



# GUJARAT TECHNOLOGICAL UNIVERSITY

## Bachelor/Master of Engineering Syllabus

**Subject Code : 3154902**

**Subject Name : Animation Principles and Design**

WEF Academic Year :	
Semester :	5
Category of the Course :	Professional Elective

<b>Prerequisite :</b>	Basics of Computer Operations
<b>Rationale :</b>	Animation Design and Principles is an important area in today's digital era. This subject will help student understand the basic concepts of animation and design and can explore new areas of application of Animation techniques. This subject has many applications in various Digital Media platforms such as Entertainment, Advertisement, Education etc.

### Course Scheme :

Teaching Scheme			Total Credits	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Practical		
				ESE (E)	PA(M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

### Course Content:

Sr. No.	Course Content	No. of Hours	% of Weightage
01	<b>Animation Principles:</b> Introduction to animation, Heritage of Animation, Dawn of Digital Animation, Understanding the principles that translate sequential images into action to make animation believable, Understanding properties of matter .Making use of the wave principle, delayed secondary action, speed, weight, tendency of weight to move in a certain way. Recoil effects overlapping action, follow through Animating force acting on objects, construction, flexibility, object behaviour when force acts on them. Principles of Timing. Understanding the basic unit of time in animation • Emphasizing the difference between caricature, drama, humour. Timing governing acting and movement. Digital effects of 2D Animation,	08	20
02	<b>Applications of Animation:</b> Entertainment, Advertisement, Education, Medical Practice and Engineering.	03	05
03	<b>12 principles of Animation :</b> Basic Principles in animation, Squash and stretch, Anticipation, Staging, Straight ahead and pose to pose, Follow	08	20



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	through and overlapping action, Slow in and slow out, Arcs, Secondary action, Timing, Exaggeration, Solid drawing, Appeal, Mass and weight, Character acting, Volume, Line of action, Path of action, Walk cycles-animal and human. The use of Live Action in Animation Humans and Animals-Quick Studies from real life, Sequential movement drawing, Caricaturing the Action, Thumbnails, Motion Studies, Drawing for motion.		
04	<b>Animation Techniques:</b> Study of Animation Techniques & types used over the years in animation. The difference between the processes of the basic 3 methods of animation, namely frame by frame creation of animation like traditional 2D. Modification of object or image to produce animation like paint on glass, sand on glass, simple claymation without armatures etc.	08	20
05	<b>Manipulation of objects</b> : produce animation like 2D cutout animation, simple object animation, Puppets, etc.	03	05
06	<b>Character Animation:</b> Reflecting on human movement. Gaining an insight into creating believable action . Practicing the mechanics of walks, runs, head turns, gestures Methods of lip-syncing to sound, breakdowns . Posing characters in scenes. Animal movement: Reflecting on animal movement . Gaining an insight into creating believable action .Practicing the mechanics of quadraped- walks, runs, gallops; bird movement and flight Sfx: n awareness of and an ability to create convincing atmosphere	08	20
07	<b>Creating animated environments and atmosphere</b> : flames, smoke, water, rain, snow etc. to offset principal animation. Creating Special effects such as explosions, speed lines etc.	04	10
<b>Total</b>		<b>42</b>	<b>100</b>

## Reference Books:

- 1 The Animator's Survival Kit by Richard Williams, Straus & Giroux Pub. (U.S.A)
2. Flash Professional CC Class Room In a Book – Pearson
3. The complete animation course by Chris Patmore -Baron's Educational Series. (New York)
4. Animation Unleashed by Ellen Bessen, Michael Weise Productions, 2008(U.S.A)
5. Draw Animation by Paul Hardman 6. Ed Hooks, Acting for Animators • Heinemann, Reed Elsevier, 2000  
The Human Figure in Motion



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## Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level*
01	Understand basics of animation principles	UN
02	Understand various animation techniques	UN
03	Develop 2D animation small applications	AP
04	Develop various character animation small applications with different features using animation tools	AP

\*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create

## Suggested Course Practical List using at least 2 different Animation Tools:

1. Creating Web Banners in Adobe Flash
2. Creating a Logo Animation in Adobe Flash
3. Creating Frame by Frame animation
4. Draw Cartoon Animation using reference.
5. Create Lip Sink to Characters
6. Using filters & Special effects
7. Create a scene by using Mask layers animation
8. Student Application form
9. Start Drag and Stop Drag Actions
10. Interactive Keyboard Controls using Flash Action Script.
11. Interactive Flash Game.
12. Creating Character Animation in After Effects

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