

RayatShikshan Sanstha's

YASHAVANTRAO CHAVAN INSTITUTE OF SCIENCE, SATARA

(AN AUTONOMOUS COLLEGE)

Lead College, Karmaveer Bhaurao Patil University, Satara

Reaccredited by NAAC with 'A+' Grade

Bachelor of Science

Part - II

ANIMATION SCIENCE

Syllabus

to be implemented w.e. f. June, 2024

NEP-2020

Index

Preamble:

Animation is a lead Course in today's world. It has very good Prospects and it Gives a broad platform to student creativity. The Course has wild scope. By considering the need of different Industries and present scenario in animation industry the syllabus is designed. While designing the syllabus intellectual level of UG Students have been consider. The students who don't know about the Animation will be able to understood and work independently in the Industrial world after completion of his graduate degree.

Animation is not only creation of cartoons but also its plays important role in Automobile industry, Mechanical industry, Web development, different coding, Vfx, Graphics designing, Film industry and etc. Bachelor of Animation course is one among the most demanded courses in today's world, in the very recent trend India is emerging in the field of "Animation" and this would create a very huge employment in India, there are many big giant companies who are outsourcing their animation work in India like Disney. Animation as a Profession can be the best decision for those who are computer lovers, who can think different, innovative and keep capacity of presenting what they think. While designing the syllabus, industrial training and latest software's like Adobe Photoshop, Corel draw, Adobe Flash, Dream viewer, Autodesk 3D Max, Autodesk 3D Maya, Adobe after Effect, Mud box are considered.

This syllabus is based on basic and applied approach with vigor and depth. At the SASE time precaution is taken to make the syllabus comparable to the syllabi of other universities and the needs of industries and research. The units of the syllabus are well defined, taking into consideration the level and capacity of students.

GeneralObjectivesoftheProgramme:

1) To nurture academicians with focus and commitment with their subject.
2) To shape good and informed citizens from the students entering in to the programme.
3) To creates killed work force to match their requirement of the society.
4) Toimpartknowledgeofthescienceisthebasicobjectiveofthisprogramme.
5) Todevelopscientificattitudeisthemajorobjectivesoastomakethestudentsopen minded, critical and curious.
6) To develop skill in practical work, experiment and laboratory materials and equipment's along with the collection and interpretation of scientific data to contribute to science.

GeneralProgramOutcomes:

1) The student will graduate with proficiency in the subject to their choice.
2) The student will be eligible to continue higher studies in their subject.
3) The student will be eligible to pursue higher studies abroad.
4) Thestudentwillbeeligibletoappearfortheexaminationsforjobsingovernment organizations.
5) The student will be eligible to apply for jobs with a minimum requirement of

SpecificProgramObjectives.

B.Sc. Programme.

1. Computer Animation and Game Development graduates will have a understanding of critical and a esthetic issues in computer graphics and mixed- media.
2. They will know basic a esthetic principles and concepts, and the production process.
3. They will be able to effectively use technical, conceptual and critical abilities, and appropriate technology tools.
4. They will be effective written and oral communicators with the ability to function as effective members of collaborative multi-disciplinary teams in the production process.
5. They will be able to critically evaluate computer graphics and the mixed media. They will have an appreciation for the professional code of ethics for the creative process.

SpecificPrograma outcomesofthecourse-

AftersuccessfulcompletionofB.Sc.AnimationscienceCoursestudentwillbeableto:

- Understand the basics of Animation science
- Learn, design and perform experiments in the labs to demonstrate the concepts, Principles and theories learned in the classrooms.
- Dev eloptheabilitytoapplytheknowledgeacquiredintheclassroomandlaborator ies to specific problems in theoretical and experimental Animation science.

- Identify their area of interest in academic, research and development.

- Perform job in various fie lds' like film industries, science, engineering, education,banking,businessandpublicservice,etc.Orbeanentrepreneurwithprecision,analytical mind, innovative thinking, clarity of thought , expression, and systematic approach.

Course Structure for B.Sc. II (Semester- III)

Level	Course No.	Course Code	Course Title	Category	Credit
5	Major -I				
	Course I	BAST-311	Video editing	TH	02
	Major -II				
	Course II	BAST- 312	Classical Animation	TH	02
	Major Practical				
	Lab Course	BASP-313	Video editing	PR	02
	Lab Course	BASP-314	Classical Animation	PR	02
	Minor-I				
	Course III	BAST-315	Python Programming	TH	02
	Minor Practical				
	Lab Course	BASP-316	Python Programming	PR	02
	VSC				
	VSC	BASTVSC 1	2D Digital Rigging	TH	02
	SEC				
	SEC	BASTSEC 2	Character Designer	PR	02
	AEC	BASTAEC 1	English I	TH	02
		BASTAEC 2	English II	TH	02
	VEC	BASTVEC 1	Environmental Awareness for Animation	TH	02

Course Structure for B.Sc. II (Semester- IV)

Level	Course No.	Course Code	Course Title	Category	Credit
5	Major -I				
	Course I	BAST-411	Digital Animation	TH	02
	Major -II				
	Course II	BAST- 412	3D Max Animation	TH	02
	Major Practical				
	Lab Course	BASP-413	Digital Animation	PR	02
	Lab Course	BASP-414	3D Max Animation	PR	02
	Minor-I				
	Course III	BAST-415	AI for Animation	TH	02
	Minor Practical				
	Lab Course	BASP-416	AI for Animation	PR	02
	VSC				
	VSC	BASTVSC 2	3D Max Rigging	TH	02
	SEC				
	SEC	BASTSEC 2	3D Architectural modelling	PR	02
	AEC	BASTAEC 1	English III	TH	02
		BASTAEC 2	English IV	TH	02
	CC	BASTCC2	Basics of Acting	TH	02

Semester – III

Major I

Course I–BAST – 311 - Video Editing

Course Objectives: Student will be able to…

1. define the concepts of linear and non-linear video editing.
2. study video techniques prevalent for industry.
3. differentiate between progressive and interlaced video formats.
4. summarize the pre-production procedures involved in video editing

Credits (Total Credits 2)	SEMESTER- III Course I – BAST – 311 - Video Editing	No. of hours 30
UNIT-I	**Work space and workflows**	08
	Video Editing basics, Types of editing-Linear vs Non-Linear editing, Video Setting, Editing vs. delivery formats, Tape based vs. tapeless formats, High definition vs. standard definition, Progressive video vs. interlaced video, Introduction of Adobe Premiere, Interface of Adobe Premiere Pro, Working with Projects, Capturing and Importing Source Clips, Working with Panels, Tools panel and Options panel, Creatingprojects,Setpreferences,SetAudioHardwarepreferences,Working with Photoshop and Premiere Pro, Set up a Color workspace, Apply basic color correction, Adjust color using color correction curves	
UNIT-II	**Pre-production procedure**	08
	Importing still images, importing digital audio, Capturing and digitizing footage, working with timecode, Editing sequencesandclipsinPremierePro,Renderingandpreviewingsequences, Multi-camera editing workflow, Working with markers, Create and play clips, Trimming clips, Freeze and hold frames, Working with captions, Graphics, titles, and Motion Graphics templates	
UNIT-III	**Effects and Transitions**	07
	Fixed effects, Standard effects, Master Clip effects, rolling shutter repair effect, Video effects and transitions, Blur and Sharpen effects, Channel effects, Color Correction effects, Distort effects, Noise & Grain effects, Perspective effects Masking and tracking, Lighting Effects Audio transitions, Video transitions, VR transitions, applying transitions in premiere pro, modifying and customizing transitions,	

UNIT-IV	**Rendering and Exporting**	**07**
	Export video, Export Preset Manager, Workflow and overview for exporting, Quick export, Exporting for the Web and mobile devices, Export a still image, Exporting projects for other applications, Export setting window	

Course Outcomes: Students should be able to…

1. identify and apply appropriate video settings and formats for different projects.
2. apply content and sequences for various video formats.
3. evaluate video editing advanced techniques and effects.
4. create and develop e-contain video fore-learning or IT industry.

References:

1. Sonja Schenk," Premiere Pro for Filmmakers", 1st edition, Foreign Films Publishing; 20 February 2020.
2. Joe Dockery, Rob Schwartz, Conrad Chavez, Learn Adobe Premiere Pro CC for Video Communication: Second Edition, Adobe Press, U.S,8 May 2020.
3. Jarle Leirpoll, Dylan Osborn, Paul Murphy, Andy Edwards, "The Cool Stuff in Premiere Pro Learn advanced editing techniques to dramatically speed up your workflow" Second Edition, A Press, 13 October 2017.
4. Ken Dancyger, "The Technique of Film and Video Editing History, Theory, and Practice", Fifth Edition , Routledge, 26 November 2010.
5. Lance Phillips, "Video Editing Made Easy with DaVinci Resolve 18: Create quick video content for your business, the web, or social media", 1st edition, Packt Publishing, 8 May 2023.

Major II

Course I – BAST – 312 - Classical Animation

Course Objectives: Student will be able to…

1. summarize the historical evolution of animation techniques.
2. identify and differentiate between various animations techniques.
3. recall the 12 principles of animation and their significance in creating compelling motion.
4. interpret animated sequences by applying the principles of animation.

Credits (Total Credits 2)	SEMESTER-III Course II- BAST 312-Classical Animation	No. of hours 30
UNIT-I	**Overview and History of Animation**	**08**
	Definition and history of animation, Overview of different animation techniques, Principles of Animation, Understanding the 12 principles of animation, Application of principles through analysis of animated sequences, Storyboarding and Storytelling, basics of storyboarding composition, framing, and sequencing, Developing narratives and characters for animation projects, Color Theory Introduction to color theory and color palettes in animation	
UNIT-II	**Character Designing and Key frame**	**08**
	Script writing process, Fundamentals of character design, anatomy, proportions, and expressions, designing original characters, Keyframe Animation, Introduction to keyframe animation principles, Creating key poses and breakdowns to define motion, Frame-by-Frame Animation techniques, motion through hand-drawn animation sequences, Introduction Storyboard, Storyboard Layout, Art Direction	
UNIT-III	**Timing and Spacing**	**07**
	Exploring the concepts of timing and spacing in animation, Manipulating timing to convey weight, emotion, and energy, Clean-up and Inking, techniques for cleaning up and inking animation drawings, Maintaining consistency and clarity in line work, Coloring and Backgrounds, Art Direction, Digital Ink and Paint,	
UNIT-IV	**Art Direction Acting for Animation**	**07**
	Introduction to Acting for Animation, Understanding Character Emotions, Character Development and Personality, Physical Acting and Movement, Vocal Performance and Dialogue, Acting for Animation	

Course Outcomes: Students should be able to…

1. summarize history and evolution of animation
2. demonstrate the ability to apply keyframe animation principles to create motion sequences with fluidity and emotion.
3. apply web compatible animation with graphics and movie clip symbols.
4. create key by key or traditional animation using principle of animation.

References:

1. "The Animator's Survival Kit" by Richard Williams, Williams, Richard. The Animator's Survival Kit. Faber & Faber, 2009.
2. "Timing for Animation" by Harold Whitaker and John Halas, Whitaker, Harold, and John Halas. Timing for Animation. Focal Press, 2002.
3. "The Nine Old Men: Lessons, Techniques, and Inspiration from Disney's Great Animators" by Andreas Deja, Deja, Andreas. *The Nine Old Men: Lessons, Techniques, and Inspiration from Disney's Great Animators*. Focal Press, 2015.
4. "Character Animation Crash Course" by Eric Goldberg, Goldberg, Eric. *Character Animation Crash Course. Silman-James Press, 2008.
5. Chris Georgenes ,"How to Cheat in Adobe Flash CC: The Art of Design and Animation" Routledge; 1st edition (9 August 2017)

Major Practical

Lab Course –-: BASP-313: Based on BAST-311

Course Objectives: Student will be able to…

1.learn basic video editing concepts.
2. describe storytelling and design principles.
3. apply transitions, effects and titles to video.
4.create a professional quality video project.

Credits (Total Credits 2)	SEMESTER - III LAB COURSE–: BASP 313 **Video Editing**	No. of hours 60 Hrs.
	1. Basic video trimming and cutting. 2. Adding transitions between clips. 3. Experimenting with different video effects (e.g., color correction, blur effects). 4. Creating text titles and captions. 5. Using keyframes for animation and movement. 6. Exploring various audio editing techniques (e.g., adjusting volume levels, adding sound effects). 7. Applying video stabilization to shaky footage. 8. Experimenting with different video speeds (slow motion, fast-forward). 9. Utilizing adjustment layers for global effects. 10. Creating picture-in-picture and split-screen effects 11. Applying masks and tracking for selective editing. 12. Using the warp stabilizer for creative distortions. 13. Experimenting with different aspect ratios and resolutions. 14. Creating and editing multi-camera sequences. 15. Exploring the use of blend modes for creative effects. 16. Using the color workspace for advanced color grading. 17. Experimenting with audio transitions and crossfades. 18. Creating custom presets for effects and transitions. 19. Using the "Automate to Sequence" feature for fast editing. 20. Exporting your video in various formats and resolutions for different platforms.	

Course Outcomes: Students should be able to…

1. recall key concepts of text animation terminology and techniques.
2. analyze critique and evaluate the effectiveness of different text animation styles in conveying mood and tone.
3. design and produce custom motion graphics animations for video projects.
4. develop complex path motion animations for dynamic visual effects.

References :

1. Sonja Schenk," Premiere Pro for Filmmakers", 1st edition, Foreign Films Publishing; 20 February 2020.
2. Joe Dockery, Rob Schwartz, Conrad Chavez, Learn Adobe Premiere Pro CC for Video Communication: Second Edition, Adobe Press, U.S, 8 May2020.
3. Jarle Leirpoll Dylan Osborn Paul Murphy Andy Edwards, "The Cool Stuff in Premiere Pro Learn advanced editing techniques to dramatically speed up your workflow" Second Edition, A Press, 13 October 2017.
4. Ken Dancyger, "The Technique of Film and Video Editing History, Theory, and Practice", Fifth Edition , Routledge, 26 November 2010.
5. Lance Phillips, "Video Editing Made Easy with DaVinci Resolve 18: Create quick video content for your business, the web, or social media", 1st edition, Packt Publishing, 8 May 2023.

Major Practical

Lab Course –-: BASP-314: Based on BAST-312

Course Objectives: Student will be able to…

1.know basic shapes and animation process
2.study on Traditional Animation Technique
3.define action and pose to pose for classical animation
4. develop critical thinking skills by evaluating and refining layouts to ensure visual coherence and depth.

Credits (Total Credits 2)	SEMESTER - III LAB COURSE –: BASP 314 **Classical Animation**	No. of hours 60 Hrs.
	1. Creating a bouncing ball animation using squash and stretch principles. 2. Animating a simple character walk cycle. 3. Experimenting with frame-by-frame animation for fluid movement. 4. Creating a character jump animation with anticipation and follow-through. 5. Exploring the use of onion skinning for accurate frame referencing. 6. Animating a character dialogue scene with lip-syncing. 7. Experimenting with different easing options for smoother motion. 8. Creating a dynamic action sequence involving multiple characters. 9. Using the motion tween feature to animate objects along a path. 10. Experimenting with the shape tween feature for morphing animations. 11. Creating a character idle animation with subtle movements. 12. Exploring the use of secondary motion for more realistic animations. 13. Creating a basic flipbook-style animation. 14. Experimenting with different frame rates for varying levels of fluidity. 15. Utilizing the brush tool for frame-by-frame drawing. 16. Creating a simple background animation to complement your characters. 17. Experimenting with different camera movements and angles. 18. Using the bone tool to create skeletal animations for characters. 19. Creating a character interaction animation (e.g., handshake, hug). 20. Experimenting with the use of filters and effects to enhance your animations.	

Course Outcomes: Students should be able to…

1. identify pipeline of 2D classical production.
2. apply principles of motion graphics to generate fluid and visually appealing wave motion.
3. create cartoon and semi realistic walk cycle & proficiency in constructing a 2-point perspective layout.
4. develop an animal run cycle animation capturing the unique locomotion of a chosen animal species.

References:

1. "The Animator's Survival Kit" by Richard Williams, Williams, Richard. The Animator's Survival Kit. Faber & Faber, 2009.
2. "Timing for Animation" by Harold Whitaker and John Halas, Whitaker, Harold, and John Halas. Timing for Animation. Focal Press, 2002.
3. "The Nine Old Men: Lessons, Techniques, and Inspiration from Disney's Great Animators" by Andreas Deja, Deja, Andreas. *The Nine Old Men: Lessons, Techniques, and Inspiration from Disney's Great Animators*. Focal Press, 2015.
4. "Character Animation Crash Course" by Eric Goldberg, Goldberg, Eric. *Character Animation Crash Course. Silman-James Press, 2008.
5. Chris Georgenes ,"How to Cheat in Adobe Flash CC: The Art of Design and Animation" Routledge; 1st edition (9 August 2017)

Minor I

Course III – BAST – 315 - Python Programming

Course Objectives: Student will be able to…

1. Learn the process of structuring the data using lists, tuples, and dictionaries.
2. study on Python object types.
3. identify indexing and slicing to access data in Python programs.
4. recognize the structure and components of a Python program.

Credits (Total Credits 2)	SEMESTER-III Course III- BAST 315- Python Programming	No. of hours 30
UNIT-I	**Introduction**	**08**
	Introduction to python Language, Download and install Python, Syntax, Variables, Data Types, Built in data types (Numeric, Boolean, Text, Sequence, Set, Mapping, None)	
UNIT-II	**Numpy**	**08**
	Introduction, Installation of Numpy, NdArray, NdArray Attributes, Indexing and Slicing, Mathematical Functions, Arithmetic Operators, String Functions, Matrix Library, Linear Algebra	
UNIT-III	**Pandas**	**07**
	Introduction, Installation of pandas, Data structure(Series, Data frames), Basic functionality, Descriptive statistics, Function applications, Pandas indexing	
UNIT-IV	**Loop and Matplotlib**	**07**
	For loop, While loop , Nested loop, Loop control statements(If statement, Break statement, Continue statement, Pass statement), Function(Built in function, User defined function), Lambda function, Pyplot, Plotting, Markers, Line, Lables, Grid, Subplot, Scatter, Bars, Histogram, Pie chart.	

Course Outcomes: Students should be able to…

1. successfully install Python and understand its syntax.
2. identify the syntax rules in Python programming.
3. apply programming concepts like loop, control structure in Python.
4. create and manipulate Python programs.

References:

1. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist‖, 2nd Edition, Green Tea Press, 2015, ISBN: 978-9352134755.
2. Charles Dierbach, "Introduction to Computer Science Using Python", 1st Edition, Wiley India Pvt Ltd. ISBN-13: 978-8126556014.
3. Wesley J Chun, ―Core Python Applications Programming‖, 3rd Edition, Pearson Education India, 2015. ISBN-13: 978-9332555365.
4. Roberto Tamassia, Michael H Gold wasser, Michael T Goodrich, ―Data Structures and Algorithms in Python‖, 1st Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126562176.
5. Allen Downey , Jeffrey Elkner , Chris Meyers," Learning with Python", Dreamtech Press; First Edition (1 January 2015), ISBN-10 : 9351198146, ISBN-13 : 978-9351198147

Minor Practical

Lab Course –-: BASP-316: BAST-315

Course Objectives: Student will be able to…

1. recall the syntax and structure of a Python program to display "Hello World" using a string variable.
2. memorize the basic concepts of storing data in a list in Python.
3. study on Python object types.
4. learn marketing concepts such as channel flow, roles, membership, and the impact of technology on marketing..

Credits (Total Credits 2)	SEMESTER - III LAB COURSE –: BASP 316 **Python Programming**	No. of hours 60 Hrs.
	1) Write python program to Hello World using string variable. 2) Python basic programming questions to calculate the square of a number. 3) Python program to calculate the cube of a number. 4) Python program to check given character is a vowel or consonant. 5) Python program to count vowels and consonants in the string. 6) Python program to remove spaces from string without inbuilt function. 7) Python program to find L.C.M. of two numbers. 8) Python program to find smallest number among three. 9) Write python program to store data in list and then try to print them. 10) Write python program to do basic trim and slice on string. 11) Write python program to print list of numbers using range and for loop. 12) Write python program to store strings in list and then print them. 13) Write python program to check whether the given number is even or not. 14) Write python program to convert the temperature in degree centigrade to Fahrenheit. 15) Study on Channel flow, channel role & membership. 16) Study on technological impact on marketing. 17) Study on Marketing Channels. 18) Program to print ASCII Value of a character 19) Python Program for Sum of squares of first n natural numbers. 20) Python Program to find sum of array.	

Course Outcomes: Students should be able to…

1. write Python programs to perform fundamental tasks such as displaying messages, storing data in lists, and manipulating strings.
2. define the concepts of trimming and slicing in the context of strings in Python.2.analysed proficiency in the handling of data structure and function.
3. compare and contrast different methods of generating and printing lists of numbers in Python.
4. develop a Python program that modifies the strings stored in a list and prints the updated contents.

References :

1.Allen B. Downey, "Think Python: How to Think Like a Computer Scientist‖, 2nd Edition, Green Tea Press, 2015, ISBN: 978-9352134755.

2. Charles Dierbach, "Introduction to Computer Science Using Python", 1st Edition, Wiley India Pvt Ltd. ISBN-13: 978-8126556014.

3. Wesley J Chun, ―Core Python Applications Programming‖, 3rd Edition, Pearson Education India, 2015. ISBN-13: 978-9332555365.

4. Roberto Tamassia, Michael H Goldwasser, Michael T Goodrich, ―Data Structures and Algorithms in Python‖, 1st Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126562176.

5. Basic Python Programming for Beginners Paperback – 29 July 2021

VSC

BASTVSC1 – 2D Digital Rigging

Course Objectives: Student will be able to…

1. know Synthesize knowledge of character anatomy and environmental aesthetics to design a visually appealing and believable tree character.
2. lean procedure of Implement inverse kinematics (IK) constraints to rig character joints,
3. define procedure of rig character joints using forward kinematics (FK) constraints,
4. explain rigging visual impact and clarity of different naming graphic styles and attributes for diverse applications.

Credits (Total Credits 2)	SEMESTER-III **BASTVSC1 – 2D Digital Rigging**	No. of hours 30
	1. Rigging a character for basic walk and run cycles. 2. Experimenting with facial rigging for expressions like smiles, frowns, and blinks. 3. Rigging a character for lip-syncing with dialogue. 4. Creating a rig for a character with interchangeable clothing options. 5. Rigging a character for different body types (slim, muscular, chubby). 6. Experimenting with inverse kinematics (IK) for more natural limb movements. 7. Rigging a character with dynamic hair and cloth physics. 8. Creating a rig for a quadruped character like a dog or cat. 9. Experimenting with rigging for special effects like fire or water simulations. 10. Rigging a character with customizable accessories like hats, glasses, or jewellery. 11. Creating a rig for a non-human character like a robot or alien. 12. Experimenting with rigging for secondary animations like tail wagging or ear twitching. 13. Rigging a character with modular parts for easy customization. 14. Creating a rig for a multi-limbed character like an insect or spider. 15. Experimenting with rigging for exaggerated cartoon movements. 16. Rigging a character with multiple facial expressions controlled by sliders.	

	17. Creating a rig for a character with wings for flying animations. 18. Experimenting with rigging for background elements like trees or vehicles. 19. Rigging a character with special abilities like shape-shifting or stretching. 20. Creating a rig for a character with interchangeable weapons or tools	

Course Outcomes: Students should be able to…

1. utilize symbol creation tools to design and customize naming graphics with relevant attributes for visual communication.
2. apply anatomical knowledge and facial rigging techniques to create a realistic and expressive rig for a human face.
3. classify and categorize advanced scene management techniques to compile and organize complex scenes with multiple elements, layers, and staging setups.
4. create 2D Flash facial rigging

References:

1. "Flash Character Animation Applied: Making Things Move!" by Chris Georgenes
   Georgenes, Chris. Flash Character Animation Applied: Making Things Move!. Focal Press, 2014.
2. Fulton, Jeff, and Steve Fulton. The Essential Guide to Flash Games: Building Interactive Entertainment with ActionScript. Friends of ED, 2010.
3. "Foundation Flash Cartoon Animation" by Barry Kelly and Tim Jones, Kelly, Barry, and Tim Jones. Foundation Flash Cartoon Animation. Friends of ED, 2007.
4. "Flash Professional CS6: Visual QuickStart Guide" by Katherine Ulrich2014.
5. Adobe," Adobe Flash Professional CC Classroom in a Book, 1e Paperback", Pearson Education India; 1st edition (1 January 2014)

SEC Practical Character Designer

Course Objectives: Student will be able to…

1. know the fundamental principles of line of action and proportions in character design.
2. memorize basic prop shapes used in character creation.
3. identify the key components of traditional tribal human characters.
4. define fundamental principles of character design.

Credits (Total Credits 2)	SEMESTER - III SEC Practical Character Designer	No. of hours 60 Hrs.
	1. Line of Action and proportions 2. Create basic props shape. 3. Create traditional Tribal Human character. 4. Construction of Cartoon character head 5. Construction of semi -Cartoon character head 6. Skeleton foundation of realistic character 7. Skeleton foundation of Cartoon character 8. Skeleton foundation of semi -Cartoon character 9. Cartoon human character. 10. Cartoon Animal character. 11. Create goofy characters. 12. Heavy pugnacious character 13. Cute children character 14. Create (inorganic) Robot character. 15. Create (organic) Tree character. 16. Create Anime character. 17. Create cartoon character facial expression. 18. Create semi- cartoon character facial expression. 19. Create realistic character facial expression. 20. Character Key poses.	

Course Outcomes: Students should be able to…

1. classify different character development techniques.
2. demonstrate and sketch Traditional character construction.
3. create inorganic& organic character.
4. develop different facial expressions & character Key poses.

References :

1. Kevin Crossley ,"Character Design from the Ground Up", Published by Design Studio Press (April 1, 2014)
2. Tom Bancroft ,"Creating Characters with Personality: For Film, TV, Animation, Video Games, and Graphic Novels" , Published by Watson-Guptill; Revised edition (October 1, 2006)
3. Will Eisner, "Expressive Anatomy for Comics and Narrative: Principles and Practices from the Legendary Cartoonist", Published by W. W. Norton & Company; Reprint edition (August 17, 2010)
4. Michael Hampton, "Figure Drawing: Design and Invention", Published by Michael Hampton (January 1, 2010)
5. Cathrine Mellor," Anime Coloring Book: Cute Anime Characters to Color for all Ages Paperback", Loredana Loson (23 August 2021)

BASTVEC-II: Environmental Awareness for Animation

Course Objectives: Student will be able to...

1. understand environmental issues.
2. learn animation skills to raise awareness about environmental issues.
3. illustrate their ideas, emotions and concerns about the environment.
4. classify existing animated content related to environmental themes.

Credits (Total Credits 2)	SEMESTER-III BASTVEC-II - Environmental Awareness for Animation	No. of hours 30
UNIT-I	**Environmental issues**	**08**
	Pollution (Air, Water and Land), Fresh-water overuse, Natural disasters, Fuel and Energy shortage due to overuse, Increase in wasteland, Biodiversity loss, Global warming and climate change (Causes and intensity of the problem), role of animation in creation	
UNIT-II	**Environmental laws and ethics**	**08**
	Prevention and Control of Pollution Act (Air, water and Land) from unsustainable to sustainable development, Responsibilities of an Environmentally aware citizen of environmental issues Environmental Protection Act, Wildlife Protection Act, Forest Conservation Act	
UNIT-III	**Sustainable Development Goals**	**07**
	Understanding climate change, impact of animation industry, storytelling for climate awareness, promoting sustainable lifestyles, measuring impact	
UNIT-IV	**Role of Animation in meeting the sustainable development goals**	**07**
	Awareness and education, cultural sensitivity and diversity, behavior, change and empowerment, Data visualization and communication, partnership and collaboration.	

Course Outcomes: Student should be able to...

1. explain importance of environmental awareness in animation.
2. calculate and predict impact of animation on environment.
3. analyze animated work with environmental themes critically.
4. create storytelling techniques that promotes environmental awareness.

References:

1. Biljana C. Fredriksen , Camilla Groth ,"Expanding Environmental Awareness in Education Through the Arts: Crafting-with the Environment", 1st edition, Springer Verlag, Singapore, 2022
2. David S. Whitley, "The Idea of Nature in Disney Animation",1st edition,Ashgate Publishing, Ltd., 2008.
3. Len Unsworth, "Learning from animations in science education : innovating in semiotic and educational research", 1st edition, Cham, Switzerland : Springer, 2020.
4. Serena Lane Ferrari, Luis Peres, "The Hidden Spaceship: An Adventure Into Environmental Awareness", Serena Ferrari, 2019.
5. Parveen Garg, "Environmental Awareness Among Societies and Sustainable Development", ISBN-10 : 9383784318, ISBN-13 : 978-9383784318

Semester –IV

Major I

Course I – BAST – 411 – Digital Animation

Course Objectives: Student will be able to…

1. classify and recognize industry level software
2. study on digital storyboarding
3. explain and identify principles of animation.
4. describe interface of ToonBoom Harmony and its plug-in.

Credits (Total Credits 2)	SEMESTER- IV Course I – BAST – 411 - Digital Animation	No. of hours 30
UNIT-I	**Introduction of Digital Animation**	**08**
	History of Digital Storyboard-Composition with your picture frame Working with Shapes-Rule of thirds- -Perspective-Foreground, Middle ground and Background Character-Poses-Shape and movement of character-Aspect Ratio-Camera Shot-Screen Direction-Advance storyboard technique-Character Model Sheet.	
UNIT-II	**Interface Highlights**	**08**
	Introduction of Toon boom Harmony 16.0, Project Creation Creating Scenes, Scene Settings, User interface- Menus, Toolbars, Views, Workspaces, Interface Navigation. - Layers and Columns Adding Layers and Columns, Deleting, Renaming, Locking, Unlocking, and navigating layers, Clone and Duplicate layers, Grouping, and ungrouping the layers. Timing- Scene Length, Exposure, Drawings, Scene Markers	
UNIT-III	**Drawing & Painting**	**07**
	Drawing Tools, Drawing Optimization, Strokes Conversion, Colour Swatches, Palettes, Painting Drawings, Closing Gaps. Paperless Animation- Creating a Rough Animation, Paperless Animation Tools. Scene Staging- Layer Position, Transform Tool	
UNIT-IV	**Exporting Digital Animation**	**07**
	Pegs, Key frames, Controls, Functions, Copying Motions, Velocity. Exporting – Exporting Image sequence, Exporting animated gif, movie setting for windows media video, Exporting QuickTime Movies with lossless compression file. Camera Set-up and Animation- Adding a Camera, Positioning the Camera Frame, Animating the Camera, Exporting and rendering project, Batch Rendering.	

Course Outcomes: Students should be able to…

1. describe Digital Storyboarding(storyline) style.
2. determine effects of ToonBoom for production.
2. build and rigged character for pre-production.
3. create lip Synchronization and Motion Paths in ToonBoom.

References:

1) Anson Jew and Sergio Páez, Professional Storyboarding: Rules of Thumb, 2013
2) Toon Boom Animation Inc., Toon Boom Harmony Essentials 16.0 user guide, 15 January 2020
3) Adam Phillips, Animate to Harmony the Independent Animator's Guide to Toon Boom, 2015
4) Hannes Rall, Animation: From Concepts and Production, 6 December 2017
5) Adam Phillips, Animate to Harmony: The Independent Animator's Guide to Toon Boom, 8 October 2014

Major II

Course II – BAST – 412 – 3D Max Animation

Course Objectives: Student will be able to…

1. recall and describe fundamental concepts of 3D Max Animation
2. memorize terminology associated with 3D Max Animation, including terms related to modelling, lighting, and camera techniques.
3. classify and categorize 3ds Max interface for specific purpose.
4. associate with 3ds max classical models for production technology.

Credits (Total Credits 2)	SEMESTER- IV Course II – BAST – 412 – 3D Max Animation	No. of hours 30
UNIT-I	**Interface & Modeling**	**08**
	Navigate the workspace, Touring the Interface, The Menu Bar, The Quick Access Toolbar, The Information Centre Toolbar, The Main Toolbar, Docked and Floating Toolbars, Toolbar Flouts, 15 The Viewports, Tools for Working with the Viewports, Getting to Know the Command Panel, Understanding the 3ds Max Tools, transform objects using gizmos, Use the Graphite Modeling Tools set, Use the command panel, Use the time slider and track bar, Manage files, Character Modeling, Setting Up the Scene, Creating the Image Planes, Blocking Out the Alien Model, Create the alien head, Refine the alien body, Create the alien hands, Create the alien feet, Complete the alien	
UNIT-II	**Texturing & Lighting**	**08**
	Navigate the Slate Material Editor, Identify the Standard material, Identify the mental ray material, Identify shaders, Build materials for the couch, Build materials for the lounge chair, Build materials for the windows, Recognize 3ds Max lights, Light a still life, Select shadow types Advanced Ray Traced, mental ray shadow map, Area shadows, Shadow map, Ray Traced shadows,	
UNIT-III	**Rigging & Animation**	**07**
	Utilize the Character Studio workflow, Associate a biped with the alien model, Skin the alien model, Work with the time slider, Use animation playback controls, Use animation and time controls, Morph compound object, Render and preview an animation, Apply various rendering effects to a scene, Animate the alien, Use freeform animation, Modify animating using the Dope Sheet	

UNIT-IV	**Dynamics & Rendering**	**07**
	Define UVs on the alien's body, Unwrap UVs from the alien's body , Build the material and apply it to the alien, Create static, dynamic, and kinematic rigid bodies, Understand the Mass FX interface, Use the mCloth modifier, Understand constraints, Use standard helper objects, Use atmospheric apparatus helper objects, Create atmospheres and effects, Utilize the Light Lister tool, Standard Lights, Target spotlight, Target direct light, Free spotlight, Free direct light, Omni light Skylight, mr area omni light, mr area spotlight, Navigate the Render Setup dialog, Render a scene, Work with cameras, Raytrace reflections and refractions, Render the interior and furniture	

Course Outcomes: Students should be able to…

1) classify and categorize topology of 3D Max modelling.
2) demonstrate & apply various textures & light effects in 3d max interior scenes.
3) analyse IK & FK rigging techniques using 3D Max rigging processes.
4) design various interior & exterior scenes using dynamics & rendering.

References :

1. Prof. Sham Tickoo Purdue "3ds Max 2023 for Beginners: A Tutorial Approach" Univ. - Published in 2023.
2. Nicholas Boughen "Mastering Autodesk 3ds Max 2023" Published in 2022.
3. Joep van der Steen "Lighting and Rendering with 3ds Max" Published in 2020.
4. David S. Ebert, F. Kenton Musgrave, Darwyn Peachey, Ken Perlin, and Steven Worley - "Texturing and Modeling: A Procedural Approach" Published in 1998.
5. Prof. Sham Tickoo, "Autodesk 3Ds Max 2021 for 3D Designers", BPB Publications (27 December 2020), SBN-13 : 978-9389898897

Major Practical

Lab Course –-: BASP-413: Based on BAST-411

Course Objectives: Student will be able to…

1. study on the different animation techniques based on traditional 2D Animation Process.
2. discuss invers kinematic motion system
3. explain animation principles for 2D animation.
4. understand Digital production Process

Credits (Total Credits 2)	SEMESTER - IV LAB COURSE –: BASP 413 **Digital Animation**	No. of hours 60 Hrs.
	1. The Drawing View- Drawing Basic Objects/Scenes in Toon boom. 2. Creating an object using the Drawing Tools. 3. Working with Layers and Columns. 4. Tracing character in ToonBoom Harmony using Shift and Trace. 5. Making a Cartoon in ToonBoom Harmony. 6. Masking Object using toonboom Harmony Software. 7. Working with Z-Depth in Toon Boom Harmony. 8. Animating using peg and parent peg. 9. Working with inverse kinematics using bone in toonboom harmony. 10. Creating animation using camera in toonboom harmony. 11. Creating and importing illustrator file along with layer in toonboom harmony. 12. Importing 3D model in ToonBoom harmony. 13. Creating In-between Key poses- Key Frames vs. Drawings. 14. Animating Organic Objects. 15. Frame-By-Frame Rough Animation. 16. Animate Walk Cycles in ToonBoom Harmony. 17. Creating Effect in Toonboom Harmony. 18. Creating Highlight and Tone effect in toonboom Harmony. 19. Motion Path animation in ToonBoom Harmony. 20. Rendering Animation Scenes in ToonBoom Harmony.	

Course Outcomes: Students should be able to…

1. demonstrate ability to navigate and customize the user interface to optimize work efficiency.
2. apply technical and artistic skills while working with harmony.
3. create drawing effects using ToonBoom effect panel.
4. create Storyboarding and compile animation scene for 2D animation.

References:

1) Anson Jew and Sergio Páez, Professional Storyboarding: Rules of Thumb, 2013

2) Toon Boom Animation Inc., Toon Boom Harmony Essentials 16.0 user guide, 15 January 2020

3) Adam Phillips, Animate to Harmony the Independent Animator's Guide to Toon Boom, 2015

4) Hannes Rall, Animation: From Concepts and Production, 6 December 2017

5) Adam Phillips, Animate to Harmony: The Independent Animator's Guide to Toon Boom, 8 October 2014

Major Practical

Lab Course –-: BASP-414: Based on BAST-412

Course Objectives: Student will be able to…

1. classify different types of styles & models.
2. recognize texturing & lighting importances in animation.
3. describe and explain different rigging process.
4. classify different types of physics-based animation techniques.

Credits (Total Credits 2)	SEMESTER - IV LAB COURSE –: BASP 414 3D Max Animation	No. of hours 60 Hrs.
	1. Modeling a realistic human character from scratch. 2. Experimenting with creating procedural textures using nodes. 3. Rigging and animating a bipedal character for basic movements. 4. Creating a realistic environment with terrain, foliage, and water using procedural techniques. 5. Experimenting with particle systems for effects like smoke, fire, or sparks. 6. Sculpting a high-poly model using the sculpting tools in 3ds Max. 7. Simulating cloth dynamics on a character's clothing. 8. Creating a detailed vehicle model with interior and exterior components. 9. Experimenting with lighting setups to achieve different moods and atmospheres. 10. Rigging a mechanical character like a robot or vehicle for animation. 11. Designing and animating a character using the CAT (Character Animation Toolkit) rigging system. 12. Creating a fluid simulation using the Fluid Dynamics system in 3ds Max. 13. Experimenting with camera animation techniques for cinematic shots. 14. Modelling and texturing a detailed architectural interior or exterior. 15. Rigging a character with facial animation controls for expressions and lip-syncing. 16. Creating a stylized character with exaggerated proportions for animation. 17. Experimenting with the Mass FX physics simulation system for realistic interactions. 18. Using the Hair and Fur modifier to create realistic hair or fur on a	

	character. 19. Designing and animating a complex machinery assembly with moving parts. 20. Exploring procedural modelling techniques to generate complex geometries.	

Course Outcomes: Students should be able to…

1. classify different types of modelling techniques.
2. categorize interior modelling with textures.
3. analyse various entire animated scene with different Rigging and Animation.
4. create various Scene with texturing, lighting and dynamics with vfx.

References :

1. Prof. Sham Tickoo Purdue "3ds Max 2023 for Beginners: A Tutorial Approach" Univ. - Published in 2023.
2. Nicholas Boughen "Mastering Autodesk 3ds Max 2023" Published in 2022.
3. Joep van der Steen "Lighting and Rendering with 3ds Max" Published in 2020.
4. David S. Ebert, F. Kenton Musgrave, Darwyn Peachey, Ken Perlin, and Steven Worley - "Texturing and Modeling: A Procedural Approach" Published in 1998.
5. Prof. Sham Tickoo, “Autodesk 3Ds Max 2021 for 3D Designers”, BPB Publications (27 December 2020), SBN-13 : 978-9389898897

Minor II

Course III – BAST – 415 – AI for Animation

Course Objectives: Student will be able to…

1.explain Artificial Intelligence.
2. recognize applications of AI in animation.
3. classify AI prompts and generation of scene with AI.
4. discuss challenges in AI-driven animation.

Credits (Total Credits 2)	SEMESTER- IV Course III – BAST – 415 – AI for Animation	No. of hours 30
UNIT-I	**History and foundation of AI**	**08**
	Introduction, History of AI, foundations of AI, sub Areas of AI, Application of AI, Building AI Systems, The difference between strong AI and weak AI.AI problems.	
UNIT-II	**AI for graphic designs.**	**08**
	Graphic design with AI, The power of machine learning. The introduction of generative AI, Three major benefits of AI in ,graphic design, How to use AI for graphic design- Photoshop,Illustrator,Adobe Firefly web app,Adobe Fresco.	
UNIT-III	**AI Prompts,Scene Generation and Environment Design**	**07**
	AI prompts, AI prompts for content generation, Generating environments and backgrounds with AI, Procedural generation of landscapes, cities, and natural elements, Scene composition and layout optimization using AI algorithms, Incorporating AI-generated elements into the animation pipeline.	
UNIT-IV	**Advanced Topics and Future Directions**	**07**
	Cutting-edge AI techniques in animation production, Generative adversarial networks (GANs) for animation synthesis, AI-driven storytelling and narrative generation, Ethical considerations and challenges in AI-driven animation.	

Course Outcomes: Students should be able to…

1. categorize examples of AI-driven animation projects.
2. relate environments and backgrounds with AI.
3. develop AI-generated elements into the animation pipeline.
4. create AI-driven storytelling.

References :

1. Rich, E/ Knight, K.," Artificial Intelligence by Rich", 2nd edition, Tata McGraw Hill publication (TMH)
2. Russell, S/ Norvig, P.," Artificial Intelligence: A Modern Approach by Russell",Pearson Education
3. Jones, M.," Artificial Intelligence application Programming by Jones", 2nd edition, Dreamtech Publication
4. Patterson, Dan W.," Introduction To Artificial Intelligence & Expert Systems by Patterson ", PHI Education
5. John David Funge, "AI for Games and Animation: A Cognitive Modeling Approach Hardcover", A K Peters/CRC Press; 1st edition (22 July 1999), ISBN-13 : 978-1568811031

Minor Practical

Lab Course –-: BASP-416: Based on BAST-415

Course Objectives: Student will be able to…

1.identify character animation in AI.
2. recognize character personality and behavior modeling with AI
3. perform Interactive Storytelling.
4. develop Collaborative Animation.

Credits (Total Credits 2)	SEMESTER - IV LAB COURSE –: BASP 416 **AI for Animation**	No. of hours 30
UNIT-I	1. Emotion-based Emoji Animation. 2. Character Movement Prediction. 3. Character Motion Capture: 4. Gesture-based Animation. 5. Facial Expression Recognition 6. Pattern based Animation. 7. Sound based Animation. 8. Voice-controlled Animation 9. Animal movement Animation. 10. Image-based Animation. 11. Color-based Animation. 12. Object Recognition Animation. 13. Randomized Animation Generator. 14. Character Design and Animation 15. Behaviour Tree Implementation 16. Procedural Animation 17. Scene Generation with Generative Models 18. Create a simple interactive story. 19. Real-time Puppetry Animation 20. Interactive Storytelling	

Course Outcomes: Students should be able to…

1. design behaviour Tree Implementation.
2. build interactive Storytelling
3. generate scenes with models.
4. associate Lip Syncing with Speech Recognition.

References :

1. David Brown, ”Artificial Intelligence: A Complete AI and Deep Learning Guide.”
2. Russell/Norvig, ”Artificial Intelligence: A Modern Approach”, 4edition.
3. Rich, E/ Knight, K.,” Artificial Intelligence by Rich”, 2nd edition, Tata McGraw Hill publication (TMH)
4. J.Krishnamurti,”The awakening of Intelligence.” New edition.
5. John David Funge, “AI for Games and Animation: A Cognitive Modeling Approach Hardcover”, A K Peters/CRC Press; 1st edition (22 July 1999), ISBN-13 : 978-1568811031

VSC

BASTVSC –3D Max Rigging

Course Objectives: Student will be able to…

1. recognize concept of object and their importance in rigging
2. explain different between IK and FK
3. study on constraints to add realism and control to the rig
4. identify techniques of weight painting

Credits (Total Credits 2)	SEMESTER-III **BASTVSC –3D Max Rigging**	No. of hours 30
	1. Rigging a simple biped character for basic animation. 2. Creating custom bone structures for more complex characters. 3. Exploring advanced IK (Inverse Kinematics) setups for realistic movement. 4. Rigging facial expressions using bones and morph targets. 5. Experimenting with spline IK for flexible rigging solutions. 6. Rigging a quadruped character, such as a dog or horse. 7. Implementing stretchy IK for cartoon-style characters. 8. Building a rig with custom controllers for intuitive animation control. 9. Rigging mechanical objects like robots or vehicles for dynamic movement. 10. Creating a dynamic tail rig for creatures like lizards or dinosaurs. 11. Experimenting with character deformation using skin modifiers. 12. Rigging props and accessories to interact with characters. 13. Setting up a rig with constraints for precise animation control. 14. Exploring rigging for cloth simulation and dynamics. 15. Rigging wings for characters like birds or dragons. 16. Building a facial rig with advanced controls for lip-sync animation. 17. Experimenting with biped rigging variations, such as reverse foot setups. 18. Rigging characters for different animation styles, like stylized or realistic. 19. Creating a rig with layers for easy animation adjustments. 20. Rigging characters for specific tasks, like climbing, jumping, or swimming.	

Course Outcomes: Students should be able to…

1. explain human and animal Anatomy with names
2. apply attribute values with keys
3. analyze exact set driven keys
4. create control curve for 3D Animation

References :

1. Prof. Sham Tickoo Purdue "3ds Max 2023 for Beginners: A Tutorial Approach" Univ. - Published in 2023.
2. Nicholas Boughen "Mastering Autodesk 3ds Max 2023" Published in 2022.
3. Joep van der Steen "Lighting and Rendering with 3ds Max" Published in 2020.
4. David S. Ebert, F. Kenton Musgrave, Darwyn Peachey, Ken Perlin, and Steven Worley - "Texturing and Modeling: A Procedural Approach" Published in 1998.
5. Prof. Sham Tickoo, “Autodesk 3Ds Max 2021 for 3D Designers”, BPB Publications (27 December 2020), SBN-13 : 978-9389898897

SEC

BASTSEC2 – 3D Architectural Modeling

Course Objectives: Student will be able to…

1. understand connections between theory and applications.
2. learn 3ds max materials, textures, and dynamics.
3. apply 3D array and features tools.
4. design 3D Architectural walkthrough.

Credits (Total Credits 2)	SEMESTER – IV LAB COURSE –: BASP 414 **3D Architectural Modeling**	No. of hours 60 Hrs.
	1. Creating walls windows and Doors in 3Ds Max. 2. Creating roofs in 3Ds Max 3. Creating furniture in 3Ds Max 4. Creating Sofa model in 3Ds Max. 5. Texturing model in 3Ds Max. 6. Creating wood texture in 3Ds Max. 7. Adding Vray texture in 3Ds Max software. 8. Creating background for model in 3Ds Max. 9. Creating Vegetation in 3Ds Max. 10. Creating light in scene in 3Ds Max 11. Creating kitchen interior design in 3Ds Max. 12. Creating interior design for living room in 3Ds Max software. 13. Creating exterior scene of playground in 3Ds Max software. 14. Creating cloth simulation in 3Ds Max software. 15. Assigning material to model in 3Ds Max. 16. Creating animation path for scene in 3Ds Max. 17. Creating Architectural model by using .dwg file in 3Ds Max. 18. Rendering Architectural scene in 3Ds Max. 19. Rendering Architectural scene with help of plug-ins in 3Ds Max. 20. Rendering Architectural scene with Arnold in 3Ds Max.	

Course Outcomes: Students should be able to…

1. apply Animation of crowd using Populate Tool.
2. analyze develop programs.
3. develop compound objects Modelling.
4. create Walk – through HD Architectural Renders.

References :

1. Prof. Sham Tickoo Purdue "3ds Max 2023 for Beginners: A Tutorial Approach" Univ. - Published in 2023.
2. Nicholas Boughen "Mastering Autodesk 3ds Max 2023" Published in 2022.
3. Joep van der Steen "Lighting and Rendering with 3ds Max" Published in 2020.
4. David S. Ebert, F. Kenton Musgrave, Darwyn Peachey, Ken Perlin, and Steven Worley - "Texturing and Modeling: A Procedural Approach" Published in 1998.
5. Prof. Sham Tickoo, “Autodesk 3Ds Max 2021 for 3D Designers”, BPB Publications (27 December 2020), SBN-13 : 978-9389898897

CC

BASTCC2 –Basics of Acting

Course Objectives: Students will be able to…

1. understand the basics of Acting.
2. describe character and its voice and speech.
3. classify and categorize the camera technique.
4. analyse the role of animation creativity in acting process.

Credit(2)	Name of the Unit	No.of Hrs(30)
Unit I	**Introduction to Acting**	8
	Overview of the principles of acting Understanding emotions and expression Introduction to body language and movement Basic acting exercises and improvisation	
Unit II	**Character Development**	7
	Analyzing character traits and motivations Creating believable character Understanding character arcs Role-playing exercises to develop characters Voice and Speech: Vocal exercises for clarity and expression Understanding different accents and dialects Emphasis on diction and projection Dialogue delivery practice	
Unit III	**Acting for Animation**	8
	Introduction to performance capture technology Applying acting principles to animated characters Lip-syncing and facial expressions in animation Creating performances that resonate with audiences in animated films or games	
Unit IV	**Camera work and animation**	7
	Intro to on-camera scene work / technique, Discuss on-camera technique and fundamental differences between theatre, tv, & film. - Work on assigned monologues,the cinematic process as related to the animation , Final scenes after animation.	

Course Outcomes: Students should be able to…

1. classify and categorize improvise acting skills.
2. analyse character, different accents and dialects.
3. apply acting principles to animated characters
4. create camera technique and work difference before and after animation

References :

1. Adler, Stella. *The Art of Acting*. New York: Vintage Books, 2000.
2. Boleslavsky, Richard. *Acting: The First Six Lessons*. New York: Theatre Arts Books, 1987.
3. Hagen, Uta. *Respect for Acting*. New York: Wiley, 1973.
4. Meisner, Sanford, and Dennis Longwell. *Sanford Meisner on Acting*. New York: Vintage Books, 1987.
5. Bella Merlin, "Acting: The Basics", Routledge; 1st edition (26 March 2010)