B.Sc. Animation and VFX

Apprenticeship Embedded Degree Programme
(3 Years)

By:
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Table of Content

S.No.	Chapter	Title	Page No.
1	1	General Course Structure & Credit Distribution	3-9
2	2	First-year Curriculum Structure	10-21
3	3	Second Year Curriculum Structure	22-32
4	4	Third Year Curriculum Structure	33-38

Chapter 1
General Course Structure
&
Credit Distribution

Definition of Credit

1 Hr. Lecture (L) per week	1 credit
1 Hr. Tutorial (T) per week	1 credit
1 Hr. Practical (P) per week	0.5 credit
2 Hr. Practical (P) per week	1 credit

A. Range of Credits:

In the light of the fact that a typical Model Four-year AEDP in Media and Entertainment Skills has about 160 credits, the total number of credits proposed for the three-year program in Media and Entertainment Skills is 120.

B. Structure of AEDP (3 Year) in Media and Entertainment Skills:

The structure of the program in Media and Entertainment Skills shall have essentially the following categories of courses with the breakup of credits as given:

Sr. No.	Category	Suggested Breakup of Credits
1	Program Core courses (Branch specific)	84*
2	Open Elective courses (from other technical and /or emerging subjects)	8*
3	Vocational (Minor), Project work, seminar, and internship in industry or elsewhere	12*
4	CO-Curricular Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Traditional Knowledge etc.]	10*
5	Apprenticeship with Industry	26*
	Total	**140***

*Minor variation is allowed as per need of the respective disciplines.

C. Course code and definition:

Course code	Definitions
L	Lecture
T	Tutorial
P	Practical
PC	Program Core Courses
OE	Open Elective Courses
PR	Project

D. Course level coding scheme:

Three-digit number (odd numbers are for the odd semester courses and even numbers are for even semester courses) used as suffix with the Course Code for identifying the level of the course e.g.
101, 102 … etc. for first semester 201, 202 …. Etc. for second semester 301, 302 … for third semester.

E. Category-wise Courses

PROGRAM CORE COURSES [PC]

Note:
(i) Number of Program Core Courses: 27 (including lab courses)
(ii) Credits: 84

Sl. No	Code No.	Course Title	Hours per week			Semester	Credits
			L	T	P		
1	DAN101	Communicative English-I	1	0	2	1	2
2	DAN102	Drawing & Painting	1	1	0	1	2
3	DAN103	Storytelling & Storyboarding	0	2	0	1	2
4	DAN104	Principles of Animation	1	1	2	1	3

5	DAN105	Digital Art	1	2	2	1	4
6	DAN106	UI UX Design	1	2	0	1	3
7	DAN201	Communicative English-II	1	0	2	2	2
8	DAN202	2D Digital Animation	2	2	2	2	5
9	DAN203	Video Editing	1	1	0	2	2
10	DAN204	Animation Drawing	1	2	0	2	3
11	DAN205	Portfolio I	1	0	2	2	2
12	DAN206	History of Animation	2	0	0	2	2
13	DAN301	3D Modeling	1	1	2	3	3
14	DAN302	Texturing Painting	1	2	0	3	3
15	DAN303	3D Animation	1	1	2	3	3
16	DAN304	Body Mechanics	1	1	2	3	3
17	DAN305	Rigging	1	2	2	3	4
18	DAN401	Anatomy Study	1	1	2	4	3
19	DAN402	Lighting and Rendering	1	2	0	4	3
20	DAN403	Digital Sculpting	1	2	2	4	4
21	DAN404	Performance Animation	1	0	2	4	2
22	DAN405	Creature Animation	1	0	2	4	2
23	DAN406	Community Connect	0	2	0	4	2
24	DAN501	Match Moving	2	2	2	5	5
25	DAN502	Rotoscopy& Paint	2	2	2	5	5
26	DAN503	Dynamics	2	2	2	5	5
27	DAN504	Editing & Compositing-I	2	2	2	5	5
Total Credits							84

** The branch code, e.g. ADMC for Content and Creative Writing
Three-digit number for identifying the level of the course

OPEN ELECTIVE COURSES [OE]

Note:

(i) Number of Open Elective Courses: 13

(ii) Credits: 30

(iii) The Open Elective Courses to be offered in all semesters.

(iv) The students can opt for any open elective courses that are offered by any of the respective departments.

Sl. No	Code No.	Course Title	Hours per week			Semester	Credits
			L	T	P		
1	OE	Open Elective (To be Chosen by Student)	0	2	0	1	2
2		Vocational (Minor)	0	2	2	1	3
3		Co-Curricular	0	2	0	1	2
4		Open Elective (To be Chosen by Student)	0	2	0	2	2
5		Vocational (Minor)	0	2	2	2	3
6		Co-Curricular	0	2	0	2	2
7		Open Elective (To be Chosen by Student)	0	2	0	3	2
8		Vocational (Minor)	0	2	2	3	3
9		Co-Curricular	0	2	0	3	2
10		Open Elective (To be Chosen by Student)	0	2	0	4	2
11		Vocational (Minor)	0	2	2	4	3
12		Co-Curricular	0	2	0	4	2
13		Co-Curricular	0	2	0	5	2
Total Credits							30

** The branch code, e.g. ADMC for Media Communication

Three-digit number for identifying the level of the course

PROJECT WORK AND INTERNSHIP IN INDUSTRY OR ELSEWHERE

Sl. No	Code No.	Course Title	Hours per week			Semester	Credits
			L	T	P		
1		**Live Project I (Industry Tie-up)**	0	0	0	2	0
2		**Live Project II (Industry Tie-up)**	0	0	0	4	0
3		Project (VFX & Compositing)	0	1	4	5	3
Total Credits							3

Note:

- Projects can be taken at an industry or also at the institution premises.
- Live projects can also be taken into account when considering internship

INDUCTION PROGRAM

Induction program (suggested)	Two-week duration
Induction program for students to be offered right at the start of the first YEAR.	• Physical activity • Creative Arts • Universal Human Values • Literary • Proficiency Modules • Lectures by Eminent People • Visits to local Areas • Familiarization to Dept./Branch & Innovations

F. Visits/Workshop/Expert Lectures:

a. It is advised to arrange one industrial visit every semester for the students of each branch.

b. It is advised to organize at least one expert lecture per semester for each branch by inviting resource persons from domain specific industry.

G. Evaluation Scheme (Suggestive only):

a. For Theory Courses:

(The weightage of Internal assessment is 40% and for End Semester Exam is 60%) The student has to obtain at least 40% marks individually both in internal assessment and end semester exams to pass.

b. For Practical Courses:

(The weightage of Internal assessment is 60% and for End Semester Exam is 40%) The student has to obtain at least 40% marks individually both in internal assessment and end semester exams to pass.

c. For Internship / Projects / Seminar etc.

Evaluation is based on work done, quality of report, performance in viva-voce, presentation etc.

Note: The internal assessment is based on the student's performance in mid semester tests (two best out of three), quizzes, assignments, class performance, attendance, viva-voce in practical, lab record etc.

H. Mapping of Marks to Grades

Each course (Theory/Practical) is to be assigned 100 marks, irrespective of the number of credits, and the mapping of marks to grades may be done as per the following table:

Range of Marks	Assigned Grade
91-100	AA/A+
81-90	AB/A
71-80	BB/B+
61-70	BC/B
51-60	CC/C+
46-50	CD/C
40-45	DD/D
< 40	FF/F (Fail due to less marks)
-	FR (Fail due to shortage of attendance and therefore, to repeat the course)

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CHAPTER 2
FIRST YEAR CURRICULUM STRUCTURE

Semester 1								
Sl. No.	Category of Course	Code No.	Course Title	Hours per week			Total Contact hrs/week	Credits
				L	T	P		
1	PC	DAN101	Communicative English-I	1	0	2	3	2
2	PC	DAN102	Drawing & Painting	1	1	0	2	2
3	PC	DAN103	Storytelling & Storyboarding	0	2	0	2	2
4	PC	DAN104	Principles of Animation	1	1	2	4	3
5	PC	DAN105	Digital Art	1	2	2	5	4
6	PC	DAN106	UI UX Design	1	2	0	3	3
7	OE		Open Elective (To be Chosen by Student)	0	2	0	2	2
8	OE		Vocational (Minor)	0	2	2	4	3
9	OE		Co-Curricular	0	2	0	2	2
Total Credits								23

Semester 2								
Sl. No.	Category of Course	Code No.	Course Title	Hours per week			Total Contact hrs/week	Credits
				L	T	P		
1	PC	DAN201	Communicative English-II	1	1	2	3	2
2	PC	DAN202	2D Digital Animation	1	2	0	6	5
3	PC	DAN203	Video Editing	1	2	2	2	2
4	PC	DAN204	Animation Drawing	1	0	2	3	3
5	PC	DAN205	Portfolio I	1	0	2	3	2
6	PC	DAN206	History of Animation	0	2	0	2	2
7	OE		Open Elective (To be Chosen by Student)	0	2	0	2	2
8	OE		Vocational (Minor)	0	2	2	4	3
9	OE		Co-Curricular	0	2	0	2	2
10	PR		Live Project I (Industry TieUp)	0	0	0	0	0
Total Credits								23

Detailed First Year Curriculum Contents SEMESTER - I		
Course Code	:	DAN101
Course Title	:	Communicative English-I
Number of Credits	:	2(L:1, T:0, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop effective verbal and written communication skills.
2. Enhance comprehension and interpretation abilities.
3. Foster critical thinking through engaging with diverse texts.
4. Cultivate interpersonal and group communication skills.
5. Apply language skills relevant to media and entertainment contexts.

Course Content:

1. Foundations of English Language
2. Reading Comprehension Strategies
3. Writing Techniques for Media
4. Verbal and Non-verbal Communication
5. Media Literacy and Critical Analysis
6. Presentation Skills for Media Professionals
7. Group Communication Dynamics
8. Cultural Sensitivity in Communication

Course Outcome:

1. Proficient written and verbal communication in media settings.
2. Critical analysis and interpretation of media-related content.
3. Effective presentation and public speaking abilities.
4. Collaborative communication skills suitable for team environments.
5. Application of language skills in media and entertainment contexts.

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Detailed First Year Curriculum Contents
SEMESTER - I

Course Code	:	DAN102
Course Title	:	Drawing & Painting
Number of Credits	:	2(L:1, T:1, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop foundational drawing and painting skills applicable to Animation.
2. Understand the principles of composition and color theory in the context of design.
3. Acquire proficiency in digital drawing and painting tools commonly used in the animation industry.
4. Apply drawing and painting techniques to create concept art and illustrations.

Course Content:

1. Basic Drawing Techniques and Sketching
2. Principles of Composition in Art
3. Color Theory and Application in Design
4. Digital Drawing and Painting Tools for Artists
5. Concept Art Creation

Course Outcome:

1. Demonstrate improved drawing and sketching skills.
2. Apply principles of composition and color effectively in art.
3. Utilize digital drawing and painting tools proficiently.
4. Create concept art and illustrations.

Detailed First Year Curriculum Contents SEMESTER - I		
Course Code	:	DAN103
Course Title	:	Storytelling & Storyboarding
Number of Credits	:	2(L:0, T:2, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop skills in crafting compelling narratives for environments.
2. Understand the principles of storytelling and its application to design.
3. Learn the art of storyboarding as a visual storytelling tool.
4. Apply narrative and storyboarding techniques to enhance concepts.

Course Content:

1. Fundamentals of Storytelling
2. Narrative Structures in Development
3. Creating Engaging Characters
4. Principles of Storyboarding
5. Applying Storytelling and Storyboarding

Course Outcome:

1. Craft engaging narratives.
2. Understand various narrative structures relevant to Animation.
3. Create compelling characters for storytelling.
4. Develop proficiency in using storyboarding as a visual storytelling tool.

Detailed First Year Curriculum Contents SEMESTER - I		
Course Code	:	DAN104
Course Title	:	Principles of Animation
Number of Credits	:	3(L:1, T:1, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a foundational understanding of animation principles in the context of animation.
2. Explore the application of animation techniques to enhance characters and environments.
3. Acquire skills in creating fluid and realistic animations for various uses.
4. Understand the role of animation in conveying emotions, actions, and interactions in films.

Course Content:

1. Introduction to Animation Principles
2. Character Animation Techniques
3. Environmental Animation and Interactivity
4. Advanced Animation Techniques
5. Integration of Animation with Game Design

Course Outcome:

1. Apply fundamental animation principles.
2. Create dynamic and expressive character animations.
3. Develop environmental animations that enhance the viewer experience.

4. Apply advanced animation techniques to improve quality animation.

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Detailed First Year Curriculum Contents SEMESTER - I		
Course Code	:	DAN105
Course Title	:	Digital Art
Number of Credits	:	4(L:1, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop proficiency in digital art creation.
2. Understand the role of digital art in shaping the visual aspects of animation.
3. Acquire skills in using digital tools and software for animation production.
4. Explore various styles and techniques in digital art relevant to animation.

Course Content:

1. Introduction to Digital Art in animation
2. Digital Painting Techniques for Assets
3. Concept Art and Visualization in Games
4. Texturing and Shading for Environments
5. Applying Digital Art to Character Design

Course Outcome:

1. Create digital art assets.
2. Employ digital painting techniques to enhance visuals.
3. Develop concept art that aligns with design objectives.
4. Apply texturing and shading skills to enhance graphics.
5. Integrate digital art effectively into character design.

Detailed First Year Curriculum Contents SEMESTER - I		
Course Code	:	DAN106
Course Title	:	UI UX Design
Number of Credits	:	3(L:1, T:2, P:0)
Prerequisites	;	NIL

Course Category	:	PC

Objective:

1. Develop a deep understanding of UI/UX principles in the context of design.
2. Acquire skills to create user-friendly interfaces for games.
3. Explore techniques to enhance the overall user experience.
4. Apply UI/UX design principles to different platforms.

Course Content:

1. Introduction to UI/UX Design
2. Principles of User Interface Design
3. User Experience Enhancement Strategies
4. Responsive Design for Various Platforms
5. Usability Testing and Iterative Design

Course Outcome:

1. Design and create effective UI/UX elements.
2. Apply principles of user interface design to enhance navigation.
3. Implement strategies to improve the overall user experience.
4. Develop UI/UX designs suitable for different platforms.
5. Conduct usability testing and iterate designs based on feedback.

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Detailed First Year Curriculum Contents SEMESTER - II		
Course Code	:	DAN201
Course Title	:	Communicative English-II
Number of Credits	:	2(L:1, T:0, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Enhance proficiency in English language skills for effective communication.
2. Develop advanced writing skills suitable for various media platforms.
3. Understand the principles of effective verbal and non-verbal communication.
4. Explore advanced concepts in media-related language usage.
5. Apply communication strategies in diverse media contexts.

Course Content:

1. Advanced Writing Techniques for Media
2. Verbal and Non-Verbal Communication Strategies
3. Professional Communication in Media Industry
4. Media-related Language Usage and Style
5. Language Proficiency in Different Media Genres
6. Effective Communication in Visual and Digital Media
7. Multimodal Communication Skills

Course Outcome:

1. Improved proficiency in written and spoken English.
2. Advanced writing skills suitable for various media genres.
3. Enhanced understanding of effective communication principles.
4. Application of advanced language usage in media contexts.
5. Proficient communication in diverse media platforms.

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Detailed First Year Curriculum Contents SEMESTER - II		
Course Code	:	DAN202
Course Title	:	2D Digital Animation
Number of Credits	:	5(L:2, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Acquire a comprehensive understanding of the principles and techniques of 2D digital animation.
2. Develop proficiency in using industry-standard software for 2D animation.
3. Explore the creative aspects of character design and storytelling in 2D animation.
4. Understand the principles of timing, spacing, and motion to create fluid and engaging animations.
5. Gain hands-on experience in creating 2D character animations and backgrounds.
6. Explore the integration of sound and music in enhancing the narrative of 2D animations.
7. Develop a portfolio showcasing a range of 2D digital animation projects.

Course Content:

1. Introduction to 2D Digital Animation

2. Software Tools for 2D Animation
3. Principles of Character Design in 2D Animation
4. Timing, Spacing, and Motion in 2D Animation
5. Hands-on Character Animation in 2D
6. Background Design for 2D Animation
7. Sound and Music Integration in 2D Animation
8. Portfolio Development in 2D Digital Animation

Course Outcome:

1. Proficiency in the principles and techniques of 2D digital animation.
2. Competence in using industry-standard software for 2D animation.
3. Creative skills in character design and storytelling for 2D animation.
4. Ability to create fluid and engaging animations using timing and spacing principles.
5. Hands-on experience in producing 2D character animations and backgrounds.
6. Understanding of integrating sound and music to enhance 2D animation narratives.
7. A portfolio showcasing a variety of 2D digital animation projects.

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Detailed First Year Curriculum Contents SEMESTER - II		
Course Code	:	DAN203
Course Title	:	Video Editing
Number of Credits	:	2(L:1, T:1, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Acquire a comprehensive understanding of video editing techniques and principles.
2. Develop proficiency in using industry-standard video editing software.
3. Explore the creative aspects of storytelling through video editing.
4. Understand the technical aspects of video editing, including cuts, transitions, and effects.
5. Gain hands-on experience in editing various types of video content.
6. Learn the basics of color grading and correction in video editing.
7. Develop skills in audio editing and synchronization for video projects.
8. Explore advanced video editing techniques for special effects and compositing.

Course Content:

1. Introduction to Video Editing
2. Video Editing Software Tools and Interface
3. Principles of Storytelling through Video Editing
4. Technical Aspects of Video Editing: Cuts, Transitions, and Effects

5. Hands-on Video Editing Projects
6. Basics of Color Grading and Correction
7. Audio Editing and Synchronization in Video Editing
8. Advanced Video Editing Techniques: Special Effects and Compositing

Course Outcome:

1. Proficiency in video editing techniques and principles.
2. Competence in using industry-standard video editing software.
3. Creative skills in storytelling through video editing.
4. Understanding of the technical aspects of video editing, including cuts and transitions.
5. Hands-on experience in editing various types of video content.
6. Skills in color grading and correction for enhancing video quality.
7. Proficiency in audio editing and synchronization for video projects.
8. Knowledge of advanced video editing techniques, including special effects and compositing.

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Detailed First Year Curriculum Contents SEMESTER - II		
Course Code	:	DAN204
Course Title	:	Animation Drawing
Number of Credits	:	3(L:1, T:2, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop fundamental drawing skills essential for animation.
2. Understand the principles of animation through drawing.
3. Learn the basics of character design and development.
4. Acquire skills in creating expressive and dynamic animations through drawing.
5. Explore the use of different drawing tools and techniques in animation.
6. Understand the anatomy and movement of characters for animation drawing.
7. Gain proficiency in creating storyboards and animatics through drawing.
8. Develop a strong foundation in 2D animation principles.

Course Content:

1. Basic Drawing Skills for Animation
2. Principles of Animation through Drawing
3. Character Design and Development
4. Expressive and Dynamic Animation Drawing
5. Drawing Tools and Techniques in Animation
6. Anatomy and Movement for Animation Drawing

7. Storyboarding and Animatics through Drawing
8. Foundation in 2D Animation Principles

Course Outcome:

1. Proficiency in fundamental drawing skills for animation.
2. Understanding of animation principles through drawing.
3. Skills in character design and development for animation.
4. Ability to create expressive and dynamic animations through drawing.
5. Familiarity with various drawing tools and techniques in animation.
6. Understanding of anatomy and movement for character animation drawing.
7. Proficiency in creating storyboards and animatics through drawing.
8. Strong foundation in 2D animation principles.

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Detailed First Year Curriculum Contents SEMESTER - II		
Course Code	:	DAN205
Course Title	:	Portfolio I
Number of Credits	:	2(L:1, T:0, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Compile and showcase a diverse portfolio of individual or collaborative animation projects.
2. Demonstrate proficiency in using industry-standard tools and software for animation.
3. Receive constructive feedback and critiques to further enhance the portfolio.

Course Content:

1. Selection and Compilation of Work
2. Tools and Software Proficiency
3. Creating a Professional Presentation
4. Collaborative Project Inclusion
5. Reflecting Growth and Improvement
6. Receiving and Incorporating Feedback

Course Outcome:

1. A professionally presented portfolio.
2. Proficiency in using industry-standard tools and software.
3. An effective showreel showcasing a range of skills and projects.
4. Experience in creating a comprehensive body of work, including 2D animation.
5. Improvement and growth in skills demonstrated through the portfolio.
6. Ability to receive and incorporate constructive feedback for portfolio enhancement.

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Detailed First Year Curriculum Contents SEMESTER - II		
Course Code	:	DAN206
Course Title	:	History of Animation
Number of Credits	:	2(L:2, T:0, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Explore the historical evolution of animation as an art form.
2. Understand the contributions of key pioneers in the field of animation.
3. Analyze the development of animation techniques over different eras.
4. Examine the impact of technological advancements on animation.
5. Gain insights into the cultural and societal influences on animation.
6. Recognize the significance of animated films and characters in popular culture.
7. Understand the evolution of animation studios and their contributions.
8. Connect historical trends to contemporary practices in animation.

Course Content:

1. Early Origins of Animation
2. Pioneers in Animation: Winsor McCay, Walt Disney, and Others
3. Evolution of Animation Techniques: Traditional to Digital
4. Technological Advances in Animation
5. Cultural and Societal Influences on Animation
6. Animated Films and Characters in Popular Culture
7. Animation Studios and Their Contributions
8. Contemporary Practices in Animation

Course Outcome:

1. In-depth knowledge of the historical evolution of animation.
2. Recognition of key pioneers and their contributions to animation.
3. Understanding of the progression from traditional to digital animation techniques.
4. Awareness of the impact of technological advancements on animation.
5. Insight into the cultural and societal influences shaping animated content.
6. Appreciation of the significance of animated films and characters in popular culture.
7. Knowledge of major animation studios and their contributions.
8. Ability to connect historical trends to contemporary practices in animation.

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CHAPTER 3
SECOND YEAR CURRICULUM STRUCTURE

Semester 3								
Sl. No.	Category of Course	Code No.	Course Title	Hours per week			Total Contact hrs/week	Credits
				L	T	P		
1	PC	DAN301	3D Modeling	1	1	2	4	3
2	PC	DAN302	Texturing Painting	1	2	0	3	3
3	PC	DAN303	3D Animation	1	1	2	4	3
4	PC	DAN304	Body Mechanics	1	1	2	4	3
5	PC	DAN305	Rigging	1	2	2	5	4
6	PC		Open Elective (To be Chosen by Student)	0	2	0	2	2
7	OE		Vocational (Minor)	0	2	2	4	3
8	OE		Co-Curricular	0	2	0	2	2
Total Credits								23

Semester 4								
Sl. No.	Category of Course	Code No.	Course Title	Hours per week			Total Contact hrs/week	Credits
				L	T	P		
1	PC	DAN401	Anatomy Study	1	1	2	4	3
2	PC	DAN402	Lighting and Rendering	1	2	0	3	3
3	PC	DAN403	Digital Sculpting	1	2	2	5	4
4	PC	DAN404	Performance Animation	1	0	2	3	2
5	PC	DAN405	Creature Animation	1	0	2	3	2
6	PC	DAN406	Community Connect	0	2	0	2	2
7	OE		Open Elective (To be Chosen by Student)	0	2	0	2	2

8	OE		Vocational (Minor)	0	2	2	4	3
9	OE		Co-Curricular	0	2	0	2	2
10	PR		**Live Project II (Industry TieUp)**	0	0	0	0	0
Total Credits								23

Detailed First Year Curriculum Contents SEMESTER - III		
Course Code	:	DAN301
Course Title	:	3D Modeling
Number of Credits	:	3(L:1, T:1, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a comprehensive understanding of 3D modeling principles and techniques.
2. Acquire proficiency in using industry-standard 3D modeling software.
3. Learn the process of creating 3D models for characters, objects, and environments.
4. Understand the fundamentals of topology and its significance in 3D modeling.
5. Explore various modeling techniques, including polygonal modeling and NURBS modeling.
6. Gain hands-on experience in creating detailed and realistic 3D models.
7. Work on real-world projects to apply 3D modeling techniques in practical scenarios.
8. Receive feedback on 3D models to refine and improve skills.

Course Content:

1. Introduction to 3D Modeling Principles
2. Overview of 3D Modeling Software
3. Basics of Polygonal Modeling
4. NURBS Modeling Techniques
5. Understanding Topology in 3D Modeling
6. Character, Object, and Environment Modeling
7. Real-world 3D Modeling Projects
8. Feedback and Refinement

Course Outcome:

1. Proficiency in 3D modeling principles and techniques.
2. Mastery of industry-standard 3D modeling software.

3. Ability to create detailed 3D models for characters, objects, and environments.
4. Understanding of topology's role in creating effective 3D models.
5. Competence in various 3D modeling techniques, including polygonal and NURBS modeling.
6. Practical experience through real-world 3D modeling projects.
7. Ability to receive and apply feedback for continuous improvement.

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Detailed First Year Curriculum Contents SEMESTER - III		
Course Code	:	DAN302
Course Title	:	Texturing Painting
Number of Credits	:	3(L:1, T:2, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Understand fundamental texturing and painting techniques for animation and VFX.
2. Gain proficiency in industry-standard software for texturing and painting.
3. Learn to create realistic textures for characters, environments, and objects.
4. Explore principles of UV mapping and its role in effective texturing.
5. Apply color theory and lighting principles in the context of texturing.
6. Acquire practical experience through hands-on digital painting projects.
7. Receive and incorporate feedback for continuous improvement.

Course Content:

1. Introduction to Texturing and Painting in Animation and VFX
2. Overview of Texturing and Painting Software
3. Principles of UV Mapping for Texturing
4. Realistic Texture Creation for Characters, Environments, and Objects
5. Application of Color Theory and Lighting in Texturing
6. Hands-on Digital Painting Techniques for Animation and VFX
7. Real-world Texturing and Painting Projects

Course Outcome:

1. Proficiency in fundamental texturing and painting techniques.
2. Mastery of industry-standard texturing and painting software.
3. Ability to create realistic textures for diverse elements.
4. Understanding of UV mapping principles for effective texturing.
5. Application of color theory and lighting in practical scenarios.
6. Hands-on experience through real-world texturing and painting projects.
7. Improved skills through feedback and continuous refinement.

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Detailed First Year Curriculum Contents SEMESTER - III		
Course Code	:	DAN303
Course Title	:	3D Animation
Number of Credits	:	3(L:1, T:1, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a comprehensive understanding of 3D animation principles.
2. Gain proficiency in using industry-standard 3D animation software.
3. Understand the principles of timing and spacing in animation.
4. Explore the art of storytelling through 3D animation.
5. Engage in practical projects to apply learned animation techniques.

Course Content:

1. Fundamentals of 3D Animation Principles
2. Introduction to Industry-Standard 3D Animation Software
3. Principles of Timing and Spacing in Animation
4. Storytelling through 3D Animation
5. Practical Projects in 3D Animation

Course Outcome:

1. Mastery of fundamental 3D animation principles.
2. Proficiency in using industry-standard 3D animation software.
3. Competency in character animation techniques.
4. Application of principles of timing and spacing in animation.
5. Ability to convey compelling stories through 3D animation.
6. Practical experience through engaging animation projects.

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Detailed First Year Curriculum Contents SEMESTER - III		
Course Code	:	DAN304
Course Title	:	Body Mechanics

Number of Credits	:	3(L:1, T:1, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a profound understanding of body mechanics in animation.
2. Explore the principles of realistic movement and physicality.
3. Learn the anatomy of the human body and its application in animation.
4. Understand weight distribution and balance in character animation.
5. Gain expertise in animating actions like walking, running, and jumping.
6. Apply body mechanics principles to enhance character performances.
7. Engage in practical exercises to refine skills in animating complex movements.

Course Content:

1. Principles of Body Mechanics in Animation
2. Anatomy of the Human Body for Animators
3. Realistic Movement and Physicality
4. Weight Distribution and Balance in Character Animation
5. Animation of Basic Actions: Walking, Running, Jumping, etc.
6. Enhancing Character Performances through Body Mechanics
7. Practical Exercises in Animating Complex Movements

Course Outcome:

1. Advanced understanding of body mechanics in animation.
2. Knowledge of human anatomy for effective character animation.
3. Application of realistic movement and physicality principles.
4. Mastery of weight distribution and balance in animation.
5. Proficiency in animating basic actions with realism.
6. Skill in enhancing character performances through body mechanics.
7. Practical expertise demonstrated through complex animation exercises.

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Detailed First Year Curriculum Contents SEMESTER - III		
Course Code	:	DAN305
Course Title	:	Rigging
Number of Credits	:	4(L:1, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a comprehensive understanding of character rigging in animation.
2. Master the principles of creating articulated skeletons for characters.
3. Learn to design rigs that allow for realistic and expressive character movements.
4. Understand the importance of proper skin weighting for character deformation.
5. Explore advanced rigging techniques for facial expressions and lip-syncing.
6. Gain proficiency in rigging characters for various animation styles and genres.
7. Apply rigging principles to enhance character performance and storytelling.

Course Content:

1. Principles of Character Rigging in Animation
2. Articulated Skeletons: Design and Implementation
3. Rigging for Realistic and Expressive Character Movements
4. Skin Weighting Techniques for Character Deformation
5. Advanced Rigging for Facial Expressions and Lip-Syncing
6. Rigging for Different Animation Styles and Genres
7. Application of Rigging Principles for Enhanced Character Performance

Course Outcome:

1. Advanced understanding of character rigging principles.
2. Mastery in creating articulated skeletons for characters.
3. Skill in designing rigs for realistic and expressive movements.
4. Proficiency in proper skin weighting for character deformation.
5. Expertise in advanced rigging techniques for facial expressions and lip-syncing.
6. Ability to rig characters for various animation styles and genres.
7. Application of rigging principles to enhance character performance and storytelling.

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Detailed First Year Curriculum Contents SEMESTER - IV		
Course Code	:	DAN401
Course Title	:	Anatomy Study
Number of Credits	:	3(L:1, T:1, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a comprehensive understanding of human and creature anatomy for animation.
2. Study skeletal structures, muscles, and proportions to create realistic character movements.

3. Learn the principles of anatomical design for both traditional and fantastical characters.
4. Understand how anatomy influences character expressions and emotions.
5. Explore anatomy in motion and its impact on character animation.
6. Gain proficiency in applying anatomical knowledge to enhance character storytelling.
7. Develop observational skills for accurate anatomical representation in animation.

Course Content:

1. Study of Human and Creature Anatomy
2. Skeletal Structures, Muscles, and Proportions
3. Principles of Anatomical Design for Traditional and Fantastical Characters
4. Anatomy's Influence on Character Expressions and Emotions
5. Anatomy in Motion: Impact on Character Animation
6. Applying Anatomical Knowledge to Enhance Character Storytelling
7. Observational Skills for Accurate Anatomical Representation

Course Outcome:

1. In-depth knowledge of human and creature anatomy for animation.
2. Proficiency in understanding skeletal structures, muscles, and proportions.
3. Skill in applying anatomical design principles to characters.
4. Ability to portray emotions through accurate anatomical representation.
5. Expertise in showcasing anatomy in motion for dynamic character animation.
6. Application of anatomical knowledge to enhance character storytelling.
7. Enhanced observational skills for accurate anatomical representation in animation.

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Detailed First Year Curriculum Contents SEMESTER - IV		
Course Code	:	DAN402
Course Title	:	Lighting and Rendering
Number of Credits	:	3(L:1, T:2, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a comprehensive understanding of lighting principles in animation and VFX.
2. Learn techniques for creating realistic lighting scenarios for various scenes and environments.
3. Understand the role of shadows, highlights, and color temperature in visual storytelling.
4. Master rendering techniques to achieve high-quality output in animation projects.
5. Explore the use of different lighting styles for diverse genres and moods.
6. Gain proficiency in using industry-standard rendering software.
7. Apply lighting and rendering skills to enhance the visual appeal of animated sequences.

Course Content:

1. Fundamentals of Lighting in Animation and VFX
2. Techniques for Realistic Lighting in Different Environments
3. Role of Shadows, Highlights, and Color Temperature
4. Rendering Principles and Techniques
5. Lighting Styles for Various Genres and Moods
6. Proficiency in Industry-Standard Rendering Software
7. Application of Lighting and Rendering in Animated Sequences

Course Outcome:

1. In-depth understanding of lighting principles in animation and VFX.
2. Proficiency in creating realistic lighting for diverse scenes.
3. Skill in using shadows, highlights, and color temperature for visual storytelling.
4. Mastery of rendering techniques for high-quality output.
5. Ability to apply different lighting styles for varied genres and moods.
6. Proficiency in industry-standard rendering software.
7. Application of lighting and rendering skills to enhance visual appeal in animated sequences.

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Detailed First Year Curriculum Contents SEMESTER - IV		
Course Code	:	DAN403
Course Title	:	Digital Sculpting
Number of Credits	:	4(L:1, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop advanced skills in digital sculpting for animation and VFX projects.
2. Understand the principles of anatomy and form to create realistic digital sculptures.
3. Learn industry-standard digital sculpting software tools and techniques.
4. Explore character design and development through digital sculpting.
5. Master the art of detailing and refining digital sculptures for intricate textures.
6. Develop proficiency in using sculpting software for both organic and inorganic models.
7. Apply digital sculpting skills to bring characters and objects to life in animation.

Course Content:

1. Principles of Anatomy and Form in Digital Sculpting
2. Industry-Standard Digital Sculpting Software Tools and Techniques
3. Character Design and Development through Digital Sculpting
4. Detailing and Refining Digital Sculptures for Intricate Textures

5. Proficiency in Sculpting Software for Organic and Inorganic Models
6. Advanced Techniques for Realistic Digital Sculpting
7. Application of Digital Sculpting in Animation Projects

Course Outcome:

1. Advanced skills in digital sculpting for animation and VFX.
2. Proficiency in creating realistic digital sculptures with attention to anatomy.
3. Mastery of industry-standard digital sculpting software tools.
4. Ability to design and develop characters through digital sculpting.
5. Expertise in detailing and refining digital sculptures for intricate textures.
6. Proficiency in sculpting both organic and inorganic models.
7. Application of digital sculpting skills to bring characters and objects to life in animation projects.

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Detailed First Year Curriculum Contents SEMESTER - IV		
Course Code	:	DAN404
Course Title	:	Performance Animation
Number of Credits	:	2(L:1, T:0, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop expertise in performance animation techniques for character animation in films and games.
2. Understand the principles of character acting and emotions in animation.
3. Learn to create lifelike performances through advanced animation tools and software.
4. Explore facial animation and lip-sync techniques for expressive character animation.
5. Master the integration of body mechanics and facial expressions to convey emotions.
6. Develop proficiency in using motion-capture technology for realistic character animation.
7. Apply performance animation skills to bring characters to life in various storytelling contexts.

Course Content:

1. Principles of Character Acting and Emotions in Animation
2. Lifelike Performances through Advanced Animation Tools and Software
3. Facial Animation and Lip-Sync Techniques for Expressive Animation
4. Integration of Body Mechanics and Facial Expressions in Character Animation
5. Motion-Capture Technology for Realistic Character Animation

6. Advanced Techniques for Performance Animation
7. Application of Performance Animation in Film and Game Contexts

Course Outcome:

1. Expertise in performance animation techniques for character animation.
2. Understanding of character acting and emotions in the context of animation.
3. Proficiency in creating lifelike performances using advanced animation tools.
4. Mastery of facial animation and lip-sync techniques for expressive character animation.
5. Integration of body mechanics and facial expressions to convey emotions effectively.
6. Skill in using motion-capture technology for realistic character animation.
7. Application of performance animation skills in various storytelling contexts.

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Detailed First Year Curriculum Contents SEMESTER - IV		
Course Code	:	DAN405
Course Title	:	Creature Animation
Number of Credits	:	2(L:1, T:0, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop expertise in animating creatures, monsters, and fantastical beings for films and games.
2. Understand the principles of movement and behavior unique to various creatures.
3. Learn advanced animation techniques for conveying realistic and fantastical creature animations.
4. Explore the integration of creature animations into different environments and scenes.
5. Master the use of specialized tools and software for creature animation.
6. Develop proficiency in creating lifelike and dynamic creature animations.
7. Apply creature animation skills to enhance storytelling and visual impact.

Course Content:

1. Principles of Creature Movement and Behavior in Animation
2. Advanced Animation Techniques for Realistic and Fantastical Creatures
3. Integration of Creature Animations into Different Environments
4. Specialized Tools and Software for Creature Animation
5. Lifelike and Dynamic Creature Animation
6. Case Studies in Creature Animation
7. Application of Creature Animation in Film and Game Contexts

Course Outcome:

1. Expertise in animating creatures, monsters, and fantastical beings.
2. Understanding of the unique movement and behavior of various creatures.
3. Proficiency in advanced animation techniques for realistic and fantastical creature animations.
4. Mastery of integrating creature animations into different environments and scenes.
5. Skill in using specialized tools and software for creature animation.
6. Ability to create lifelike and dynamic creature animations.
7. Application of creature animation skills to enhance storytelling and visual impact.

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Detailed First Year Curriculum Contents SEMESTER - IV		
Course Code	:	DAN406
Course Title	:	Community Connect
Number of Credits	:	2(L:0, T:2, P:0)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Understand the concept and importance of community engagement in media communication.
2. Explore various strategies for fostering community connections.
3. Develop skills in creating and maintaining positive relationships with diverse communities.
4. Understand the role of media in building and sustaining community partnerships.
5. Gain insights into the ethical considerations of community engagement in media.
6. Learn effective communication methods for community outreach.
7. Explore case studies and best practices in successful community connect initiatives.
8. Develop practical skills in designing and implementing community-oriented media projects.

Course Content:

1. Introduction to Community Connect in Media Communication
2. Strategies for Fostering Community Connections
3. Building Positive Relationships with Diverse Communities
4. Media's Role in Building and Sustaining Community Partnerships
5. Ethical Considerations in Community Engagement

6. Effective Communication Methods for Community Outreach
7. Case Studies and Best Practices in Community Connect Initiatives
8. Designing and Implementing Community-Oriented Media Projects

Course Outcome:

1. Comprehensive understanding of community engagement in media communication.
2. Proficiency in devising strategies for effective community connections.
3. Skills in building positive relationships with diverse communities.
4. Understanding the role of media in fostering community partnerships.
5. Ethical awareness in community engagement practices.
6. Effective communication methods for successful community outreach.
7. Knowledge of case studies and best practices in community connect initiatives.
8. Practical skills in designing and implementing community-oriented media projects.

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CHAPTER 4
THIRD YEAR CURRICULUM STRUCTURE

Semester 5								
Sl. No.	Category of Course	Code No.	Course Title	Hours per week			Total Contact hrs/week	Credits
				L	T	P		
1	PC	DAN501	Match Moving	2	2	2	6	5
2	PC	DAN502	Rotoscope& Paint	2	2	2	6	5
3	PC	DAN503	Dynamics	2	2	2	6	5
4	PC	DAN504	Editing & Compositing-I	2	2	2	6	5
5	OE		Co-Curricular	0	2	0	2	2
6	PR		Project (VFX & Compositing)	0	1	4	5	3
Total Credits								25

Semester 6								
Sl. No.	Category of Course	Code No.	Course Title	Hours per week			Total Contact hrs/week	Credits
				L	T	P		
1	DSE		Apprenticeship with Indsutry	0	26	0	26	26
Total Credits								25

Detailed First Year Curriculum Contents SEMESTER - V		
Course Code	:	DAN501
Course Title	:	Match Moving
Number of Credits	:	5(L:2, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Acquire comprehensive knowledge of matchmoving techniques in animation and VFX.
2. Develop skills to seamlessly integrate computer-generated elements into live-action footage.
3. Understand the principles of camera tracking and object tracking.
4. Learn to analyze and solve complex tracking challenges in various production scenarios.
5. Master the use of industry-standard matchmoving software.
6. Gain hands-on experience in tracking and compositing elements into live-action footage.
7. Explore the creative possibilities of matchmoving in visual effects and animation.

Course Content:

1. Introduction to Matchmoving and Its Applications
2. Camera Tracking Principles and Techniques
3. Object Tracking and Integration
4. Analyzing and Solving Tracking Challenges
5. Industry-standard Matchmoving Software
6. Practical Matchmoving Exercises
7. Creative Applications of Matchmoving in VFX and Animation

Course Outcome:

1. Comprehensive knowledge of matchmoving techniques.
2. Skills to integrate computer-generated elements seamlessly into live-action footage.
3. Proficiency in camera tracking and object tracking.
4. Ability to analyze and solve complex tracking challenges.
5. Mastery of industry-standard matchmoving software.
6. Hands-on experience in tracking and compositing elements into live-action footage.
7. Exploration of creative possibilities in using matchmoving for visual effects and animation.

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Detailed First Year Curriculum Contents SEMESTER - V		
Course Code	:	DAN502
Course Title	:	Rotoscope & Paint
Number of Credits	:	5(L:2, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop a deep understanding of rotoscoping and its applications in animation and VFX.
2. Acquire skills in creating accurate mattes for live-action and animated elements.
3. Learn advanced paint techniques for seamlessly integrating elements into scenes.

4. Understand the importance of attention to detail in rotoscoping and paint work.
5. Explore industry-standard software tools for rotoscoping and paint.
6. Gain hands-on experience in rotoscoping live-action footage and animated sequences.
7. Develop creative approaches to enhance visual elements through paint and rotoscope.

Course Content:

1. Introduction to Rotoscoping and Its Significance
2. Rotoscoping Techniques for Live-Action Footage
3. Rotoscoping Techniques for Animated Sequences
4. Advanced Paint Techniques for Visual Enhancement
5. Attention to Detail in Rotoscoping and Paint Work
6. Industry-standard Rotoscoping and Paint Software
7. Hands-on Rotoscoping and Paint Exercises
8. Creative Applications of Rotoscope and Paint in Animation and VFX

Course Outcome:

1. Profound understanding of rotoscoping and its applications.
2. Proficiency in creating accurate mattes for live-action and animated elements.
3. Advanced skills in paint techniques for seamless integration of elements.
4. Attention to detail in rotoscoping and paint work.
5. Familiarity with industry-standard software tools for rotoscoping and paint.
6. Hands-on experience in rotoscoping live-action footage and animated sequences.
7. Creative approaches to enhance visual elements through paint and rotoscope.

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Detailed First Year Curriculum Contents SEMESTER - V		
Course Code	:	DAN503
Course Title	:	Dynamics
Number of Credits	:	5(L:2, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Understand the principles of dynamics in animation and visual effects.
2. Explore the application of physics-based simulations for realistic animation.
3. Develop skills in creating dynamic simulations for fluid, smoke, fire, and cloth.
4. Learn to integrate dynamic elements seamlessly into animated scenes.
5. Gain proficiency in using industry-standard software for dynamic simulations.
6. Understand the impact of dynamics on character animation and visual storytelling.
7. Experiment with different settings and parameters to achieve desired effects.

Course Content:

1. Introduction to Dynamics in Animation and VFX
2. Principles of Physics-based Simulations
3. Dynamic Simulations for Fluid and Smoke
4. Dynamic Simulations for Fire and Explosions
5. Dynamic Simulations for Cloth and Soft Bodies
6. Integration of Dynamic Elements into Animated Scenes
7. Industry-standard Software for Dynamic Simulations
8. Impact of Dynamics on Character Animation
9. Experimentation and Exploration of Dynamic Effects

Course Outcome:

1. Comprehensive understanding of dynamics in animation and VFX.
2. Proficiency in applying physics-based simulations for realistic effects.
3. Skills in creating dynamic simulations for fluid, smoke, fire, and cloth.
4. Ability to seamlessly integrate dynamic elements into animated scenes.
5. Proficiency in using industry-standard software for dynamic simulations.
6. Understanding the impact of dynamics on character animation and storytelling.
7. Hands-on experience in experimenting with different dynamic effects.

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Detailed First Year Curriculum Contents SEMESTER - V		
Course Code	:	DAN504
Course Title	:	Editing & Compositing-I
Number of Credits	:	5(L:2, T:2, P:2)
Prerequisites	;	NIL
Course Category	:	PC

Objective:

1. Develop fundamental skills in video editing for animation and visual effects
2. Understand the principles of non-linear editing and its application in post-production.
3. Learn essential techniques for cutting, trimming, and arranging video clips.
4. Gain proficiency in using industry-standard editing software.
5. Explore the art of storytelling through effective editing techniques.
6. Introduction to compositing and its role in creating visual effects.
7. Learn the basics of layer-based compositing for seamless integration of visual elements.
8. Develop skills in color correction and grading to enhance the visual appeal of videos
9. Understand the importance of pacing and rhythm in video editing.
10. Gain hands-on experience in editing and compositing projects.

Course Content:

1. Fundamentals of Video Editing
2. Non-linear Editing Techniques
3. Cutting, Trimming, and Arranging Video Clips
4. Introduction to Industry-standard Editing Software
5. Art of Storytelling through Editing
6. Basics of Compositing in Animation and VFX
7. Layer-based Compositing Techniques
8. Color Correction and Grading
9. Pacing and Rhythm in Video Editing
10. Hands-on Projects in Editing and Compositing

Course Outcome:

1. Proficiency in fundamental video editing skills.
2. Understanding of non-linear editing principles.
3. Competency in using industry-standard editing software.
4. Application of storytelling techniques through editing.
5. Introduction to compositing for visual effects.
6. Skills in layer-based compositing for integration of visual elements.
7. Proficiency in color correction and grading.
8. Understanding of pacing and rhythm in video editing.
9. Hands-on experience in editing and compositing projects.

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Prof. KP Singh
Dean Science)

Dr. Millie Pant
(External Expert)