03	BSA 511	Autodesk Maya III – Rigging and Animation	3	1	0	4	40	60	100
04	BSA 555	Autodesk Maya I- Modeling, Rigging and Animation - (LAB)	0	0	8	4	50	50	100
05	BSA 556	Autodesk Maya II – Texturing, Lighting and Rendering (LAB)	0	0	8	4	50	50	100
06	BSA 557	Autodesk Maya II – Rigging and Animation	0	0	8	4	50	50	100
TOTAL			9	3	24	24	270	330	600

B.Sc. ANIMATION
Semester VI

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
01	BSA -604	Digital Compositing	3	1	0	4	40	60	100
02	BSA 605	Fundamentals of Dynamics in Autodesk Maya	3	1	0	4	40	60	100
03	TMU – 601	Environmental Studies	2	1	0	2	40	60	100
04	BSA 607	Production Process of 3D Animation	2	0	0	2	40	60	100
05	BSA 654	Digital Compositing (LAB)	0	0	6	3	50	50	100
06	BSA 656	Fundamentals of Dynamics in Autodesk Maya (Lab)	0	0	6	3	50	50	100
07	BSA 657	3D Animation Project and Portfolio Development	0	0	10	5	50	50	100
TOTAL			10	3	22	23	310	390	700

Post Revision

Study & Evaluation Scheme

Of

Bachelor of Science (Animation)
Based on Choice Based Credit System

[Applicable w.e.f. the Academic Session 2019-20 till Revised]

COLLEGE OF COMPUTING SCIENCES & INFORMATION TECHNOLOGY

TEERTHANKER MAHAVEER UNIVERSITY
Delhi Road, Moradabad, Uttar Pradesh-244001
Website: www.tmu.ac.in

B.Sc. ANIMATION
Semester I

S. No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-1	BSA-101	Fundamentals of Computer and MS- Office	3	1	0	4	40	60	100
2	CC-2	BSA-102	Drawing For Animation	4	0	0	4	40	60	100
3	CC-3	BSA-110	Concepts of Graphic Design -1 (Photoshop)	3	1	0	4	40	60	100
4	CC-4	BSA-111	Concept of Graphics and illustration (Illustrator)	3	1	0	4	40	60	100
5	AECC-1	TMUGE101	English communication -I	2	1	0	3	40	60	100
6	CC-5	BSA -155	Fundamentals of Computers and MS- Office -LAB	0	0	4	2	50	50	100
7	CC-6	BSA- 157	Graphics designing -LAB	0	0	4	2	50	50	100
			Total	15	4	8	23	300	400	700

B.Sc. ANIMATION
Semester II

S. No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-7	BSA-210	Idea generation and development	4	0	0	4	40	60	100
2	CC-8	BSA-211	Concepts of 2D Animation and Techniques	3	1	0	4	40	60	100
3	CC-9	BSA-212	Concepts of cinematography & photography	3	1	0	4	40	60	100
4	CC-10	BSA-257	Audio & Video-Editing- LAB	0	0	4	2	50	50	100
5	CC-11	BSA-258	2D Animation project	0	0	4	2	50	50	100
6	CC-12	BSA-256	Concepts of cinematography & photography- LAB	0	0	4	2	50	50	100
7	AECC-2	TMUGE201	English Communication – II	2	0	2	3	40	60	100
			Total	12	2	14	21	310	390	700

B.Sc. ANIMATION
Semester III

S No.	Category	Course Code	Course Name	Periods			Credits	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC-13	BSA-309	Basics of motion graphics & FX (After Effect)	3	1	0	4	40	60	100
2	CC-14	BSA-310	Fundamentals of 3D & concepts of modeling &texturing	3	1	0	4	40	60	100
3	CC-15	BSA-311	Experimental Animation	3	1	0	4	40	60	100
4	SEC-1	TMUGE301	English Communication-III	2	0	2	3	40	60	100
5	CC-16	BSA-356	Fundamentals of 3D & concepts of modeling &texturing-Lab	0	0	4	2	50	50	100
6	CC-17	BSA-357	Basics of motion graphics & FX (After Effect) -LAB	0	0	4	2	50	50	100
7	CC-18	BSA-358	Experimental Animation -LAB	0	0	4	2	50	50	100
8	AECC-3	BSA-359	Entrepreneurship	3	1	0	4	40	60	100
			Total	14	4	14	25	350	450	800

VAC (Value Added Courses)

The Value added course is audit course which will be compulsory to pass with 45% marks whenever it will not be added towards overall result.

S. No.	Course Type	Course Code	Course Name	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	VAC-I	TMUGS-301	Managing self	2	1	0	0	50	50	100

B.Sc. ANIMATION
Semester IV

S. No	Category	Course Code	Cours e		Periods			Credits	Evaluation Scheme		
					L	T	P		Internal	External	Total
1	CC-19	BSA-408	Concepts of Lighting & shading with Maya		3	1	0	4	40	60	100
2	AECC-4	TMUGE401	English Communication-IV		2	0	2	3	40	60	100
*3	DSE-1		Discipline specific elective	Elective-1	2	0	0	2	40	60	100
				Elective-2							
4	AECC-5	BSA-412	Advance Digital Sculpting		3	1	0	4	40	60	100
**5	DSE-2		Discipline specific elective	Elective-3	0	0	4	2	50	50	100
				Elective-4							
6	SEC-2	BSA-460	Advance Digital Sculpting LAB		0	0	4	2	50	50	100
7	CC-20	BSA-461	Concepts of Lighting & shading-with Maya -LAB		0	0	4	2	50	50	100
8	AECC-6	BSA-462	Project(3D Modeling/Game modeling/Architectural design)		0	0	4	2	50	50	100
			Total		10	2	18	21	360	440	800

B.Sc. ANIMATION
Semester V

S. No.	Category	Course Code	Course Name		Periods			Credits	Evaluation Scheme		
					L	T	P		Internal	External	Total
1	CC-21	BSA-512	Concept of 3D Animation & Rigging with Maya		3	1	0	4	40	60	100
2	DSE-3		Discipline specific elective	Elective-5	3	1	0	4	40	60	100
				Elective-6							
3	CC-22	BSA-515	Visual effect techniques.		3	1	0	4	40	60	100
4	CC-23	BSA-558	Concepts 3D Animation & Rigging with Maya-LAB		0	0	4	2	50	50	100
5	CC-24	BSA-559	Advance Editing Techniques(FCP)-LAB		0	0	4	2	50	50	100
6	DSE-4		Discipline specific elective	Elective-7	0	0	4	2	50	50	100
				Elective-8							
7	CC-25	BSA-560	Visual effect techniques- LAB		0	0	4	2	50	50	100
8	OE-1		Open Elective-I		3	0	0	3	40	60	100
			Total		12	3	16	23	360	440	800

B.Sc. ANIMATION
Semester VI

S. No.	Category	Course Code	Course Name		Periods			Credit	Evaluation Scheme		
					L	T	P		Internal	External	Total
1	DSE-5		Discipline specific elective	Elective-9	2	0	0	2	40	60	100
				Elective-10							
2	CC-26	BSA-609	Concepts of 3D Dynamics and Liquid simulation.		3	1	0	4	40	60	100
3	AECC-7	TMU-601	Environmental Studies		2	1	0	3	40	60	100
4	CC-27	BSA-607	Production Process of 3D Animation		3	1	0	4	40	60	100
5	DSE-6		Discipline specific elective	Elective-11	0	0	4	2	50	50	100
				Elective-12							
6	CC-28	BSA-659	Concepts of 3D Dynamics and Liquid simulation.LAB		0	0	4	2	50	50	100
7	SEC-3	BSA-660	Project & Portfolio development		0	0	4*	6	50	50	100
8	OE-2		Open Elective-II		3	0	0	3	40	60	100
			Total		13	3	12	26	350	450	800

The contact hours for BSA660 will be 4 hours in the course matrix and rest of 8 hours will be for students self learning and practicing.

List of Discipline Electives Courses

Discipline Specific Elective Courses
Semester-IV

Course Type	Course Code	Course	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
DSE 1	BSA-410 (Elective-1)	Concept of Game design							
	BSA-411 (Elective-2)	Concept of Architectural design	2	0	0	2	40	60	100
Choose any one from out of the following groups									
DSE 2	BSA-463 (Elective-3)	Concept of Game design LAB							
	BSA-464 (Elective-4)	Concept of Architectural design LAB	0	0	4	2	50	50	100
Choose any one from out of the following groups									

Discipline Specific Elective Courses

Semester-V

Course Type	Course Code	Course	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
DSE 3	BSA-514 (Elective-5)	Concept of web and UI/UX Design	3	1	0	4	40	60	100
	BSA-515 (Elective-6)	Design for print							
Choose any one from out of the following groups									
DSE 4	BSA-561 (Elective-7)	Concept of web and UI/UX Design LAB	0	0	4	2	50	50	100
	BSA-562 (Elective-8)	Design for print LAB							
Choose any one from out of the following groups									

Discipline Specific Elective Courses

Semester-VI

Course Type	Course Code	Course	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
DSE 5	BSA-608 (Elective-9)	Concepts of Augmented reality & virtual reality	2	0	0	2	40	60	100
	BSA-610 (Elective-10)	Professional 3D design with Cinema 4D							
Choose any one from out of the following groups									
DSE 6	BSA-658 (Elective-11)	Concepts of Augmented reality & virtual reality LAB	0	0	4	2	50	50	100
	BSA-661 (Elective-12)	Professional 3D design with Cinema 4D LAB							
Choose any one from out of the following groups									

New Course Added

Course Code: BSA102	Core Course – 2 B.Sc. Animation- Semester-I **Drawing For Animation**	L-3 T-0 P-2 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the techniques of drawing for animation	
CO2.	Understanding the drawing techniques of backgrounds and it's elements for animation movies	
CO3.	Understanding the techniques of perspective drawing using light and shadow.	
CO4.	Applying the human anatomy study for the character development and movements.	
CO5.	Applying the Anatomy study on cartoons, child character, and animal drawing.	
Course Content:		
Unit-1:	**Introduction:** An introduction of how to make drawings for animation, shapes and forms, About 2D and 3D drawings, Life drawing, Caricaturing-fundamentals, Exaggeration, Silhouette.	8 Hours
Unit-2:	Background elements, trees, mountains, clouds, water bodies, meadows, buildings, science fiction story backgrounds, backgrounds of mythological stories perspective drawing Lights and shadows day night scenes.	8 Hours
Unit-3:	Brush, Pencil, Color replacement tool, Clone tool, Smudge tool, Patch tool, Eraser etc. Digital painting, make a natural scene (winter), make a natural scene (summer).Make digital painting of a celebrity & photo retouching.	8 Hours
Unit-4:	MALE AND FEMALE ANATOMY- Structure of male and female body, comparative study of male and female body. Draw human body from 2d and 3d basic shapes. Body parts:- Head, Torso, hands, legs, foot and palm. Face:- Different elements of face and their distribution on face. Study of mouth, nose, eyes and ears	8 Hours
Unit-5:	Child, Animal and cartoon study- Understanding child's figure, proportion and construction of child body, face, chubbiness, hand, feet and gestures. Animals from basic forms, understanding motion and grace of animals, turning animals to character, face, legs, tails, perspectives. Understanding cartoon characters, drawing from basic shapes, line of action, distortion of proportion, cartoon faces, eyes, mouths, hairs, nose, hands, feet, gestures and poses.	8 Hours
Text Books:	1.A handbook of Perspective-Stephen M. Ship	
Reference Books:	1.Human anatomy by-Victor Ferard 2.Figure drawing made easy by-Aditya Chari 3.Cartoons- Persten Blair **Online reference** https://www.drawinghowtodraw.com/stepbystepdrawinglessons/category/drawing-cartoons/animation-tutorials/ * **Latest editions of all the suggested books are recommended.**	

New course Added

Course Code: BSA 210	Core Course – 7 B.Sc. Animation- Semester-II **Idea generation and development**	L-4 T-0 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding scripts storyboards.	
CO2.	Understanding Idea generation process and its sources.	
CO3.	Understanding the concept of story, storytelling ideas.	
CO4.	Applying the importance of storyboard and how to create by its types.	
CO5.	Creating a storyboard for the story	
Course Content:		
Unit-1:	Historic examples of how great ideas in history were conceived. Show / tell / play with different methods of idea generation. Identifying problems, Lists, Sketching, Mind maps, Storyboards example, understanding visuals	**8 Hours**
Unit-2:	Storytelling, Different techniques of idea generation (clustering, free writing, inspiration from book, real life story, paragraphs, back story, e.t.c),Idea generation for film, advertisement, computer games. Case studies.	**8 Hours**
Unit-3:	Story writing,3, Act structure of story, Plot, Climax, conflicts, types of conflict. Sources of story line, writing the story line from classical animation. Story, elements of story, expansion, dialogues, Interaction through dialogue, script and its elements, theme & genre of script.	**8 Hours**
Unit-4:	**STORY BOARD:** Importance of story board, definition, advantage, different types of story boards, paper storyboard and screen storyboard, digital story boards, Format of story board designing story boards. Types of story-boards: Linear story board, non-linear storyboard, Hierarchical storyboard, graphical storyboard and hand drawn story board.	**8 Hours**
Unit-5:	PROJECT- Developing an story, script and creative a story-board .	**8 Hours**
Text Books:	1. The Complete Book of Scriptwriting By-J. Michael Straszynski 2. Film Scriptwriting-A practical Mannual By-Dwhite V. Swain and Joye R. Swain 3. Screenplay: Foundation of Screenwriting By-Syd Field	
Online References:	1. https://industrialscripts.com/script-ideas/ 2. https://writeandco.com/fun-ways-get-screenplay-ideas/	

New Course Added

Course Code: BSA 211	Core Course – 8 B.Sc. Animation- Semester-II **Concepts of 2D Animation and Techniques**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the production pipeline for 2D animation	
CO2.	Understanding the workspace, of Adobe Flash.	
CO3.	Understanding the basic concepts of drawing tools available in Adobe Flash.	
CO4.	Applying the various types of symbols and their uses.	
CO5.	Applying the advanced concepts of animation tools available in Adobe Flash.	
CO6.	Applying the basic concepts of Action Script, Buttons and Control over their Flash contents with scripts.	
Course Content:		
Unit-1:	An introduction to 2D animation and its production pipe line, various phases of 2D production pipeline (pre production, production and post-production), 2D, Character designing, props, kind of characters, assets of character, creating a model chart for a character, background and layouts, break down a scene in to layers as per need. Visual story boards, Frame by frame animation, straight forward animation, Key framing, in-between, tweening animation	6 Hours
Unit-2:	Flash workflow & Workspace, Introduction to flash, Workspace overview, Customize the workshop Using the stage and tools panel, About the timeline, Using Flash panels, Property inspector Library panel, Movie explorer, History panel, Color panel, Working with Flash documents: About flash files, Create or open a document and set its properties, View a document when multiple documents are open. Working with project, importing art work into flash.	8 Hours
Unit-3:	Adding media to library, Work with libraries and its items, working with timeline, working with scenes, Find and replace command, about templates, Drawing Basics: About vector and bitmap graphics, Flash drawing module, about overlapping shapes, Using flash drawing and painting tools: Draw with pencil tools, draw straight lines, Reshaping lines and shape outlines, snapping object, snapping, pixel snapping and snap alignment, working with color, strokes and fills.	8 Hours
Unit-4:	Working with graphic objects: Selection objects, moving, copying and deleting objects, Arranging objects (Stack, Align, group, Break apart groups and objects) and Transforming object, Using symbols, instances and library assets: Symbols overview, Types of symbols, Create symbols, Convent animation on the stage into a movie clip, Duplicate symbols, Edit symbols.	8 Hours
Unit-5:	Creating animation: Animation basics, creating motion, creating key frames, Representations of animation in the timeline, Frame rates, Frame by frame animation, Onion skinning, Extend still images, Mask layers. USING timeline effects, Twinned Animation, Special effects, Filters and animation of filters, filter libraries, working with text, working with Sound, Working with video.	6 Hours
Unit-6:	Interactivity in Adobe Flash, Buttons and their use, use movie clips with button, introduction to action script 2 and 3, timeline control, using small scripts for limited interactivity. Preparing a self portfolio using Adobe-Flash. Rendering in Adobe flash, video formats and video export, creating effects in flash, sound synchronization,	8 Hours

	compositing of shot and scenes in Adobe Premiere, adding title and credits, Final rendering and publishing on line and on CD.
Text Books:	1. Adobe Flash Professional CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.
Reference Books:	1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing). 2. Adobe Flash Catalyst CS6 Classroom in a Book (Author: Adobe Creative Team). *** Latest editions of all the suggested books are recommended.** **Online References:** https://help.adobe.com/archive/en/flash/cs6/flash_reference.pdf

Syllabus of B. Sc.(Animation) – College of Computing Sciences & IT, TMU Moradabad

Course Code: BSA 212	Core Course – 9 B.Sc. Animation- Semester-II **Concepts of Cinematography & Photography**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the history and technical evolution of Professional cameras.	
CO2.	Understanding the component of camera's and functionalities	
CO3.	Understanding the rules of composition for photography and functionalities of video camera and setting up the accessories in cinematography.	
CO4.	Applying the techniques of lighting and application of tripods and other camera accessories to capture a good composition in cinematography & Photography	
CO5.	Applying the rules for camera movement ,shots and angle to create a perfect video shot Painting	
CO6.	Creating a short film /documentary using cinematography rules and techniques.	
Course Content:		
Unit-1:	History of camera , camera obscura, parts of camera, analog and digital cameras, pixel, raster and vector, resolution, functions of camera, viewfinder. SLR, DSLR cameras, Focus, aperture, white balance, Depth of Field, shutter speed, ISO, exposure, F-Stops.	**8 Hours**
Unit-2:	Lenses, Type of lenses(prime, zoom ,micro), Focal length, camera settings, setting white balance, sunny 16 rule, metering , tripod , speed light, reflectors. Camera equipments, types of photography (wedding, wild, portrait, street, architecture, product	**8 Hours**
Unit-3:	Introduction to cinematography, video camera, functions of video camera, setting up equipment and camera, handling video camera, health and safety, camera crew.	**8 Hours**
Unit-4:	Camera moves, types of shots(extreme long shot, long shot, medium shot ,medium close up shot, close up shot) and angles (low angle, high angle, tilt POV, Birds eye view).180 degree rule	**8Hours**
Unit-5:	Basic acting activity, understanding scene and shot, Cinematography lighting, low key and high key lighting, 3 point lighting system, lighting filters, project short film.	**8 Hours**
Text Books:	1. 1. The Elements of Photography, Belt, Angela Faris,Focal Press	
Reference Books:	1. ASMP Professional Business Practices in Photography, Carr, Susan, Allworth Press 2. Photography FAQs: Portraits, Evans, Duncan, AVA Book 3. Photoshop CS6 in Simple Steps, Kogent Learning Solutions Inc., Dreamtech Press 4. Basic Photography: Post Production Black & White, Macleod, Steve, AVA Book *** Latest editions of all the suggested books are recommended.** **Online References:** https://www.studiobinder.com/blog/cinematography-techniques-no-film-school/ http://vision.cse.psu.edu/courses/CompPhoto/PhotoIntro.pdf	

New Course Added

Course Code: BSA 256	Core Course – 12 B.Sc. Animation- Semester-II **Concepts of Cinematography & Photography (LAB)**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Applying the techniques of lighting in photography and cinematography	
CO2.	Applying the application of tripods and other camera accessories to capture a good composition	
CO3.	Applying the rules for camera movement ,shots and angle to create a perfect video shot Painting	
CO4.	Creating a Photo album various techniques and types of photography.	
CO5.	Creating a short film /documentary using cinematography rules and techniques.	
Experiments	• Setting up camera and equipment • Photography using focus, aperture, white balance, ISO, exposure. • Photography using composition rules • Types of photography exercise • Setting up video camera & equipments, Exercise on camera moves and angles, exercise on cinematography rules. • Project work on short films.	
Text Books:	1. 1. The Elements of Photography, Belt, Angela Faris,Focal Press	
Reference book	2. ASMP Professional Business Practices in Photography, Carr, Susan, Allworth Press 3. Photography FAQs: Portraits, Evans, Duncan, AVA Book 4. Photoshop CS6 in Simple Steps, Kogent Learning Solutions Inc., Dreamtech Press 5. Basic Photography: Post Production Black & White, Macleod, Steve, AVA Book *** Latest editions of all the suggested books are recommended.** **Online References:** https://www.youtube.com/watch?v=9srSStavb8g https://www.youtube.com/watch?v=N1gNaCXDTaQ https://www.smashingmagazine.com/2009/04/the-ultimate-photography-round-up/	

New course Added

Course Code: BSA 257	Core Course – 10 B.Sc. Animation- Semester-II **Audio & Video-Editing -LAB**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the video editing software & edit videos for movie / presentation	
CO2.	Analyzing the process of sound recording & cleaning noise in Adobe audition	
CO3.	Applying the editing techniques to the video in Adobe premiere	
CO4.	Applying the of special effect on audio in Adobe Audition.	
CO5.	Applying the basic of special effects and video transition on video in Adobe Premiere.	
	• Overview of editing, Linear and non linear editing, Concept of non linear editing, • Adobe premiere Interface, the basics of editing: Creating Rough cut edit • Overview, Importing and Exporting: various audio, video and graphics in various formats, Edit, manipulate and arrange these elements in visual timeline, understand all Tools on toolbox for editing clips. Titling and superimposing, • Performing types of edit(ripple, trim, slip) and application of markers • Creating titles(all three types), • Appling transitions ,video effects and creating key frames • Performing color correction in the edited video. • Mixing song and creating film trailer. • Title animation using key frames. • Performing Multicam Editing. • Performing keying techniques on green screen, Blue screen • Creating News broadcasting Layouts(Lower third titles, Frames, Ticker , sting, transition, teaser) • Performing application of Audio transition , Track mixing using Mixer, Pitch shifter and reverb effects • Theory of audio, Interface of Adobe Audition, • Manipulating audio: Auto trim/crop, mute, reverse, smooth/enhance, Fade in/out, in Adobe audition • Sound recording and Perform noise reduction in Adobe Audition, • Exporting into multiple audio file formats like MP3, • Audio editing: workflow, cross fading audio tracks, balancing sound levels in Adobe Audition, • Understanding Multitrack audio workflow in Adobe audition, • Creating A documentary on based of above tools.	
Text Books:	1. The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects. Author: Ric Viers (Michael Wiese Productions).	
Reference Books:	1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gael 2. Adobe Premiere Pro CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press. *** Latest editions of all the suggested books are recommended.** **Online References:** **https://helpx.adobe.com/pdf/premiere_pro_reference.pdf**	

New Course Added

	Core Course – 11	
Course Code: **BSA 258**	**B.Sc. Animation- Semester-II** **2D animation Project**	**L-0** **T-0** **P-4** **C-2**

Course Outcomes:	On completion of the course, the students will be :	
CO1.	Applying the production pipeline to create an animated Short film	
CO2.	Applying the production pipeline process into the project.	
CO3.	Applying the basic concepts of drawing tools available in Adobe Flash.	
CO4.	Applying the various types of 2D animation tool and techniques to create project	
CO5.	Creating animated video using various 2D animation tools.	
Course Content:		

	Student will create and submit a short 2D Animation film individually or in group under the supervision of project guide. This project will be evaluated by a panel of internal faculty members as well as by external examiner. The evaluation scheme is as follow:- **INTERNAL EVALUATION-**	

Unit-1:   **6 Hours**

Attendance	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

EXTERNAL EVALUATION-

File	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

Text Books:	1. Adobe Flash Professional CS6 Classroom in a Book (Author: Adobe Creative Team) Adobe Press.	
Reference Books:	1. Flash character animation: applied studio techniques By Lee Purcell (Sams publishing). 2. Adobe Flash Catalyst CS6 Classroom in a Book (Author: Adobe Creative Team). *** Latest editions of all the suggested books are recommended.** **Online References:** https://help.adobe.com/archive/en/flash/cs6/flash_reference.pdf	

New course Added

Course Code: BSA 309	Core Course – 13 B.Sc. Animation- Semester-III **Basics of motion graphics & FX (After Effect)**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the basics of motion graphics	
CO2.	Understanding the basic of special effects using Adobe after effects.	
CO3.	Understanding the basic of advance visual effects using Adobe after effects.	
CO4.	Applying the process of VFX in Adobe After effects.	
CO5.	Applying the VFX techniques in Adobe After effects.	
CO6.	Applying the effects in Adobe After effects	
Course Content:		
Unit-1:	An introduction to motion graphics, Pal and NTSC formats, Frame rate, Adobe After effect interface, Panels ,composition, composition setting, nested composition, pre composition, preferences, importing files, transform properties, key farming, basic animation using transform properties, motion blur, interpolation, graph, ,blending modes .	**8 Hours**
Unit-2:	Case study of motion graphics video, Text tool, Parenting, Masking, types of masking tool, stroke application of masking, creation of motion graphics video(explainer video), Introduction to rotoscopy, rotoscopy exercise, stereoscopic rotoscopy workflow, paint , wire removal techniques using paint.	**8 Hours**
Unit-3:	Introduction to keying, types of keying tool, shooting practice of chroma , application of keying tool , light wrap and merging with BG, Luma key, shadow extraction , Tracking , 2D tracking in after effect, types of tracking, Application of tracking, Stabilization. Color correction tools, color correction exercise. Set extension exercise.	**8 Hours**
Unit-4:	Introduction to Camera, 3D layers, Light layers, application of camera and light layers, Animation of matte painting arranging in 3D space, Filters, transition, application of filters and transition, sequencing layers, Particles, canon and grid, layer explode, application of particles, Particle world, shatter effect,	**8Hours**
Unit-5:	Understanding layer passes , Compositing layer passes, exercise on layer pass compositing, introduction to scripting , Application and exercise based on scripting, creating project using all above the tools in after effect. Advanced effects.	**8 Hours**
Text Books:	1. Flash + after effects by Chris Jackson (Focal press publication).	
Reference Books:	1. Adobe After Effects CS6 Digital Classroom Book by Jerron Smit. *** Latest editions of all the suggested books are recommended.** **Online References:** **https://helpx.adobe.com/pdf/after_effects_reference.pdf**	

New course Added

Course Code: BSA 310	Core Course – 14 B.Sc. Animation- Semester-III **Fundamental of 3D, concepts of modeling & texturing**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the interface and come to know about various tools available in Maya.	
CO2.	Understanding modeling with Maya.	
CO3.	Aanalyzing the Autodesk Maya files in other 3D software.	
CO4.	Applying the modeling techniques using the Autodesk Maya.	
CO5.	Creating model characters and objects in 3D for animation and Graphics.	
Course Content:		
Unit-1:	Introduction to the interface of Maya, Menu bar, Tool bar, hot box, The channel box, Using the shelf, hot keys, Hot keys, manipulating a view. Creating objects: Simple primitives, Cameras. Selecting objects, types of selection, Single selection, adding and subtracting selection. Edit menu selection options, Marquee selection, Lasso selection, hyper shade, Relationship editor, hyper graph and outliner.	8 Hours
Unit-2:	Duplicating objects, Pivot points, Introduction to snapping, Types of Snapping, Layer Editors, Introduction to Maya Shaders, Introduction to Polygon modeling, Poly modeling tools, NURBS modeling, Nurbs and surface Modeling tools, Modeling Props and sets (Locations), Creating backgrounds, interiors, exteriors etc.	8 Hours
Unit-3:	Modeling a high poly model, Technical issues related to managing high poly model. Modeling different part of Human and Animal bodies, Modeling the character using templates & view port references, Optimizing the final model, refining the mesh, basic posture, testing the model, Difference between hi-poly & low-poly characters.	8 Hours
Unit-4:	Introduction to basic material types & Procedurals. Study of concepts: Opacity, Smoothness, Secularity and color, Working with Transparency, Reflection & Refraction, Introducing 3D Maps. Introduction to unwrapping, Unwrapping the maps for various 3d characters. Working With 2D and 3D Texture, create texture and pattern in Photoshop. Introducing 3D maps.	8Hours
Unit-5:	Introduction about the lighting & it's properties, object base lighting, connection between object and light. Rendering engine, Rendering with software, Maya hardware, **Rendering settings according to Rendering engine. Introduce rendering passes.**	8 Hours
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. ***Latest editions of all the suggested books are recommended. Online reference:** https://static.sdcpublications.com/pdftoc/978-1-63057-178-8_toc.pdf	

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Course Code: BSA 311	Core Course – 15 B.Sc. Animation- Semester-III **Experimental Animation**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding about basic principles of animation.	
CO2.	Understanding the various processes and technologies used in creation of Animations.	
CO3.	Understanding the various drawing techniques used in classical animation.	
CO4.	Applying stop motion and non conventional techniques to create short animations.	
CO5.	Applying the various processes and technologies used in creation of Animations to create experimental animation.	
Course Content:		
Unit-1:	Introduction to animation principal(12 basic principal), creating story board, creating animatics based on the story boards . Understanding different types of Experimental animation. Case studies.	**8 Hours**
Unit-2:	Introduction to stop motion techniques. Equipment settings for stop motion, Animation using stop motion techniques(using products, using paper cut outs, using, chalk, etc).clay modeling , Stop motion using clay models.	**8 Hours**
Unit-3:	Filpbook, frame by frame animation. keyframe animation, Classical animation techniques, Animation drawings, Sand art and Sand animation.	**8 Hours**
Unit-4:	The exquisite corpse, surrealism and film,Miniature models, process to creating miniature models, Mixing CG shot with miniature for animation, CG shot using vfx (after effect, or fusion)software based on miniature.	**8Hours**
Unit-5:	Introduction to motion capture, motion capture using motion tracking tools, introduction to Rotoscopy. Rotoscopy using After effect software.	**8 Hours**
Text Books:	1-Survival kit for animators -Sir Willium Richards	
Reference Books:	1. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White. 2.Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press) 3.The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course Technology) 4.From pencil to pixel by Tony White 5.Animation process by Persten Blair. *Latest editions of all the suggested books are recommended. **Online references:** http://graphics.cs.cmu.edu/nsp/course/15464-s15/www/lectures/lec02.pdf	

New Course Added

Course Code: BSA 356	**Core Course – 16** **B.Sc. Animation- Semester-III** **Fundamentals of 3D & Concepts of modeling and texturing-Lab**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the interface and come to know about various tools available in Maya.	
CO2.	Analyzing modeling with Maya.	
CO3.	Analyzing the Autodesk Maya files in other 3D software.	
CO4.	Applying the modeling techniques using the Autodesk Maya.	
CO5.	Creating model characters and objects in 3D for animation and Graphics.	
Course Content:		
Experiments:	• Model some objects such as chairs, tables, fruits, utensils, instruments, tools, cars, bikes, aeroplane, etc. • Model male and female characters. • Model 4 leg characters • Inorganic modeling • Props modeling • Product modeling • Texture using unwrap • Application of hyper shades. • Lighting a table lap. • Rendering the scene	
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. ***Latest editions of all the suggested books are recommended.** **Online reference:** https://static.sdcpublications.com/pdftoc/978-1-63057-178-8_toc.pdf	

New- Course Added

Course Code: BSA 357	Core Course – 17 B.Sc. Animation- Semester-III **Basics of motion graphics & FX (After Effect)-LAB**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the basics of motion graphics	
CO2.	Analyzing the basic of special effects using Adobe after effects.	
CO3.	Applying the basics of advance visual effects using Adobe after effects.	
CO4.	Applying the process of VFX in Adobe After effects.	
CO5.	Applying the VFX techniques in Adobe After effects.	
CO6.	Creating the effects in Adobe After effects.	
Course Content:		
Experiments	• Making Basic animation using keyfarme • Creating Basic motion graphics video • Creating rotoscopy video • Creating explainer video • Creating cinematic effects • Creting chroma video • Creating tracking video • Creating a set extension using keying , tracking, stabilization , etc • Creating SFX using particle and filters, compositing layer passes.	
Text Books:	2. Flash + after effects by Chris Jackson (Focal press publication).	
Reference Books:	1. Adobe After Effects CS6 Digital Classroom Book by Jerron Smit. 2.Creating Motion Graphics with After Effects by Chris Meyer and Trish Meyer *** Latest editions of all the suggested books are recommended.** **Online References:** https://helpx.adobe.com/pdf/after_effects_reference.pdf	

New Course Added

Course Code: BSA 358	Core Course – 18 B.Sc. Animation- Semester-III **Experimental Animation**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding about basic principles of animation.	
CO2.	Understanding the various processes and technologies used in creation of Animations.	
CO3.	Understanding the various drawing techniques used in classical animation.	
CO4.	Applying stop motion and non conventional techniques to create short animations.	
CO5.	Applying the various processes and technologies used in creation of Animations to create experimental animation.	
Course Content:		
Experiments:	• Creating Animatics • Creating stop motion • Creating Clay animation • Creating frame based animation • Creating CG shot with miniature • Creating a motion capture shot • Creating Flipbook animation • Creating rotoscopy shot	
Text Books:	1-Survival kit for animators -Sir Willium Richards	
Reference Books:	1. The Animator's Workbook: Step-By-Step Techniques of Drawn Animation by Tony White. 2.Stop Motion: Craft Skills for Model Animation by Susannah Shaw (Focal Press) 3.The ADVANCED Art of Stop-Motion Animation by Ken A. Priebe (Course Technology) 4.From pencil to pixel by Tony White 5.Animation process by Persten Blair. *Latest editions of all the suggested books are recommended. Online references: http://graphics.cs.cmu.edu/nsp/course/15464-s15/www/lectures/lec02.pdf	

New Course Added

Course Code: BSA 408	Core Course – 19 B.Sc. Animation- Semester-IV **Concepts of Lighting & shading with Maya**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the different kinds of lights and light setup in a Maya scene.	
CO2.	Understanding the use of lights and to set their attributes more precisely.	
CO3.	Understanding about how to get final output of their scene using various rendering techniques.	
CO4.	Applying Various techniques like shadows and Fog in Maya lighting system.	
CO5.	Applying various rendering techniques of Maya lighting to achieve desired output.	
Course Content:		
Unit-1:	Introduction to CG Lighting, Working with Maya Lights 1-Point, Direct, Spot, Working with Maya Lights 2-Ambient, Area and Volume, Direct Illumination-Creating and Illuminating a Stage Show, Three Point Lighting and Exterior Lighting,	8 Hours
Unit-2:	Cast shadows, decay rate, Previewing lighting and shadows Creating depth map Shadow, creating ray traced shadows, Concept of lighting system and shadows, Creating area light shadows, setting area light visibility,	8 Hours
Unit-3:	Creating soft shadows with spot lights, Indirect lighting: Setting illumination for interiors, Tuning global illumination, Global illumination & photons settings.	8 Hours
Unit-4:	Rendering a still, rendering an AVI, Render setup options, Rendering an image sequence. introduction to Render layers:, creating, splitting a scene into render layers, Applying render layer presets, setting overrides, creating render layer composites, Introduction to Render Passes, compare render passes and render layers,	8Hours
Unit-5:	Render quality: anti aliasing, setting color profiles, diagnosing ray tracing, adjust motion blur. Creating fogs **rendering fogs,** Maya paint effects, paint effect library, paint effect brush setup, animating paint effects, rendering paint effects.	8 Hours
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. ***Latest editions of all the suggested books are recommended. Online Reference:** http://saintangelos.com/studentdesk/Download/Lighting_and_Rendering_in_Maya.pdf	

New Course Added

Course Code: BSA412	AECC-4 B.Sc. Animation- Semester-IV **Advance Digital Sculpting**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the concept of Z-brush, working with layout, palettes, canvas, etc.	
CO2.	Understanding to combination of Autodesk Maya or Autodesk 3ds max with Z-brush for a final output	
CO3.	Understanding to use various lighting, shadows and texturing technique.	
CO4.	Applying the mapping and skinning of the Z-brush Models.	
CO5.	Applying the brushes , render and final posing of characters	
Course Content:		
Unit-1:	canvas, working with layouts, working with layouts, working with palettes, Z-Brush configuration, using startup documents, tray modes, working with Z-Script palette and working with the preference palette.	8 Hours
Unit-2:	Types of tools in Z-Brush 4, modes, options and related palettes, explaining the tool palette, working with tools, working with pixel based tools, working with gyro tool, Autodesk Maya and Autodesk 3ds max settings, Introduction to Go-Z, introduction to curves, the alpha adjust curve, the edit curve, the smoothing curve, the diffuse curve, the specular curve, the trans curve, the reflect curve, the noise curve and the intensity curve.	8 Hours
Unit-3:	Strokes, lighting, shadows, transformation, working with alphas, texture concepts, texture inventory, understanding the texture palette, texture mapping, seamless textures, spot light texturing, painting textures and materials. Imm-plugins.	8 Hours
Unit-4:	Creases mesh visibility, morph target, multi-resolution modeling, edge loop, different maps, explain projection master, working with Z-Spheres, understanding adaptive skinning and understanding unified skinning.	8 Hours
Unit-5:	Sculpting, sculpting brushes, using stencils, sculpting using projection master, understanding and render palette and posing characters.	8 Hours
Text Books:	1-Introducing Z-Brush by-Eric Keller	
Reference Books:	2. Digital Sculpting Human anatomy By-Scott Spencer *** Latest editions of all the suggested books are recommended.** **Online References:** http://docs.pixologic.com/user-guide/	

New Course Added

Course Code: BSA 460	SEC – 2 B.Sc. Animation- Semester-IV **Advanced digital sculpting (LAB)**	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Analyzing the concept of Z-brush, working with layout, palettes, canvas, etc.	
CO2.	Analyzing to combination of Autodesk Maya or Autodesk 3ds max with Z-brush for a final output	
CO3.	Applying to use various lighting, shadows and texturing technique.	
CO4.	Applying the mapping and skinning of the Z-brush Models.	
CO5.	Creating the brushes , render and final posing of characters	
Experiments:	- Concept designing with the help of dyna-mesh. - Creating base mesh with Z-sphere. - Modeling a high poly model. - Modeling with Z-brush - Z-brush with Max and other 3d soft-wares - Import an .obj file and add fine detailing, export various maps.	
Text Books:	1-Introducing Z-Brush by-Eric Keller	
Reference Book:	1. Digital Sculpting Human anatomy By-Scott Spencer **Online References:** http://docs.pixologic.com/user-guide/	

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Course Code: BSA 461	Core Course – 20 B.Sc. Animation- Semester-IV **Concepts of Lighting & shading-with Maya -LAB**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the different kinds of lights and light setup in a Maya scene.	
CO2.	Analyzing the use of lights and to set their attributes more precisely.	
CO3.	Analyzing how to get final output of their scene using various rendering techniques.	
CO4.	Applying Various techniques like shadows and Fog in Maya lighting system.	
CO5.	Applying various rendering techniques of maya lighting to achieve desired output.	
CO6	Creating A lighting scene in MAYA	
	• Create a natural outdoor or indoor scene. • Create Opacity, Smoothness, Secularity, and color maps, Transparency, Reflection & • Refraction, and Bump & Displacement Maps • Apply basic material and shader types & Procedurals textures. • Set Lighting for the scene. • Set light for Day, Night and Morning • Create FOG nodes in your scene. • Render a frame and video of indoor and outdoor scenes. • Render a photorealistic output of an interior scene. • Render a natural scene show different time by varying lighting. • Advance lighting using mental ray render. • Animate day and night scene of a street with the help of lighting.	
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. **Online Reference**: http://saintangelos.com/studentdesk/Download/Lighting_and_Rendering_in_Maya.pdf	

New Course Added

Course Code: BSA 462	AECC – 4 B.Sc. Animation- Semester-IV **Project**(3DModeling/Game design/Architectural design)	L-0 T-0 P-4 C-2

Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the 3D project pipeline.	
CO2.	Analyzing the use of 3D and 2D software in Game design/Architectural design	
CO3.	Applying Various techniques of 3D and 2D animation	
CO4.	Applying various rendering techniques to achieve desired output.	
CO5.	Creating A video based on Gaming/3D modelling/Architectural Design as final output	

Details:

Student will create and submit project on one 3DModeling/Game design/Architectural design individually or in group under the supervision of project guide. This project will be evaluated by a panel of internal faculty members as well as by external examiner. The evaluation scheme is as follow:-

INTERNAL EVALUATION-

Attendance	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

EXTERNAL EVALUATION-

File	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller. 2. Introducing Maya 2017 by Dariush Derakhshani.	
Online References	https://help.autodesk.com/view/3DSMAX/2020/ENU/ http://indexof.es/Varios2/Beginning%20Game%20Development%20with%20Unity4.pdf https://images.autodesk.com/adsk/files/autocad_aca_user_guide_english.pdf https://help.autodesk.com/view/3DSMAX/2020/ENU/	

New Course Added.

Course Code: BSA 512	Core Course – 21 B.Sc. Animation- Semester-V **Concepts of 3D Animation& Rigging with Maya**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the Rigging process in Maya, they are elaborated with creation of different kind of rigs for characters and objects.	
CO2.	Understanding the animation Maya, they practice to apply various animation principles and learn different tools for Animation in Maya.	
CO3.	Analyzing the various techniques of Animation in Maya.	
CO4.	Applying the various technique of rigging in Maya	
CO5.	Applying the various technique and tools.	
Course Content:		
Unit-1:	Introduction to bone system/Joints and IK handles, Creating bone system and maintaining naming conventions, Skinning types, import and export of skin weights, IK and FK basics, IK and FK switch,	8 Hours
Unit-2:	Introduction to Deformers, Introduction to constrains and implementation to rig. Maintaining proper hierarchy, grouping and creating controls, rigging the characters, Use of deformers in rigging process.	8 Hours
Unit-3:	Brief about animation principles, Animation tools in 3D, "Applying classical 2D animation techniques i.e; Stretch squash for 3D character". Creating the illusion of weight, Overview of Maya's playback controls, Exploring maya's animation preferences. Details about graph editor, Bouncing Ball Exercise, Body language.	8 Hours
Unit-4:	Animating object along a motion path, Utilizing the trax-editor to blend animation clips. Controlling attributes with set driven keys, Animating with constraints, Previewing animations in real-time with play blasts, Introduction to scene animation and key framing, dope sheet.	8 Hours
Unit-5:	Animal walk& run cycles, snakes and birds. Biped Character walk cycles, Biped Character run cycles, pushing and pulling objects. Facial animation and lip-sync. Nonlinear Animation with trax editor. Working with character sets and clips. character interactions.	8 Hours
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Books:	1. Introducing Maya 2017 by Dariush Derakhshani. *** Latest editions of all the suggested books are recommended.** **Online References:** https://ptgmedia.pearsoncmg.com/images/0735712530/samplechapter/0735712530c.pdf	

New Course Added

Course Code: BSA 515	Core Course – 22 B.Sc. Animation- Semester-V **Visual Effect techniques**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the node based compositing systems.	
CO2.	Understanding to use open poly support feature to enhance the rotoscopy skills.	
CO3.	Understanding to get 3D compositing techniques such as camera projection, 3D particles.	
CO4.	Applying the VFX features and create shorts like Gravity films.	
CO5.	Applying the different 3D compositing techniques such as camera projection, 3D particles to create a vfx shot.	
Course Content:		
Unit-1:	Introduction to node based compositing system, fusion interface, user preferences, flow, console, timeline, spline, setting up timeline, I/o nodes, merge nodes, basic animations. Mask tools (bitmap, polygon, wand, bspline, etc),application of mask tool, rotoscopy, stereoscopic rotoscopy workflow, matte control	6 Hours
Unit-2:	Keying nodes, chroma keyer, ultra keyer, luma keyer, exercise on green/blue screen removal using keyers tool, compositing with green screen/blue screen footage.Tracking node, stabilization , set extension using tracking and chroma footage. 3D nodes: creating basic models , texturing, shading, creating 3D motion graphics, Import and export fbx . 3D camera, camera projection, projector 3D, deep pixel effects, render passes, re-lighting, light node, 3D particle nodes, exercise on 3D particle nodes, creating snowfall, water fall, forest using 3D particles, creating macro. Use of macro nodes. 3D tracking,	8 Hours
Unit-3:	Navigating the interface ,Building Node Graphs , Creating key frames ,The Curve Editor, Key frame animation , Math expressions and linking , Creating animated elements ,Correcting for lens distortion.Color and Rotoscoping ,Nuke's color management ,Color correcting composites ,Rotoscoping ,Masking operations Compositing CGI and Channels ,Mastering Nuke's channels system , Multi-pass CG compositing , Adding motion blur ,Adding depth of field, Keying , Lumakeys ,All four of Nuke's chromakeyers , Proper use of Addmix and Keymix nodes , How to merge multiple keys ,Tracking, Warping and Retiming , The Tracker node , How to do a match move , Spline warp and Grid warp .	8 Hours
Unit-4:	Navigating the interface ,Building Node Graphs , Creating key frames ,The Curve Editor, Key frame animation , Math expressions and linking , Creating animated elements ,Correcting for lens distortion.Color and Rotoscoping ,Nuke's color management ,Color correcting composites ,Rotoscoping ,Masking operations Compositing CGI and Channels ,Mastering Nuke's channels system , Multi-pass CG compositing , Adding motion blur ,Adding depth of field, Keying , Lumakeys ,All four of Nuke's chromakeyers , Proper use of Addmix and Keymix nodes , How to merge multiple keys ,Tracking, Warping and Retiming , The Tracker node , How to do a match move , Spline warp and Grid warp .	8 Hours
Unit-5:	Camera Tracking ,How to do camera tracking ,Converting point clouds to meshes , Compensating for lens distortion , Getting 3D information to the 2D composite, Planar Tracker and Particles , How to do planar tracking , How to use planar tracking results ,Using Nuke's 3D particle system , Creating your own particles ,Advanced 3D Nodes , Deep compositing , Alembic geometry , Modeling 3D geometry from a 2D scene , Creating point clouds from CG renders	8 Hours
Text Books:	1. Blackmagic Design Fusion 7 Studio: A Tutorial Approach Kindle Edition by Prof. Sham Tickoo Purdue Univ. (Author), CADCIM Technologies (Author)	

Reference Book:	1. Digital Compositing with Blackmagic Fusion (English, Paperback, Lanier Lee) 2. Professional Digital Compositing: Essential Tools and Techniques Paperback – Import, 8 Dec 2009 **Online References:** https://documents.blackmagicdesign.com/UserManuals/Fusion9_Manual.pdf https://learn.foundry.com/nuke

New Course Added

Course Code: BSA 558	Core Course – 23 B.Sc. Animation- Semester-V **Concepts of 3D Animation& Rigging with Maya-Lab**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the Rigging process in Maya, they are elaborated with creation of different kind of rigs for characters and objects.	
CO2.	Understanding the animation in Maya and practice to apply various animation principles and learn different tools for Animation in Maya.	
CO3.	Analyzing the various techniques of Animation in Maya.	
CO4.	Applying the various technique of rigging in Maya	
CO5.	Applying the various technique of animation in maya.	
	• Create rigs for male and female characters. • Create rigs for animals, birds, fishes and worms. • Mechanical rig, Vehicle rig. • Rigging various props. • Make an animation of a character walking in street he pick up some object and throw it. • Make various expressions of models and use them for blend shapes. • Make different kinds of biped walk(Happy, Sad, Attitude and Tiptop) • Create run, jump, skid animations. Stair up and stair down. • Make animations of coin drop, ball bounce, path animation.	
Text Books:	1. Mastering Autodesk Maya 2017 by Eric Keller.	
Reference Book:	2. Introducing Maya 2017 by Dariush Derakhshani. **Online References:** https://ptgmedia.pearsoncmg.com/images/0735712530/samplechapter/0735712530c.pdf	

New course Added

Course Code: BSA 559	**Core Course – 24** **B.Sc. Animation- Semester-V** **Advance Editing Techniques(FCP) - LAB**	L-0 T-0 P-4 C-2

Course Outcomes:	**On completion of the course, the students will be :**
CO1.	Understanding the concepts of advance video editing software.
CO2.	Analyzing the process of creating news packaging in Final cut pro
CO3.	Applying the editing techniques to the video in Final cut pro
CO4.	Creating the special effects and video transition on video in Final cut pro
CO5.	Creating a motion teaser/short film/documentaries.
Course Content:	
Experiments:	• History of editing, Linear and non linear editing, Concept of non linear editing, Introduction MAC systems, Exploring the Interface, Commanding the Keyboard Lesson , Organizing Optimizing & Analyzing Media Lesson ,Importing Files & Folders , Importing from a Camera Archive & iMovie , Working in the Event Library , Organizing Media with Keywords , Rating Deleting & Transcoding Media, Working in the Project Library . • Building a Rough Cut , Performing Insert Overwrite & Connect Edits , Removing Unwanted Material , Replacing Clips & 3 Point Editing , Adjusting Clip Timing ,Auditioning Clips, Using the Trimming Tools , Working with Storylines , Creating Secondary Storylines & Compound Clips , • Editing the Soundtrack , Working with Music , Adding Markers & Dolby Surround Panning ,Enhancing the Soundtrack , Retiming Video , Creating Hold Frames & Controlling Video Quality , Applying & Modifying Transitions , Applying & Animating Effects , Working with Generators & Backgrounds , Transforming Images , Trimming Cropping & Distorting Images , Applying & Animating Titles , Working with Themes & Placeholders , Balancing & Matching Color , • Manually Color Correcting Images , Using Color & Shape Masks , Publishing to Apple Devices , Publishing to Blu-ray Vimeo & QuickTime , Exporting using Compressor. Understanding TV broadcasting visual elements, creating, bug, bumper, frame, lower third, ticker, transition, logo animation, • Creating teaser .creating documentary, Editing news shots.
Text Books:	1.Apple Pro Training Series: Final Cut Pro X Paperback – Import, 20 Feb 2013 by Diana Weynand (Author)
Reference Books:	1. Film Editing: Great Cuts Every Filmmaker and Movie Lover Must. Know Author: Gae *** Latest editions of all the suggested books are recommended.** **Online References:** https://www.a2gov.org/departments/communications/ctn/services/Documents/final_cut_pro_x-10.1-user_guide.pdf\

New Course Added

Course Code: BSA 560	Core Course – 25 B.Sc. Animation- Semester-V **Visual Effect Techniques -LAB**	L-0 T-0 P-4 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the node based compositing systems.	
CO2.	Analyzing to use open poly support feature to enhance the rotoscopy skills.	
CO3.	Analyzing 3D compositing techniques such as camera projection, 3D particles.	
CO4.	Applying to use VFX features and create shorts like Gravity films.	
CO5.	Creating a vfx shot using different 3D compositing techniques such as camera projection, 3D particles.	
	• Creating Animation of Fan, using motion blur, and graph editor • Merging foreground with background, rotoscopy • Keying and color correction, Set extension • Create tracking scene • Application of rig removal • Create a scene using 3D nodes • Create a scene using camera projection techniques • Create a scene using 3D particle. • Compositing layer passes • Creating Animation of Fan, using motion blur, and graph editor • Merging foreground with background, rotoscopy • Keying and color correction, Set extension • Create tracking scene • Application of rig removal • Create a scene using 3D nodes • Create a scene using camera projection techniques • Create a scene using 3D particle. • Creating scene from 2D to 3D • 3D tracking. • Compositing layer passes	
Text Books:	1. Blackmagic Design Fusion 7 Studio: A Tutorial Approach Kindle Edition by Prof. Sham Tickoo Purdue Univ. (Author), CADCIM Technologies (Author)	
Reference Book:	1. Digital Compositing with Blackmagic Fusion (English, Paperback, Lanier Lee) 2. Professional Digital Compositing: Essential Tools and Techniques Paperback – Import, 8 Dec 2009 **Online References:** https://documents.blackmagicdesign.com/UserManuals/Fusion9_Manual.pdf https://learn.foundry.com/nuke	

Registrar

New Course Added

Course Code: BSA 607	Core Course – 27 B.Sc. Animation- Semester-VI **Production Process of 3D Animation**	L-3 T-1 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the basic concepts of production pipeline.	
CO2.	Understanding various departments of 3d animation studio.	
CO3.	Understanding pre production pipeline for using story, script, character designing, background and layouts, staging Storyboarding, voice over, Background audio, animatic,	
CO4.	Applying the production process pipeline for character modeling, texturing and Shading, background creation, props Modeling, Rigging, Character animations, lighting the scenes	
CO5.	Applying the post production pipeline used for rendering in 3D animation	
Course Content:		
Unit-1:	Basic steps to make a 3d animation, Why do we need a production pipeline?, What is the production pipeline?, An introduction of the various departments of 3d animation studio.	6 Hours
Unit-2:	Key position in a 3d Animation studio and their role, director, producer, lead technical director, lead animator, structure of organization and various departments,	6 Hours
Unit-3:	Introduction to pipeline "stages", story, script, storyboarding, casting, voice over, Background audio, animatic, character designing, background and layouts, staging	6 Hours
Unit-4:	Production process- Character modeling, texturing and Shading, background creation, props modeling, Rigging, Character animations, Lighting the scenes, .	6 Hours
Unit-5:	Postproduction: Rendering, soft-ware rendering, mental ray rendering, Hard-ware rendering, image sequences, rendering passes, compositing, dynamics, special effects.	6 Hours
Text Books:	1- 3D Animation Essentials by Andy Beane	
Reference Books:	1-Body Language - Advanced 3D Character Rigging by- Eric Allen & Kelly L. Murdock 2-Maya 2017- Character Modeling and Animation by Tereza Flexman 3- The 3D production Pipeline by Fabio Pellacini *** Latest editions of all the suggested books are recommended.** **Online References:** https://www.bloopanimation.com/wp-content/uploads/2014/12/Making-an-Animated-Short.pdf	

Registrar

New course Added

Course Code: BSA 609	**Core Course – 26** **B.Sc. Animation- Semester-VI** **Concepts of 3D Dynamics and Liquid simulation.**	**L-3** **T-1** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the concept of dynamics and n-Dynamics in Maya.	
CO2.	. Understanding various attributes of Fur node in Maya.	
CO3.	Understanding with liquid simulation using Realflow.	
CO4.	Applying real time Hair for 3D characters and real cloths for Animation using n-Cloth feature of Maya	
CO5.	Applying fur for animals models.	
CO6.	Applying special effects using Maya Particles and n-Particles such as water, fire smoke etc.	
Course Content:		
Unit-1:	Introduction to n-Cloth, Use of mesh as n-Cloth, Optimizing geometry for n-Cloth, Setting n Cloth collisions and constrains, n-cloth and external dynamic forces. Various n-cloth simulations, n-cloth caches creating and editing, nCloth caches attributes Optimizing n-cloth, n-Cloth examples	**6 Hours**
Unit-2:	Introduction to Hair, Hair styling, Painting and setting positions for hair follicles, Assigning hair system, Making collisions and use of constrains.	**6 Hours**
Unit-3:	Introduction to Fur system in Maya, Assigning fur, defining various fur attributes like fur maps, reversing normals etc. Shadow and render settings of fur.	**6 Hours**
Unit-4:	Introduction to n-Particles and particles in Maya, different kind of emitters, particles attribute, collision of particles with other objects, various fields, particle shapes and dynamic, particle instance, particle collision event editor, effects. Soft and rigid bodies, active and passive rigid bodies, dynamic attributes of soft and rigid bodies, pin constraint, hinge constraint, spring constraint, paint soft body weight tool.	**6 Hours**
Unit-5:	Interface of realFlow, Creating splash, Making the splash flow back on to the bottle ,creating blood and honey, setup a stormy ocean and simulate a mesh in preparation form Maya tiling.	**6 Hours**
Text Books:	1- Mastering Autodesk Maya by Eric Keller.	
Reference Books:	1-Introducing Maya2017 by Dariush Derakhshani. *** Latest editions of all the suggested books are recommended.** **Online reference:** https://www.diva-portal.org/smash/get/diva2:119708/FULLTEXT01.pdf	

New Course Added

Course Code: BSA 659	Core Course – 28 B.Sc. Animation- Semester-VI **Concepts of 3D Dynamics and Liquid simulation.** **(Lab)**	L-0 T-0 P-4 C-2
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Understanding the concept of dynamics and n-Dynamics in Maya.	
CO2.	Applying various attributes of Fur node in Maya.	
CO3.	Applying fur for animals models.	
CO4.	Applying real time Hair for 3D characters and real cloths for Animation using n-Cloth feature of Maya	
CO5.	Creating special effects using Maya Particles and n-Particles such as water, fire smoke etc.	
CO6.	Creating liquid simulation using Realflow.	
Experiments:	• Create a hair system on male or female model • Apply fur on a dog or cat model • Create a scene with waterfall or fountain • Apply active/passive soft and rigid bodies. • Create a scene of camp fire followed by rainfall/snowfall • Create an animation of a non living object.	
Text Books:	1- Mastering Autodesk Maya by Eric Keller.	
Reference Books:	1-Introducing Maya2017 by Dariush Derakhshani. **Online reference:** https://www.diva-portal.org/smash/get/diva2:119708/FULLTEXT01.pdf	

New Course Added

Course Code: BSA 660	SEC– 3 B.Sc. Animation- Semester-VI **Project and Portfolio Development**	L-0 T-0 P-4* C-6
Course Outcomes:	On completion of the course, the students will be :	
CO1.	Applying the production pipeline concepts to create an animated Short film.	
CO2.	Applying the various types of 3D animation tool and techniques to create project	
CO3.	Applying the basic concepts of animation tools available in Maya.	
CO4.	Applying the Animation and rigging process into the project.	
CO5.	Creating animated video uses various 3D animation tools.	

Students need to submit their project proposal .After approval of project proposal Student will create and submit a short on VFX/3D / 2D / Animation project individually and Project report based on it. This project will be evaluated by a panel of internal faculty members as well as by external examiner.

Students have to create a 3d Animation short movie individually or in group to execute the learning and to showcase their skills to the industry.

INTERNAL EVALUATION-

Attendance	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

Evaluation Scheme:

EXTERNAL EVALUATION-

File	Presentation	Concept and its execution	Viva	Total
10	10	20	10	50

Text Books:	1- Mastering Autodesk Maya by Eric Keller.
Reference Book:	1-Introducing Maya2017 by Dariush Derakhshani. **Online References:** https://www.bloopanimation.com/wp-content/uploads/2014/12/Making-an-Animated-Short.pdf