Fergusson College (Autonomous) Pune

Learning Outcomes-Based Curriculum

for F. Y. B.Sc. Animation

With effect from June 2019

Program Structure

Semester	Course Code	Course Title	Course	No. of credits
I	ANI1101	Basics of Animation	TCore-1	3
	ANI1102	Language skills	TCore-2	3
	ANI1103	Photography	TCore-3	3
	ANI1104	Foundation Art	PCore-1	4
	ANI1105	Character Design	PCore-2	4
	ANI1106	Cell Animation	PCore-3	4
	ANI1107	Brainstorming & Crafting	PCore-4	4
II	ANI1201	Visual Communication	TCore-4	3
	ANI1202	Stop Motion Animation	TCore-5	3
	ANI1203	Digital film production	TCore-6	3
	ANI1204	Advanced Foundation Art	PCore-5	4
	ANI1205	Advanced Character Design	PCore-6	4
	ANI1206	Vector Design (Illustrator)	PCore-7	4
	ANI1207	Digital Art (Photoshop)	PCore-8	4

Semester	Course Code	Course Title	Course	No. of credits
	ANI2301	Technical English 1	TCore-1	4
	ANI2302	Basics of Digital Animation	TCore-2	4
	ANI2303	Motion Graphics	TCore-3	4
III	ANI2304	Digital 2d Animation	PCore-1	4
	ANI2305	Introduction to Composition	PCore-2	4
	ANI2306	Composition 2	PCore-3	4
	ANI2401	Technical English 2	TCore-4	4
	ANI2402	Introduction to 3D	TCore-5	4
	ANI2403	Advanced 3D	TCore-6	4
IV	ANI2404	Modeling, Texturing in 3D	PCore-5	4
	ANI2405	Rigging & Animation in 3D	PCore-6	4
	ANI2406	Lighting, Rendering & dynamics in 3D	PCore-7	4

Semester	Course Code	Course Title	Course	No. of credits
	ANI3501	UI/UX design	TCore-1	4
	ANI3502	Game Design	TCore-2	4
V	ANI3503	Blender 1	TCore-3	4
	ANI3504	Blender 2	PCore-1	4
	ANI3505	Game Production	PCore-2	4
	ANI3506	Project	PCore-3	6
	ANI3601	VFX 1	TCore-4	4
	ANI3602	IPR & Cyber security	TCore-5	4
VI	ANI3603	Introduction to Python	TCore-6	4
	ANI3604	VFX 2	PCore-5	4
	ANI3605	Digital Editing	PCore-6	4
	ANI3606	Project / Internship	PCore-7	6

	Program Outcomes (POs) for B.Sc. Animation
PO1	**Academic competence**: (i) Create competence in the fields of Computer Graphics assets creation, Visual Effects, Gaming and Graphic designing. (ii) Understand the ongoing changing trends and keep them updated with the latest technology. (iii) Produce creative and technical skills in various domains of Animation, Gaming, VFX and multimedia. This will enable them to be employed globally.
PO2	**Personal and Professional Competence**: (i) Use critical thinking skills and problem-solving strategies for overall development of the professional growth in the fields like Animation, VFX, gaming, and graphics. (ii) Carry out industry orientated new technologies and new trends in animation, VFX & graphics. (iii) Create ample opportunities to work effectively to emerge as an acceptable team leader by working on team projects & assignments.
PO3	**Research Competence:** (i) Apply technical knowledge and methodologies from animation softwares in order to conduct research and demonstrate appropriate skill to seek solutions to problems that emerge in various fields of 3d animation & VFX simulations
PO4	**Entrepreneurial and Social competence:** (i) Develop Entrepreneurial capabilities considering animation industry works mainly on freelancing and individual creativity. (ii) Build adequate knowledge, skill, dedication and work ethics required for accomplishment of the assigned task and strengthen social competency skills. (iii)Able to demonstrate their acquired knowledge for the growth of social and ethical values in outdoor activities, such as service learning, internships and field work. (iv)Maintain and develop ethics of Media, Animation & Gaming Industry as these industries plays vital role in today's generations

	Program Specific Outcomes (PSOs) for F. Y. B.Sc. Animation
PSO No.	**Program Specific Outcomes (PSOs)** **Upon completion of this programme the student will be able to**
PSO1	**Academic competence:** (i) Create competence in the fields of Computer Graphics assets creation, Visual Effects, Gaming and Graphic designing. (ii) Understand the ongoing changing trends and keep them updated with the latest technology. (iii) Produce creative and technical skills in various domains of Animation, Gaming, VFX and multimedia. This will enable them to be employed globally.
PSO2	**Personal and Professional Competence:** (i) Use critical thinking skills and problem-solving strategies for overall development of the professional growth in the fields like Animation, VFX, gaming, and graphics. (ii) Carry out industry orientated new technologies and new trends in animation, VFX & graphics. (iii) Create ample opportunities to work effectively to emerge as an acceptable team leader by working on team projects & assignments.
PSO3	**Research Competence:** (i) Apply technical knowledge and methodologies from animation softwares in order to conduct research and demonstrate appropriate skill to seek solutions to problems that emerge in various fields of 3d animation & VFX simulations
PSO4	**Entrepreneurial and Social competence:** (i) Develop Entrepreneurial capabilities considering the animation industry works mainly on freelancing and individual creativity. (ii) Build adequate knowledge, skill, dedication and work ethics required for accomplishment of the assigned task and strengthen social competency skills. (iii) Able to demonstrate their acquired knowledge for the growth of social and ethical values in outdoor activities, such as service learning, internships and field work. (iv) Maintain and develop ethics of Media, Animation & Gaming Industry as these industries play a vital role in today's generations.

Title of the Course and Course Code	Basics of Animation (ANI1101)	Number of Credits : 03

Course Outcomes (COs)
On completion of the course, the students will be able to:

CO1	Describe the evolution of animation and its history.
CO2	Discuss the art of movement and analyse creative work of artist.
CO3	Examine various processes of animation techniques that are developed with various equipments.
CO4	Compare and contrast various traditional animation techniques.
CO5	Determine various animation techniques with basic principles of animation.
CO6	Build various optical toys and animations before films.

Unit No.	Title of Unit and Contents	No. of Lectures
1	**EARLY ANIMATION** • Pre-History • Persistence of Vision • History of stop motion	**5**
2	**EARLY STUDIOS AND ANIMATION PIONEERS** • Walt Disney • Max Fleischer • Tex Avery • Warner bros	**7**
3	**EARLY APPROACHES TO MOTION IN ART** • Animation Before Films • The Magic Latern • Thaumatrope • Phenakistoscope • Zeotrope • Flip Book	**7**
4	**ANIMATION TECHNIQUES** • Stop Motion • Puppet • Cut-out • Clay Etc	**7**

5	**HISTORY OF INDIAN ANIMATION, INDUSTRIES AND STUDIOS** • Growth of Indian Industry and Studio • Animation art in India	**4**
6	**12 rinciples of Animation**	**12**

Learning Resources:

- "Cartoon Animation", Preston Blair, Walter T. Foster, Apple Press, Limited, Eighth Edition, ISBN 1560100842

- "History of Animation": Facts and Figures, Bredson, Philps Cardiff, Pearson Publications, 1972

Title of the Course and Course Code	**LANGUAGE SKILLS (ANI1102)**	**Number of Credits : 03**
Course Outcomes (COs) **On completion of the course, the students will be able to:**		
CO1	State importance of language in communication & journey of language.	
CO2	Explain varied forms of applied formal writing.	
CO3	Illustrate proofreading skills to eliminate linguistic barriers.	
CO4	Compare written communication as an important form of communication.	
CO5	Evaluate common errors in English language.	
CO6	Prepare to interact with formal correspondence.	

Unit No.	Title of Unit and Contents	No. of Lectures
1	**Basics of Language** • Understanding History of Language • Language and Human Beings • Need of Language • Characteristics of language	**5**
2	**Language as a System** • Sign and symbols • Language as a system of symbols • Language and Comprehension • Language and Thought Process	**7**
3	**Elements of Language** • Vocabulary Building • Finding similar/opposite words	**7**

	• Basic of Etymology • Grammar	
4	**Language and Culture** • Language Communication and Culture • Need, Scope of Language for Culture • Use of Language in Culture • Use of Language Literature	**7**
5	**Non Verbal Language** • Understanding non verbal communication • Universal Code and Sigh • Expressions and Body Language • Gestures and Postures	**8**
6	**Audio Visual Languages** • Form and Style of Visuals • Meaning making through Visuals • Form and Style of Audio • Analyzing Audio Visual language	**10**

Learning Resources

- Save a cat by Blake Synder
- A directors method for Film & Television by Ron Richards

Title of the Course and Course Code	Photography (ANI1103)	Number of Credits : 03
Course Outcomes (COs) **On completion of the course, the students will be able to:**		
CO1	Recall history of Photography	
CO2	Explain camera functioning	
CO3	Operate camera and its accessories	
CO4	Compare lighting techniques and types of lenses	
CO5	Review color theory	
CO6	Generate photographs using the given techniques	

	Title and Contents	No. of Lectures
Unit - I	**Evolution of Photography** • Definition of Photography • Origin of Camera World • Urge of Invention of Photography • Camera obscura - Pinhole - Box camera - DSLR	**08**

Unit - II	**Digital Photography** • Basics of Digital Photography • Camera Equipment • Camera Settings • Basics of Image Formation	**10**
Unit - III	**Various Camera and Lenses** • Introduction to Mirror less camera technology / working • Types of Lenses (Distortions, properties, focal length, Depth) • Crop Factor and effective focal length calculation) • Creative Photography (Angles in Photography)	**08**
Unit - IV	**Color Theory and Lightning Techniques** • Color Space + Colour symbolism + Colour harmonies • Histogram • What are major sources of lights? • Types of Lights in Photography. (Main / Key Light, Fill Light, Cut Light/Kick Light, Background Light). • Flash Operating Modes • Green Screen Lighting	**09**
Unit - V	**Composition** • What is composition in Photography? Its significance. • Types of Composition: Symmetrical, Radial, Diagonal, Letter Box, Tall Crop, Rule of third, Overlapping, Frame in Frame, Geometrical Shapes & Forms.	**10**

References:
- Fundamentals of Photography Book by Tom Ang.
- Cinematography: Theory and Practice: Image Making for Cinematographers and Directors, by Blain Brown.
- The Filmmaker‟s Handbook: A Comprehensive Guide for the Digital Age: 2013 Edition.
- Guide to Postproduction for TV and Film: Managing the Process by Barbara Clark.

Title of the Course and Course Code	Foundation Art (ANI1104)	Number of Credits : 04

Course Outcomes (COs) On completion of the course, the students will be able to:	
CO1	Recall the basics of drawing and material handling.
CO2	Illustrate the importance of elements of designs
CO3	Demonstrate the usage of positive and negative space in a design composition.
CO4	Identify, analyze color theory and color harmony in drawing and sketching.
CO5	Review different type of art forms.
CO6	Create backgrounds and compositions with the help of color theory and color harmony.

Practical No.	Title
1	Free hand Drawing
2	Color Schemes
3	Color Value
4	Pencil shading
5	2D Design
6	3D Design
7	Object Drawing (Man Made)
8	Object Drawing (Nature)
9	Landscape Design
10	Intro to Human Anatomy

Learning Resources

- Figure Study Made Easy By- Aditya Chari -- Grace Publication
- Perspective by Milind Mulik – Jyotsna Prakashan

Title of the Course and Course Code	Character Design (ANI1105)	Number of Credits : 04

Course Outcomes (COs) On completion of the course, the students will be able to:	
CO1	Recall the basics of drawing and sketching
CO2	Illustrate the importance of character designing
CO3	Demonstrate the usage of expressions in character design
CO4	Identify, analyze types of characters and their styles
CO5	Review different type of concept arts in context of characters
CO6	Create Character Bible, Model Sheets for a newly designed character.

Practical No.	Title
1	**Introduction to Character Design** • Character Bible and Research • Character Visualization • Basic of Character writing • Anatomy of Characters • Construction. The construction is the very basis of your character • Character-gesture: What is a gesture, how to go about finding one, and why it's important to your character? • Composition of characters
2	**Character Construction** • Lines, Simple Approach to Drawing • Short-pose Sketching, Dividing the Body into Units • Angles and Tension, Tennis and Angles. • Drawing Gesture from the Model, Stick to the Theme
3	• Character Expressions • Character Concept Art
4	**Research.** As part of students' research, seek out pictures and references that will help students figure out how the character will look, based on the characteristics they have compiled.
5	**Types of Character and its styles.**
6	**Create Character Bible, Model Sheets, Expressions & Key Poses**

Learning Resources

• The Animation survival kit by Richard Williams.

Title of the Course and Course Code	Cell Animation (ANI1106)	Number of Credits : 04

Course Outcomes (COs)	
On completion of the course, the students will be able to:	
CO1	Describe the Principles of Animation for creation of cell animations.
CO2	Explain various principles of animation with the help of traditional methods.
CO3	Apply action analysis and observations to animated drawings.
CO4	Analyze basic animation movements for characters or objects.
CO5	Determine critical thinking skills elemental to the problem solving of design and the visual arts.
CO6	Create drawings that represent actions and emotions.

Practical No.	Title
1	History of Cell animation
2	Introduction to Lightbox Animation
3	Animation Principles
4	Hand Drawn Animation and Techniques (key frames-in-betweens-cleanup-inking-special effects)
5	Animation Timings.
6	Cell Animation Editing.
7	Introduction to Exposure Sheet.
8	Expressions/dialogue/Gestures
9	Stick Animation 1. Lines, Simple Approach to Drawing 2. Short-pose Sketching, Dividing the Body into Units 3. Angles and Tension, Tennis and Angles. 4. Drawing Gesture from the Model, Stick to the Theme

Learning Resources:

- The Animation survival kit by Richard Williams.

Title of the Course and Course Code	Brainstorming and Crafting (ANI1107)	Number of Credits : 04

	Course Outcomes (COs)
	On completion of the course, the students will be able to:
CO1	Recall the basics of drawing and material handling.
CO2	Illustrate the importance of brainstorming methods
CO3	Demonstrate the various methods of brainstorming
CO4	Identify, analyze different materials and tools used in art
CO5	Review different type of art forms along with the content
CO6	Create various innovative creative art sculptures

Practical No.	Title
1	Brainstorming :Brief/story to character
2	Brainstorming: Ideas for Product advertisements 2
3	Brainstorming Ideas for short animated film 1
4	Brainstorming Ideas for short Animated film 2
5	Brainstorming Ideas for Games
6	Brainstorming Ideas for Graphics
7	Brainstorming : Listen and express
8	Brainstorming : Solutional Ideas – as per topic
9	Material Handling: 1. Various Type of Paper etc 2. Clay, wax, color etc 3. Use Wastage Material Bottles, News Paper, Threads etc
10	Tool Handling: 1. Cutting 2. Mixing 3. Joining

Learning Resources:

- The Animation survival kit by Richard Williams.

F.Y. B.Sc. Semester II		
Title of the Course and Course Code	**Visual Communication (ANI1201)**	**Number of Credits : 03**
Course Outcomes (COs)		
On completion of the course, the students will be able to:		
CO1	Describe basics of Communication.	
CO2	Explain theory of Visual Communication.	
CO3	Apply rules of communication theory.	
CO4	Analyze various camera angles and shots.	
CO5	Determine the importance of visuals in media.	
CO6	Create a design or storyboards for the films.	

Unit No.	Title of Unit and Contents	No. of Lectures
1	**Introduction to Visual Communication** • Visual language • Visual grammar- perception, composition, grouping and organization, balance, ratio and proportion, rule of thirds, light, color harmony and contrast • Classification of shots • Principles of visual grammar • Film, video, e books, art, modern ways	12
2	**Socio cultural history of Visual Communication** • History of visual communication • Visual literacy • How to read visuals • Impact of Visual Communication on People	7

3	**Symbolic communication**
	   1. Symbolism
	   2. Indian Context
		7

4	**Presentation Methods of Visual Communication** • Forms of visual communication • Approaches to visual communication • Design principles • Design processes	8

| 5 | **Visual analytics and models**
 • Color theory
 • Visual analysis (motion, static)
 • Visual aids and advance techniques | **8** |

Learning Resources
- Visual Communication: Images with Messages by Paul Martin
- Visual Communication: Integrating Media, Art, and Science By Rick Williams, Julianne Newton.

Title of the Course and Course Code	**Stop Motion Animation (ANI1202)**	**Number of Credits : 03**
Course Outcomes (COs) **On completion of the course, the students will be able to:**		
CO1	Describe the working of stop motion industry.	
CO2	Explain the process of handling materials for clay modelling and cut out animation.	
CO3	Classify armature and miniature modelling.	
CO4	Differentiate techniques between cut-out animation and clay-mation.	
CO5	Review the techniques of tool handling.	
CO6	Create an animated clip by using the cut out and clay animation techniques.	

Unit No.	Title of Unit and Contents	No. of Lectures
1	**Appeal and History of Stop Motion** • Appeal & History of Stop Motion • Appeal of Medium • The Beginning of stop motion animation • Cut – out animation &Clay-mation	5
2	**Stop Motion Industry** • The Production Pipeline • Concept art and design • Storyboarding • Sound recording and exposure sheet • Designing and Building Puppets and Sets • Animation • Post-Production	10

3	**Introduction to Claymation Technique** • Claymation Industry • Creating Claymodel • Wire Armatures • Building Simple Wire Armatures • Latex build-ups Puppets • ClayPuppets • Creating multi models for animation	10
4	**Introduction to Cut-Out Animation Technique** • History of Cut out Animation • Traditional Cut out Technique • Digital Cut out Technique	10
5	**Character Design for Cut – out Technique** • Design character for cut out technique • Creating hand gestures • Facial expressions • Blink	10

Learning Resources

- The Art of Stop Motion Animation - by Ken Priebe -- Course techno

Title of the Course and Course Code	**Digital Film Production (ANI1203)**	**Number of Credits : 03**
Course Outcomes (COs)		
On completion of the course, the students will be able to:		
CO1	Recall basics of Camera	
CO2	Explain lighting & cinematography techniques	
CO3	Execute video shoots with lighting setups	
CO4	Compare different cameras with lenses	
CO5	Review post production techniques & stages	
CO6	Compose video footages to create final outputs	

Unit.no	Title and Contents	No. of Lectures
Unit - I	**Development** • Before a film can get started, it needs to go through the "development" phase. This phase includes the creation, writing, organizing and planning of a film project. The budget must be set, cast goes through auditions, the location is decided, and multiple scripts are written. Many times, writers and directors create storyboards to entice producers to finance the film. • Responsibility of the Cinematographer + Story boarding	**05**

	• Pre-Production, Production and Post-Production stages		
Unit - II	**Basic Grammar of Video** • Camera Angles • Types of Shots • Composition Rules (+ Revision) • Stop Motion (Animation - Photography) • What is Stop-Motion Imagery? • Applications / Impacts • How to create stop motion animation (Techniques, do's / Don'ts)		**11**
Unit - III	**Advance Lighting** • Conventional, Soft and Diffused, Bounce, Source, Hard and Creative Lighting **Revision** + Use of colours in Films (Colour theory Revision + Colour symbolism) Outdoor Lighting Wide and Huge Sets - Day Effect, Night Effect and Creative Lighting. Matching Indoor with Outdoor • Exposure Metering - Incident Light, Reflected Light, Spot Light, etc. Study about different kinds of Lights - Incandescent Lamps, Tungsten Halogen, HMI, PAR Lights, Kinoflo, etc.		**10**
Unit - IV	**Cinematography** • Different Types of Film Movie Cameras. + Basics of Aspect ratios (Cinemascope / IMAX / 4:3 / 16:9 / 1:1) (No need to study each camera individually , reference reading and websites (ARRI / RED / Canon ,etc.) Will be provided to students in order to read out the info about the digital Film cameras.) • Slow and Fast Motions, Changing of Shutter Angles and Ramping • Special Effects using In-Camera techniques + Camera Movements (Simple to Complex)		**10**
Unit - V	**Post Production, Color Grading, Digital Intermediate** • Image Processing • Color Gradations • Digital Audio recording, Editing and Reproduction • Video Editing - Media Management, Working in the audio, Effects & Transition, Animation, Titles • Special Effects • Budget, Timelines, Recce		**09**

References:
- Picture Perfect Practice and Picture Perfect Posing by Roberto Valenzuela.
- Understanding Exposure by Bryan Peterson.
- Film is not Dead by Jonathon Canlas.
- The Art of Color by Itten.

Title of the Course and Course Code	Advance Foundation Art (ANI1204)	Number of Credits : 03
Course Outcomes (COs)		
On completion of the course, the students will be able to:		
CO1	Recall the basics of drawing and sketching	
CO2	Illustrate the importance of color theory	
CO3	Demonstrate the usage of 1-2 point perspective in drawing	
CO4	Identify, analyze color theory and color harmony in drawing and sketching.	
CO5	Review different type of art forms.	
CO6	Create backgrounds, compositions and storyboards with the help of color theory and color harmony.	

Practical No.	Title
1	**Advance sketching** • Time sketching • Outdoor sketching • Action base sketching • Line of action
2	**Advance Colour theory** • Color psychology • color schemes • character color schemes • Project on Color
3	**Concept Art** • Concept creation • Silhouette • Single tone concept art • Colour concept art
4	**Background Creation:** • As per animation story or Sequences create a background with suitable color scheme. • Landscape • Layout design.
5	**1-point perspective** • Create an object in which student can understand the depth, hollow, extrude and overlapping objects. • Project in 1 point
6	**2-point perspective** • Create an object in which student can understand the depth, hollow, extrude and overlapping objects. • Project in 2 point
7	**Storyboarding** 1. Storyboarding: creating a contend and as per contend create a story board through sketching and execute and presentation

	2. Project work

Learning Resources:
- The Animation survival kit by Richard Williams.

Title of the Course and Course Code	Advance Character Design (ANI1205)	Number of Credits : 03
Course Outcomes (COs)		
On completion of the course, the students will be able to:		
CO1	Recall the basics of drawing and sketching	
CO2	Illustrate the importance of character designing	
CO3	Demonstrate the usage of expressions in character design	
CO4	Identify, analyze types of characters and their styles	
CO5	Review different type of concept arts in context of characters	
CO6	Create Character Bible, Model Sheets for a newly designed character	

Practical No.	Title
1	Research characters with concept
2	Character construction
3	Character model sheet
4	Character concept art
5	Character art with the backgrounds, color scheme, theme
6	As per story board contend and story boards create detailing of an individual character with anatomy, expressions, proportions, shade.
7	Project

Learning Resources:
- The Animation survival kit by Richard Williams.

Title of the Course and Course Code	Vector Design (Illustrator) (ANI1206)	Number of Credits : 03

Course Outcomes (COs)		
On completion of the course, the students will be able to:		
CO1	Recall theoretical knowledge of print and digital media.	
CO2	Explain various concepts of digital art.	
CO3	Illustrate the usage of various tools for vector graphic software.	
CO4	Identify various points of vector design styles & raster desiging	
CO5	Compare Concept Art and Fantasy Art while converting from paper to digital format.	
CO6	Create art related to print media and vector based using digital platforms.	

Practical No.	Title
1	Logo Design
2	Typography
3	Visiting Card Design
4	Brochure design
5	Cover page design
6	Cartoon Character design
7	Cartoon Character design
8	Landscape Design
9	Character Design
10	Character Design

References:

- https://helpx.adobe.com/in/creative-cloud/tutorials-explore.html

Title of the Course and Course Code	DIGITAL ART (PHOTOSHOP) (ANI1207)	Number of Credits : 03

Course Outcomes (COs)
On completion of the course, the students will be able to:

CO1	Recall theoretical knowledge of print and digital media.
CO2	Explain various concepts of digital art.
CO3	Illustrate the usage of various tools for graphic software.
CO4	Identify various points of switching from hand drawings to digital platforms.
CO5	Compare Concept Art and Fantasy Art while converting from paper to digital format.
CO6	Create background for 2d animation, texturing for 3d animation using digital platforms.

Practical No.	Title
1	Black and White photo to Color
2	Photo Manipulation
3	Digital Painting Object
4	Digital Painting Nature Object
5	Digital Painting Landscape
6	Character Design
7	Layout Design for Animation
8	Matte Painting

References:

- https://helpx.adobe.com/in/creative-cloud/tutorials-explore.html