

**SCHOOL OF MEDIA AND COMMUNICATION**  
**POSTGRADUATE COURSE STRUCTURE**  
**M.SC GRAPHICS and ANIMATION**

**Course Structure for M.Sc. Graphics and Animation 2 years**

<b>SEMESTER I</b>								
<b>Sl. No.</b>	<b>Nature</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hours/Week</b>	<b>Credits</b>
1	DSC		Visual Language and Perception				4	4
2	DSC		PHOTOGRAPHY & EDITING				4	4
3	WRS		UI / UX Design: Dreamweaver				4	4
4	DSC		Design for Advertising				4	4
5	PRJ		Project on Graphic Design				5	6
6			SOFT SKILLS				3	3
								25

**DSC: Discipline Core, PRJ: Project, WRS: Workshop**

<b>SEMESTER II</b>
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Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits
1	DSC		Digital Character Animation 2D				4	4
2	DSC		UI / UX Design: Figma / XD				4	4
3	DSC		Video Editing & Motion Graphics				4	4
4	DSC		Animation Production Process				4	4
5	LCS		Language Elective				4	4
6	PRJ		Project on video editing				4	4
								24

#### Language Basket

			<b>Professional English</b>						
			<b>Working Hindi</b>						
			<b>Bengali</b>						

**DSC: Discipline Core, PRJ: Project, WRS: Workshop**

**SEMESTER III**



**Specialization Basket**

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits	
1	DSC		Advanced Character Animation	0	0	8	8	4	
2	DSC		Advanced Lighting and Rendering	0	0	8	8	4	
3	DSC		Design for Branding	1	1	2	4	4	
4	PRJ		AR/VR	1	1	2	4	4	
5	DSC		VFX in After Effects	0	0	8	8	4	

**SEMESTER IV (who opt for industrial internship)**

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits	
1	TCF		Industrial Training				32	20	

TCF: Training Compulsory full-time

**Semester 1**

	<b>Visual Communication: Theory</b>	L	T	P	C
<b>Version 1.0</b>		0	2	6	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	-				

### Course Objectives

1. To **develop** an understanding of visual communication
2. To **describe** the process of applying Design elements.
3. To **teach** cognitive processes in interpreting visual stimuli, depth, motion, color, and spatial relationships.
4. To **enhance** practical skills in designing visual communication projects

### Course Outcomes

On completion of this course, the students will be able to;

- CO1. **Create** visual compositions for their use of basic elements and principles.  
CO2. **Utilize** Gestalt principles.  
CO3. **Apply** colour theory.  
CO4. **Develop** a visual narrative from a graphic novel or film

### Unit 1:

Communication- definition & concept; Need for communication; scope & functions of communication; characteristics of communication; understanding communication; communication process; elements of communication; types of communication; SMCR model of communication; barriers of communication.

### Unit 2:

**Visual Communication**- definition & concept; historical development of Visual Communication; nature & functions of Visual Communication; characteristics of Visual Communication; types of visual communication- graphic design, art, photography & multimedia; advantages & disadvantages of visual communication; visual communication techniques-eye contact, hand gesture & body language; elements of visual communication.

**Elements and Principles of Visual Composition**- Visual elements – dot, line, shape, form (mass, volume,), space, texture, colour. Principles of composition: balance, contrast, movement, emphasis, pattern, proportion, unity (symmetry, order, rhythm and harmony) etc. Spatial relationships, compositions in 2- and 3-dimensional space, the structure of appearance.

### **Unit 3:**

**Perception** definition & concept; Types of Perception- Visual Perception & Graphical Perception; Visual Perception- definition & concept; Illusions- definition & basics; Types of Illusion- Visual Illusion, Perspective Illusions, Geometric Illusions, Colour & Irradiation Illusions; Gestalt theory- definition & concept; Gestalt principles- Similarity, Continuation, Closure, Proximity, Figure and Ground.

### **Unit 4:**

**Sensual and Perceptual Theories-** Sensual and perceptual theories of visual communication. What the brain sees: colour, form, depth, and movement. Visual messages and viewers' meaning making process – perception, visual thinking/visualization. Practice of Looking: images, power, and politics. **Observation and Practical; Ideation-** definition & concept; Creativity- definition & concept- Characteristics & Process of creativity; Creativity Tools; Approaches to Creativity; Innovation- definition & concept; Lateral thinking- definition & concept; Lateral Thinking & Vertical Thinking; Creativity & Visual Communication; Process of developing ideas to a different medium.

### **Unit 5:**

Electronic mediums, Elements of a Film, The Current Film Landscape, Narrative Elements in Film

### **Unit 6:**

**Project on Visual Storytelling:** Introduction to art, Art and morality, Brief introduction to Indian art and Western Art. Concept of art and classification of art. Art Movements

Evolution of design in everyday things- Understanding the evolution in design through forms and everyday things. Paradigm Shift in Design from 19th century to modern time

Storyboarding

### **Recommended Textbooks:**

"The Language of Vision" by Gyorgy Kepes

"Art and Visual Perception: A Psychology of the Creative Eye" by Rudolf Arnheim

"Visual Thinking" by Rudolf Arnheim

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	<b>Photography &amp; Editing (Practical)</b>	L	T	P	C
<b>Version 1.0</b>		0	2	6	4
<b>Pre-requisites/Exposure</b>	Mobile photography				
<b>Co-requisites</b>	-				

### Course Objectives

1. To **develop** an understanding of the principles of exposure and composition in digital photography
2. To **describe** the process of applying Digital Cameras.
3. To **teach** photo editing techniques.
4. To **enhance** practical skills in Photojournalism.

### Course Outcomes

On completion of this course, the students will be able to;

- CO1. **Create** visual compositions using photography.
- CO2. **Utilize** digital cameras and lighting tools.
- CO3. **Apply** software to enhance photographic images.
- CO4. **Develop** documentary and photojournalism.

### Unit 1: 10 hrs

Introduction to Digital Photography: History and evolution of photography. Overview of digital vs. analog photography.

Camera Basics: Understanding different types of digital cameras (DSLR, mirrorless, compact). Camera parts and functions: lens, shutter, aperture, ISO, and sensor.

Basic camera settings and modes: automatic, manual, aperture priority, shutter priority.

Exposure Triangle: Understanding and balancing aperture, shutter speed, and ISO.

Effects of each element on exposure and image quality.

Practical exercises to master manual settings.

**Unit 2: 10hrs**

Composition Techniques:

Rule of thirds, leading lines, symmetry, framing, and perspective.

Creating balanced and dynamic compositions.

Analyzing and critiquing photographs for composition.

Introduction to Lighting:

Natural vs. artificial light.

Basic lighting setups: key light, fill light, backlight.

Using reflectors and diffusers.

**Unit 3: 10 hrs**

Creative Photography Techniques: Depth of field and bokeh: controlling focus and background blur. capturing motion and light trails.

Macro photography, Portrait Photography, Landscape Photography, Black and white photography

**Unit 4: 10 hrs**

Photojournalism and documentary making, copywriting issues

**Unit 5: 10 hrs**

Image editing in Photoshop, colour correction in Premiere

**Unit 6: Project 15 hrs**

### **Recommended Textbooks and Resources:**

"Understanding Exposure" by Bryan Peterson

"The Digital Photography Book" by Scott Kelby

"Light Science & Magic: An Introduction to Photographic Lighting" by Fil Hunter, Steven Biver, and Paul Fuqua



	<b>UI / UX Design: Dreamweaver (Practical)</b>	L	T	P	C
<b>Version 1.0</b>		0	2	6	4
<b>Pre-requisites/Exposure</b>	No pre-requisites				
<b>Co-requisites</b>	-				

### Course Objectives

1. To **develop** an understanding of fundamental principles of user interface (UI) and user experience (UX) design.
2. To **describe** the process of applying using Adobe Dreamweaver for designing and developing responsive websites..
3. To **teach** Dreamweaver's tools and features.
4. To **enhance** practical skills in web interface design.

### Course Outcomes

On completion of this course, the students will be able to;

- CO1. **Create** visually appealing and functional web designs.  
CO2. **Analyze** existing websites to identify areas for improvement in UI/UX design.  
CO3. **Apply** theoretical knowledge and practical skills to design user-friendly websites.  
CO4. **Develop** the ability to evaluate websites from a user perspective.

### Unit 1: 10 hrs

Overview of UI/UX Design: Definition and importance of UI and UX. Differences and similarities between UI and UX design. Basic Principles of UI Design:

Visual hierarchy, consistency, alignment, and contrast. Use of color, typography, and spacing in UI design. Creating intuitive and accessible interfaces.

Basic Principles of UX Design: Understanding user needs and behaviors.

User research methods: interviews, surveys, and usability testing.

Introduction to Dreamweaver:

Overview of Dreamweaver interface and tools.

Setting up a new project and basic site management.

Understanding HTML and CSS basics in Dreamweaver.

**Unit 2: Wireframe and Prototype** 10 hrs

Using Dreamweaver to create wireframes and prototypes, Interactive elements into prototypes, Linking between pages and adding navigation elements.

**Unit 3: Responsive Design** 10 hrs

CSS Media Queries: Media queries to create responsive layouts.

Adapting design for different screen sizes and orientations, Responsive Design in Dreamweaver, Bootstrap framework in Dreamweaver

Designing and developing for mobile.

**Unit 4:** 10 hrs

Advanced CSS Techniques: CSS transitions and animations. Flexbox and CSS Grid for advanced layout designs.

**Unit 5:** 10 hrs

Basic JavaScript for interactive elements. Using jQuery for animations and effects.

Incorporating JavaScript libraries in Dreamweaver.

**Unit 6: Project**

Project and lab in front-end-development

### **Recommended Textbooks and Resources:**

- **"The Design of Everyday Things"** by Don Norman
- **"About Face: The Essentials of Interaction Design"** by Alan Cooper, Robert Reimann, David Cronin, and Christopher Noessel
- Adobe Dreamweaver CC Classroom in a Book, 1e Paperback – 1 January 2014  
by Adobe (Author)

	<b>Design for Advertising (Hybrid)</b>	L	T	P	C
<b>Version 1.0</b>		0	2	6	4
<b>Pre-requisites/Exposure</b>	Basic photoshop				
<b>Co-requisites</b>	-				

### Course Objectives

1. To **understand** the fundamental principles of advertising design and visual communication.
2. To **develop** skills in creating compelling advertisements across various media platforms, including print, digital, and multimedia.
3. To **analyze** and evaluate the effectiveness of advertising campaigns through case studies.
4. To **create** original advertising design projects.

### Course Outcomes

On completion of this course, the students will be able to

- CO1. **Create** visually appealing multimedia advertisements.  
CO2. **Analyze** existing websites to identify areas for improvement in UI/UX design.  
CO3. **Apply** theoretical knowledge and practical skills to develop innovative advertising campaigns.  
CO4. **Develop** the ability to evaluate existing advertisements from a user perspective.

#### Unit 1: 10 hrs

Introduction to Advertising: Definition and purpose of advertising, History of advertisement  
Advertising in marketing and brand communication.  
Advertising Principles: The AIDA model (Attention, Interest, Desire, Action).  
Key components of effective advertisements. Understanding target audiences and market.

#### Unit 2: 10 hrs

Elements of Advertising Design: Visual hierarchy and composition. Color, typography, and imagery.

Branding and visual identity in advertising.

Advertising Ethics and Regulations:

Legal aspects of advertising standards.

Controversial advertisements case studies

**Unit 3: 10 hrs**

Print Media Advertising: Types of print advertisements: magazines, newspapers, billboards, flyers, posters. Advantages and limitations of print media.

Principles of layout design: grids, alignment, balance. Effective use of space and visual elements. Creating headlines and calls to action.

Typography in Print Advertising: Choosing appropriate typefaces for different messages.

Typography hierarchy and readability. Integrating text, images and Illustration:

The role of photography and illustration in print ads.

**Unit 4: 10 hrs**

Advertisement for Digital Media: digital advertising platforms: social media, display ads, search engines, email marketing.

Tools and software for digital ad design (e.g., Adobe Animate, Google Web Designer)

**Unit 5:** Digital Methods: Using Photoshop, Indesign, and Corel Draw to create different advertisements.

**Unit 6:** Project on Multimedia Advertisement

**Recommended Textbooks and Resources:**

- **"Hey, Whipple, Squeeze This: The Classic Guide to Creating Great Ads"** by Luke Sullivan
- **"Made to Stick: Why Some Ideas Survive and Others Die"** by Chip Heath and Dan Heath
- **"The Advertising Concept Book: Think Now, Design Later"** by Pete Barry
- **"Ogilvy on Advertising"** by David Ogilvy

	<b>Project 1: Graphic Design</b>	L	T	P	C
<b>Version 1.0</b>		0	2	6	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	-				

### **Project 1: Graphic Design**

- Create a comprehensive advertising campaign plan, including a creative brief and concept sketches.
- Design a series of ads for a multi-platform campaign, ensuring consistent messaging and branding.

## Course Structure for M.Sc. Graphics and Animation Sem II

SEMESTER II								
Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/ Week	Credits
1	DSC		Digital Character Animation in 2D	1	1	2	6	4
2	DSC		UI / UX Design: Figma / XD	2	1	1	4	4
3	DSC		Video Editing & Motion Graphics	1	1	2	6	4
4	DSC		Animation Production Process	2	1	1	6	4
5	LCS		Language Elective Film Studies	3	1	0	4	4
6	PRJ		Project 2: Video editing	1	1	2	6	4
				Total Contact Hour	32	24	Total Credits	

## Digital Character Animation in 2D

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits
1	DSC		Digital Character Animation in 2D	1	1	2	6	4

### Course Objectives

Develop advanced knowledge and techniques for 2D character animation using digital tools.  
Enhance skills in character design, rigging, and animation to CO5 expressive performances.  
Introduce students to industry-standard 2D animation software and workflows.  
Enable critical analysis and evaluation of character animations in terms of motion, appeal, and storytelling.  
Foster creative exploration in developing professional-grade character animation projects.

### Course Outcomes

On completion of this course, students will be able to:

- **(CO1)** Identify advanced tools and workflows for 2D character animation.
- **(CO2)** Explain the principles of expressive movement and performance in animation.
- **(CO3)** CO5 polished 2D animations using character rigs and frame-by-frame techniques.
- **(CO4)** Evaluate character animations for motion dynamics, weight, and appeal.
- **(CO5)** Design and execute a professional-quality character animation sequence.

### Unit 1: Principles of 2D Character Animation

10 hrs

- Recap of the 12 principles of animation with advanced applications.
- arcs, squash and stretch, timing, and exaggeration in 2D animation.
- Study of classical and digital 2D animation techniques.
- Introduction to industry-standard 2D animation software (e.g., Toon Boom Harmony, Adobe Animate).

### Unit 2: Advanced Character Design and Rigging

10 hrs

- Designing characters for digital 2D animation: anatomy, expression, and personality.
- Creating character turnarounds and poses.
- Rigging characters using bones and deformers in 2D animation software.
- Modular rigging for reusable character assets.

### **Unit 3: Acting and Performance in 2D Animation**

**10 hrs**

- Principles of acting for animation: emotional expression, body language, and staging.
- Creating dynamic poses and transitions to convey character intent.
- Animating lip-sync and facial expressions for dialogue-driven scenes.
- Timing and rhythm in character performance.

### **Unit 4: Motion Dynamics and Interaction**

**10 hrs**

- **Topics:**
  - Simulating weight, balance, and momentum in animations.
  - Animating multi-character interactions with overlapping actions.
  - Advanced motion techniques: follow-through, secondary actions, and anticipation.
  - Integrating props and environments in character animations.

### **Unit 5: Advanced Animation Project**

**10 hrs**

- Conceptualizing a narrative-driven animation project.
- Storyboarding and planning sequences for a character animation.
- Animating, refining, and rendering the final project.
- Peer feedback and iterative improvement of animations.

### **References**

2. *The Animator's Survival Kit* by Richard Williams.
3. *Acting for Animators* by Ed Hooks.
4. *Character Animation Crash Course!* by Eric Goldberg.
5. Software Tutorials: Toon Boom Harmony, Adobe Animate, or similar 2D animation software.



## UI/UX design using Figma and Adobe XD

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits
1	DSC		UI / UX Design: Figma / XD	2	1	1	4	4

### Course Objectives

- Develop an advanced CO2ing of UI/UX design principles and methodologies.
- Provide hands-on experience with industry-standard tools like Figma and Adobe XD for prototyping and design.
- Enable students to design intuitive, user-centric interfaces for digital platforms.
- Teach usability testing and iterative design processes for improving user experiences.
- Foster creativity and technical skills to build professional-grade UI/UX portfolios.

### Course Outcomes

On completion of this course, students will be able to:

- **(CO1)** Identify key UI/UX principles and their application in digital design.
- **(CO2)** Explain the importance of user research and usability in design workflows.
- **(CO3)** CO5 wireframes, prototypes, and interactive designs using Figma and Adobe XD.
- **(CO4)** Evaluate the effectiveness of designs through usability testing and user feedback.
- **(CO5)** Develop and present a fully functional UI/UX design project for real-world applications.

### Unit 1: Introduction to UI/UX Design

10 hrs

- Fundamentals of UI and UX design.
- Design thinking methodology: empathize, define, ideate, prototype, and test.
- Overview of Figma and Adobe XD interfaces and tools.
- Key principles of user-centered design: accessibility, consistency, and simplicity.

## **Unit 2: Wireframing and Prototyping**

**10 hrs**

- Importance of wireframing in the design process.
- Creating low-fidelity and high-fidelity wireframes in Figma and XD.
- Interactive prototyping: linking screens and creating user flows.
- Best practices for creating responsive designs.

## **Unit 3: Visual Design and Branding**

**10 hrs**

- Principles of visual hierarchy, typography, and color theory.
- Designing cohesive style guides and design systems.
- Incorporating branding elements into UI/UX designs.
- Ensuring accessibility: contrast, font sizes, and alt text for images.
- Develop a style guide for a fictional brand.
- Peer critique of design mockups focusing on visual hierarchy and branding.

## **Unit 4: Usability Testing and Iterative Design**

**10 hrs**

- Planning and conducting usability tests with real users.
- Analyzing user feedback to identify design flaws and areas for improvement.
- Iterative design: refining prototypes based on testing results.
- Tools for usability testing and analytics (e.g., Maze, Hotjar).

## **Unit 5: Capstone Project: Designing a Complete UI/UX Solution**

**10 hrs**

- Planning a real-world UI/UX project: problem definition and research.
- Creating comprehensive wireframes, prototypes, and visual designs.
- Implementing design systems and ensuring responsive designs.
- Presenting final projects and portfolio development.

## **References**

- *Don't Make Me Think: A Common Sense Approach to Web Usability* by Steve Krug.
- *The Design of Everyday Things* by Don Norman.
- *UI/UX Design with Figma: A Beginner's Guide* by Caleb Kingston.
- Online Resources: Figma Community, Adobe XD tutorials, and UI/UX design blogs.

## Video Editing & Motion Graphics

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits
	DSC		Video Editing & Motion Graphics	1	1	2	6	4

### 1. Course Objectives

1. Provide in-depth knowledge of video editing principles, techniques, and tools.
2. Develop advanced skills in creating motion graphics for professional applications.
3. Teach industry-standard workflows using software like Adobe Premiere Pro, After Effects, and similar tools.
4. Enable critical analysis and refinement of video and motion graphic projects.
5. Foster creativity and technical expertise to produce compelling multimedia content.

### Course Outcomes

On completion of this course, students will be able to:

1. **(CO1)** Identify key tools and workflows in video editing and motion graphics.
2. **(CO2)** Explain the principles of video storytelling and design in motion graphics.
3. **(CO3)** Edit videos and motion graphics using industry-standard tools.
4. **(CO4)** Critically evaluate video and motion graphics for storytelling, aesthetics, and technical quality.
5. **(CO5)** Produce a professional-quality video project incorporating motion graphics.

### Unit 1: Fundamentals of Video Editing

10 hrs

- Principles of video editing: continuity, pacing, and storytelling.
- Overview of editing software: Adobe Premiere Pro, DaVinci Resolve, etc.
- Managing footage: organizing assets, timelines, and workspaces.
- CO2ing codecs, resolutions, and export settings.

### Unit 2: Advanced Editing Techniques

10 hrs

- Editing techniques: J-cuts, L-cuts, transitions, and multi-camera editing.
- Color correction and grading: adjusting exposure, saturation, and color balance.
- Sound design: syncing audio, adding sound effects, and voiceovers.
- Advanced export settings for different platforms (e.g., YouTube, film, broadcast).

### **Unit 3: Motion Graphics Basics**

**10 hrs**

- Introduction to motion graphics: key concepts and examples.
- Using Adobe After Effects for motion graphics: interface and tools.
- Creating text animations, shape layers, and graphic transitions.
- Importing and animating assets from Illustrator or Photoshop.

### **Unit 4: Advanced Motion Graphics and Compositing**

**10 hrs**

- Compositing techniques: masking, tracking, and blending.
- Advanced animations: 3D layers, cameras, and lighting in After Effects.
- Using plugins like Element 3D, Trapcode Particular, and Video Copilot tools.
- Integrating motion graphics with live-action footage.

### **Unit 5: Capstone Project: Video Editing and Motion Graphics Integration**

**10 hrs**

- Conceptualizing and planning a multimedia project: scriptwriting and storyboarding.
- Editing and integrating motion graphics for a cohesive narrative.
- Final rendering and exporting for portfolio presentation.
- Peer feedback and iterative refinement of the project.

### **References**

- *Adobe Premiere Pro Classroom in a Book* by Adobe Creative Team.
- *Creating Motion Graphics with After Effects* by Chris and Trish Meyer.
- *The Visual Effects Arsenal: VFX Solutions for Common Post Production Problems* by Bill Byrne.
- Online Tutorials: Adobe Video & Motion tools, Video Copilot resources, and Motion Design School.

## Film Studies

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits
			Film Studies	3	1	0	4	4

### Course Objectives

Provide a critical CO2ing of the history, theories, and aesthetics of cinema.

CO4 the role of films as a cultural, political, and artistic medium.

Develop skills in film analysis, focusing on narrative, mise-en-scène, cinematography, and editing.

Explore diverse film genres, movements, and styles across different regions and time periods.

Foster an appreciation of the relationship between cinema and society, encouraging creative and analytical thinking.

### Course Outcomes

On completion of this course, students will be able to:

1. **(CO1)** Identify key historical milestones, movements, and theories in film history.
2. **(CO2)** Explain the cultural, social, and political contexts of cinematic works.
3. **(CO3)** understand theoretical frameworks and cinematic language.
4. **(CO4)** Evaluate the aesthetic, narrative, and technical elements of films.
5. **(CO5)** Develop critical essays or creative projects inspired by film studies.

### Unit 1: History and Evolution of Cinema

10 hrs

The invention of cinema: Lumière Brothers, Georges Méliès, and early experiments.

Evolution of silent cinema: D.W. Griffith and Sergei Eisenstein.

The advent of sound and its impact on storytelling.

Golden Age of Hollywood and global cinema movements (e.g., Italian Neorealism, French New Wave).

### Unit 2: Film Theory and Criticism

10 hrs

Overview of major film theories: formalism, realism, auteur theory, and structuralism.

Semiotics and the language of cinema.

Feminist film theory and postcolonial perspectives.

Introduction to contemporary critical approaches: queer theory, psychoanalysis, and etc.

### Unit 3: Cinematic Techniques and Aesthetics

10 hrs

Cinematography: camera angles, lighting, framing, and movement.

Mise-en-scène: set design, costume, props, and spatial composition.

Editing: continuity, montage, and rhythmic pacing.

Sound design: diegetic and non-diegetic sound, music, and silence.

**Unit 4: Genres, Movements, and Regional Cinemas** **10 hrs**

film genres: horror, comedy, drama, and science fiction.

Global movements: German Expressionism, Japanese Cinema, Indian Parallel Cinema, and Latin American films.

Hybrid genres and genre subversions.

Impact of regional and national identities on cinematic styles.

**Unit 5: Cinema and Society** **10 hrs**

The role of cinema in reflecting and shaping societal norms and ideologies.

Representation and diversity in films: race, gender, and class.

Propaganda, activism, and documentary films.

Future of cinema: streaming platforms, VR, and immersive storytelling.

**References**

- *Film Art: An Introduction* by David Bordwell and Kristin Thompson.
- *An Introduction to Film Studies* by Jill Nelmes.
- *The Oxford History of World Cinema* edited by Geoffrey Nowell-Smith.
- Online Resources: BFI Film Academy, Sight & Sound archives, and Film Studies blogs.

## Project 2: Video editing

Sl. No.	Nature	Course Code	Course Title	L	T	P	Contact Hours/Week	Credits
	PRJ		Project 2: Video editing	1	1	2	6	4

### Course Objectives

Provide advanced knowledge of video editing techniques and workflows.  
Enable students to conceptualize, plan, and execute a comprehensive video editing project.  
Develop technical expertise in using professional video editing tools and software.  
Foster creative problem-solving and critical thinking for handling real-world editing challenges.  
Equip students with portfolio-ready projects that demonstrate their video editing skills.

### Course Outcomes

On completion of this course, students will be able to:

- **(CO1)** Identify advanced tools and workflows used in professional video editing.
- **(CO2)** Explain the principles of narrative construction and visual storytelling in video editing.
- **(CO3)** Utilize industry-standard tools to execute a high-quality video editing project.
- **(CO4)** Evaluate the technical, aesthetic, and narrative aspects of edited videos.
- **(CO5)** Produce a professional-quality video editing project, from concept to final delivery.

### Unit 1: Pre-Production Planning for Video Editing

10 hrs

CO2ing the client brief and project requirements.  
Storyboarding and scripting for video projects.  
Asset management: organizing footage, audio, and graphics.  
Developing a project workflow and timeline.

### Unit 2: Advanced Editing Techniques

10 hrs

Advanced timeline editing: multi-camera editing, syncing audio, and nested sequences.  
Using transitions, effects, and titles to enhance storytelling.  
Color grading and correction: balancing tones, hues, and saturation.  
Audio editing and mixing: synchronizing sound, adding music, and removing noise.

**Unit 3: Motion Graphics and Visual Effects Integration****10 hrs**

Introduction to motion graphics in video editing.  
 Creating animated titles, lower thirds, and transitions.  
 Compositing footage with graphics, effects, and overlays.  
 Rendering and integrating effects from third-party plugins (e.g., After Effects, Element 3D).

**Unit 4: Final Editing and Post-Production Workflow****10 hrs**

Final assembly of edited footage, transitions, and effects.  
 Exporting videos for various platforms and formats.  
 Ensuring compliance with technical specifications (e.g., frame rate, resolution).  
 Troubleshooting common editing and rendering issues.

**Unit 5: Capstone Project: Complete Video Editing Project****10 hrs**

- Conceptualizing a comprehensive video project: idea generation and pitching.

**References**

- *Adobe Premiere Pro Classroom in a Book* by Adobe Creative Team.
- *The Art of Editing: An Essential Guide for Editors and Filmmakers* by Gael Chandler.
- *Creating Motion Graphics with After Effects* by Chris and Trish Meyer.
- Online Tutorials: Video Copilot, Adobe Creative Cloud resources, and Motion Design School.

	<b>Animation Production Process</b>	L	T	P	C
<b>Version 1.0</b>		2	1	1	4
<b>Pre-requisites/Exposure</b>	Overall Knowledge of pre-production process				
<b>Co-requisites</b>	-				

**Course Objectives**

By the end of this course, students will be able to:

- Understand the role and significance of preproduction in animation.
- Develop strong visual storytelling through scripting and storyboarding.
- Create effective character designs and environments.
- Utilize digital tools to create animatics and refine preproduction assets.
- Plan and document the complete preproduction workflow for an animation project.



## **Course Outcomes (COs)**

Upon successful completion of the course, students will be able to:

CO1: **Define** the concept of preproduction in animation and media production.

CO2: **Summarize** scripts and treatments for animated sequences.

CO3: **Apply** storyboards that effectively communicate visual narratives.

CO4: **Analyze** well-developed character designs and environments suited for animation.

CO5: **Evaluate** animatics and refine preproduction materials to industry standards.

CO6: **Adapt** the new technologies used for storyboarding and visualizations.

## **Course Content**

### **Unit 1: Introduction to Preproduction**

**10 hours**

Definition and importance of preproduction; Phases of preproduction: Concept, scripting, design, and planning; Industry case studies of preproduction workflows

### **Unit 2: Scripting and Story Development**

**10 hours**

Developing concepts and loglines; Writing scripts and screenplays; Creating treatments and beat sheets

### **Unit 3: Storyboarding**

**10 hours**

Principles of storyboarding; Camera angles, composition, and visual flow; Storyboard formats and sequential storytelling

### **Unit 4: Character and Environment Design**

**10 hours**

Character design: Anatomy, expressions, and personality; Environment design: Backgrounds, mood, and atmosphere; Color theory and visual consistency

### **Unit 5: Animatics and Preproduction Package**

**10 hours**

Importance of animatics in previsualization; Creating animatics with timing and pacing; Compiling a complete preproduction package (script, storyboard, designs, animatics)

## Unite 6: Projects

20 hours

### Recommended Text Books-

- Richard, W. (2002). *The Animator's Survival Kit*.
- Glebas, F. (2012). *Directing the story: professional storytelling and storyboarding techniques for live action and animation*. Routledge.

### Reference Books :

- Beiman, N. (2015). *Prepare to board! creating stories and characters for animated features and shorts*. CRC Press.

## Semester III

		L	T	P	C
	<b>Character Modeling and texturing</b>				
<b>Version 1.0</b>		1	1	3	6
<b>Pre-requisites/Exposure</b>	Basic knowledge of animation				
<b>Co-requisites</b>	-				

### Course Objectives

This course is designed to provide an advanced understanding of character modeling and texturing using Autodesk Maya. Students will learn to create anatomically accurate and artistically appealing 3D characters. The course emphasizes best practices in topology for animation and detailed texturing techniques for realism. Learners will gain hands-on experience with industry-standard tools for creating professional-grade characters. The course also integrates artistic and technical aspects of character creation, preparing students for challenges in animation and game development.

## Course Outcomes

Upon successful completion of this course, students will be able to:

- **CO1:** Analyze human and creature anatomy for creating accurate 3D character models.
- **CO2:** Develop detailed and optimized 3D character models with proper topology for animation.
- **CO3:** Apply advanced texturing techniques to enhance realism in character design.
- **CO4:** Integrate UV mapping and texture workflows for seamless texturing.
- **CO5:** Evaluate the aesthetics and technical quality of modeled and textured characters.
- **CO6:** Create a professional-grade 3D character portfolio showcasing modeling and texturing skills.

### **Unit 1: Introduction to Character Modeling and Tools** **10 hrs**

Overview of Autodesk Maya for character modeling.  
Understanding human and creature anatomy for 3D modeling.  
Maya tools for polygonal modeling: extrude, bevel, and bridge.  
Overview of topology, edge flow, and polygon count.

### **Unit 2: Advanced Polygonal Modeling Techniques** **10 hrs**

High-poly vs. low-poly modeling techniques.  
Modeling detailed facial features (eyes, nose, mouth, ears).  
Creating hands and feet with proper topology.  
Refining and sculpting organic forms.

### **Unit 3: UV Mapping and Unwrapping** **10 hrs**

Introduction to UV mapping: concepts and techniques.  
Creating planar, cylindrical, and spherical projections.  
Unwrapping UVs for complex shapes.  
Understanding UV layout optimization and packing.  
Preparing UVs for seamless textures.

### **Unit 4: Texturing and Materials** **10 hrs**

Introduction to texture maps: diffuse, bump, normal, and specular maps.  
Using Maya's Hypershade for material creation.  
Painting textures using Substance Painter or Photoshop.  
Creating realistic skin textures with subsurface scattering.  
Texturing clothing, props, and accessories.

### **Unit 5: Finalizing the Character for Production** **10 hrs**

Retopology for animation-friendly characters.  
Baking high-poly details into low-poly models.  
Setting up shaders and materials for rendering.

Rendering character models using Arnold Renderer.  
 Preparing files for animation and game pipelines.

**Unit 6: Portfolio Development and Industry Standards**

**15 hrs**

Showcasing characters in a professional portfolio.  
 Creating turntables, wireframe renders, and textured views.  
 Industry trends and expectations for character modeling and texturing.  
 Receiving and incorporating feedback from peers and professionals.  
 Final presentation of character projects.

**References**

1. *Introducing Autodesk Maya 2023* by Dariush Derakhshani.
2. *Digital Modeling* by William Vaughan.
3. *3D Character Development Workshop* by Les Pardew.
4. Online Tutorials: Autodesk Maya Learning Channel, Substance Painter guides, and ArtStation portfolios.

	<b>Rigging in Animation in 3D</b>	L	T	P	C
<b>Version 1.0</b>		1	1	2	4
<b>Pre-requisites/Exposure</b>	3d modeling				
<b>Co-requisites</b>	-				

**Course Objectives**

This course aims to provide advanced knowledge and skills in 3D rigging, enabling students to create functional and animation-friendly rigs. It focuses on the principles of joint placement, hierarchy, and deformation to ensure smooth character and object movement. Students will gain expertise in using Autodesk Maya to rig various assets, including characters, props, and mechanical objects. The course emphasizes problem-solving and

creativity, empowering students to address complex rigging challenges. By the end of the course, students will have a professional rigging portfolio suitable for animation and game production pipelines.

## Course Outcomes

Upon completing this course, students will be able to:

- **CO1:** Understand the fundamentals of rigging, including joint systems and hierarchies.
- **CO2:** Create efficient and functional rigs for characters, props, and mechanical objects.
- **CO3:** Apply advanced rigging techniques such as constraints, IK/FK systems, and deformation controls.
- **CO4:** Design facial rigs using blend shapes and other advanced methods.
- **CO5:** Troubleshoot rigging issues and optimize rigs for animation workflows.
- **CO6:** Build a professional rigging portfolio showcasing a variety of rigging techniques and assets.

### **Unit 1: Fundamentals of Rigging** **10 hrs**

Introduction to rigging: principles and workflows.  
Understanding joints, hierarchies, and parent-child relationships.  
Creating and orienting joint chains.  
Setting up skeletal structures for biped and quadruped characters.  
Introduction to Maya rigging tools and interface.

### **Unit 2: Controllers and Constraints** **10 hrs**

Creating custom controllers for animators.  
Understanding and applying constraints (point, orient, parent).  
Setting up and managing control curves.  
Introduction to rigging for props and mechanical objects.  
Creating rigs with switchable constraints for advanced control.

### **Unit 3: IK and FK Systems** **10 hrs**

Introduction to Inverse Kinematics (IK) and Forward Kinematics (FK).  
Setting up IK handles for limbs.  
Creating IK/FK switching systems for seamless animation.  
Understanding pole vectors and their use in controlling limb direction.  
Rigging spine and tails using IK splines.

### **Unit 4: Deformation and Skinning** **10 hrs**

Introduction to skinning: smooth bind vs. rigid bind.  
Weight painting: controlling influence of joints on the mesh.  
Correcting deformation issues like collapsing or overstretching.  
Using deformation tools: lattices, clusters, and soft selections.

Setting up corrective blend shapes for extreme poses.

### Unit 5: Advanced Rigging Techniques

10 hrs

Rigging facial expressions: blend shapes, joint-based, and hybrid methods.  
Creating advanced rigs for hands and feet with custom attributes.  
Dynamic rigging techniques: cloth, hair, and secondary motion setups.  
Automating rigging workflows using MEL or Python scripting.  
Optimizing rigs for performance in animation and gaming.

### Unit 6: Final Rigging Project and Portfolio Development

10 hrs

Conceptualizing a comprehensive rigging project: character or prop.  
Integrating all rigging techniques learned during the course.  
Creating a presentation-ready rig with annotations and demonstrations.  
Preparing portfolio materials: turntables, wireframes, and animations.  
Feedback sessions to refine rigs for professional standards.

### References

1. *Stop Staring: Facial Modeling and Animation Done Right* by Jason Osipa.
  2. *Rig It Right!: Maya Animation Rigging Concepts* by Tina O’Hailey.
  3. *Maya Character Creation: Modeling and Animation Controls* by Chris Maraffi.
  4. Online Resources: Autodesk Maya Learning Channel, Rigging Dojo, and Animation Mentor tutorials.
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	Look Development in 3D	L	T	P	C
<b>Version 1.0</b>		1	1	3	6
<b>Pre-requisites/Exposure</b>	3d modeling				
<b>Co-requisites</b>	-				

### Course Objectives

By the end of this course, students will:

Understand the fundamentals of 3D lighting and rendering.  
Develop skills in applying various types of lighting setups.  
Master the use of different rendering engines and their settings.  
Learn to optimize lighting and rendering for efficiency and quality.  
Create visually appealing rendered images and animations.

## **Course Outcomes (COs)**

Upon successful completion of this course, students will be able to:

CO1: **Find** the concepts and types of lighting used in 3D graphics.

CO2: **Understand** various lighting setups to achieve mood and realism.

CO3: **Apply** different render engines and rendering techniques effectively.

CO4: **Analyze** lighting and rendering settings for different project needs.

CO5: **Evaluate** high-quality rendered animations suitable for portfolios.

CO6: **Create** high-quality rendered images to enhance the overall quality.

## **Course Content**

### **Unit 1: Fundamentals of 3D Lighting** **12 hours**

Basics of lighting in 3D environments; Types of lights: Point, directional, spot, area, and environment lights; Light properties: Intensity, color, falloff, and attenuation

### **Unit 2: Lighting Techniques and Setups** **12 hours**

Three-point lighting (Key, Fill, and Rim lights); Natural lighting vs. artificial lighting; Using HDRI (High Dynamic Range Imaging) for environment lighting

### **Unit 3: Shading, Materials, and Light Interaction** **12 hours**

How lighting interacts with different materials; Specularity, reflection, refraction, and subsurface scattering; Creating and using physically-based materials (PBR)

### **Unit 4: Rendering Engines and Techniques** **12 hours**

Introduction to rendering engines: Cycles, Arnold, V-Ray, Eevee; Render settings: Samples, resolution, passes, and quality controls; Introduction to real-time vs. offline rendering

### **Unit 5: Rendering Optimization and Post-Processing** **12 hours**

Techniques for optimizing render times; Using render passes (diffuse, specular, ambient occlusion, etc.); Basic post-processing in compositing software (e.g. After Effects)

### **Unit 6: Projects** **15 hours**

Optimize lighting and render settings for efficiency; Combine render passes in post-production for final output; Compare real-time and offline rendering results; Apply lighting to scenes with various materials (e.g., glass, metal, fabric); Create realistic material shaders and observe their interaction with light; Create a three-point lighting setup for a character; Use HDRI maps to light outdoor and indoor scenes; Creating basic lighting setups and experimenting with light properties.

**Text Book**

- Tiede, U., Höhne, K. H., Bomans, M., Pommert, A., Riemer, M., & Wiebecke, G. (1990). Investigation of medical 3D-rendering algorithms. *IEEE Computer Graphics and Applications*, 10(2), 41-53.

**Reference Book**

- Verma, V., & Walia, E. (2010). 3D Rendering-Techniques and challenges. *International Journal of Engineering and Technology*, 2(2), 29-33.

	<b>Dynamics and Simulation in 3D</b>	L	T	P	C
<b>Version 1.0</b>		0	1	3	4
<b>Pre-requisites/Exposure</b>	3d animation				
<b>Co-requisites</b>	-				

**Course Objectives**

Understand the principles of dynamics in 3D environments, including the behavior of rigid and soft bodies, cloth, and fluids.  
 Gain hands-on experience with 3D simulation tools to create realistic motion and interactions.  
 Learn to integrate simulations into animation pipelines for film, games, and virtual environments.  
 Master techniques to optimize simulations for performance while maintaining realism.  
 Develop problem-solving skills to troubleshoot and refine simulation workflows.  
 Understand how to integrate simulations with other aspects of 3D production

**Course Outcomes (COs)**

Upon successful completion of this course, students will be able to:

- CO1: **Define** simulated elements into larger animation scenes for visual storytelling.
- CO2: **Understand** principles of physics, including gravity, friction, and momentum, to create believable rigid body simulations.



CO3: **Apply** simulation of soft body dynamics and cloth movement with realistic interaction between elements.

CO4: **Analyze** fluid dynamics to simulate water, smoke, and other liquid phenomena in 3D environments.

CO5: **Evaluate** particle simulations for various effects such as dust, fire, and explosions.

CO6: **Create**, Optimize and troubleshoot simulation workflows for efficient rendering and performance.

## **Course Content**

### **Unit 1: Introduction to 3D Dynamics & Simulation** **12 hours**

Overview of dynamics and simulation principles in 3D environments; Key simulation concepts: Forces, gravity, friction, and momentum; Introduction to simulation software tools

### **Unit 2: Rigid Body Dynamics** **12 hours**

Simulation of rigid body objects: collision, response, and interaction; Types of rigid body simulations: passive, active, and kinematic bodies; Physics of stacking, bouncing, and shattering

### **Unit 3: Soft Body Dynamics and Cloth Simulation** **12 hours**

Soft body physics: simulating deformable objects and their interactions; Cloth simulation: materials, draping, and collision with characters or environments; Techniques for fine-tuning soft body and cloth behaviors (e.g., tension, stretch, stiffness)

### **Unit 4: Fluid Dynamics and Particle Systems** **12 hours**

Simulating liquids and gases: water, fire, smoke, and explosions; Particle systems: creation, behaviors, and interaction with forces; Techniques for creating realistic fluid and fire simulations

### **Unit 5: Integrating Simulations into Animation** **12 hours**

Techniques for integrating simulations into larger animation projects; Troubleshooting and refining simulations for optimal integration with animated characters;

### **Unit 6: Final Project: Advanced Simulation Integration** **15 hours**

Planning and executing a fully realized simulation sequence;

**Textbooks :**

- Kumar, A. Beginning VFX with Autodesk Maya.
- Madeira, B., & Velho, L. (2022). *Introduction to Visual Effects: A Computational Approach*. CRC Press.

**Referene Books :**

“Maya 3D Dynamics and Effects: A Comprehensive Guide” by Eric L. Williams

	Project on Look Development	L	T	P	C
<b>Version 1.0</b>		0	0	8	4
<b>Pre-requisites/Exposure</b>	3d animation				
<b>Co-requisites</b>	-				

**Course Objectives**

This course is designed to provide an in-depth understanding of look development in 3D animation and visual effects, focusing on creating visually appealing assets for production. Students will explore the principles of shading, texturing, lighting, and rendering to achieve a polished and cohesive look for characters, environments, and props. The course emphasizes the integration of artistic sensibilities with technical expertise using industry-standard tools. Learners will engage in hands-on projects that replicate real-world workflows to develop their problem-solving and creative skills. By the end of the course, students will have a comprehensive portfolio showcasing their ability to execute professional-grade look development.

**Course Outcomes**

- CO1. Recall the principles of look development and its importance in 3D production pipelines.
- CO2. Apply advanced shading and texturing techniques to create detailed and realistic 3D assets.
- CO3. Develop cohesive lighting setups to enhance mood, tone, and storytelling.
- CO4. Analyze rendering workflows and optimize settings for efficiency and quality.
- CO5. Integrate various elements like textures, shaders, and lights to achieve a unified aesthetic.
- CO6. Produce a professional-grade look development project suitable for a portfolio.

# Syllabus

## **Unit 1: Fundamentals of Look Development**

**10 hrs**

This unit introduces the core concepts of look development, including its role in the production pipeline and its connection to other disciplines such as modeling and animation. Topics covered include the basics of shaders, textures, and material properties like diffuse, specular, and reflection. Students will explore how different materials behave under various lighting conditions and begin experimenting with simple shading networks.

## **Unit 2: Advanced Shading Techniques**

**10 hrs**

This unit focuses on creating complex shaders and materials using tools like Autodesk Maya's Hypershade or Substance Painter. Topics include procedural and hand-painted texturing workflows, creating realistic materials such as glass, metal, and skin, and working with advanced shader types like subsurface scattering. Students will also learn to create custom shading networks to meet specific artistic needs.

## **Unit 3: Texturing for Realism**

**10 hrs**

In this unit, students will dive deeper into texturing, learning about UV mapping, unwrapping, and optimization techniques. They will explore texture types such as bump, normal, displacement, and roughness maps, understanding how these contribute to the realism of a 3D model. The use of external software like Adobe Photoshop and Substance Painter for texture painting will also be covered, along with techniques to create seamless textures and complex patterns.

## **Unit 4: Lighting Principles and Techniques**

**10 hrs**

This unit covers the principles of lighting in 3D environments, including three-point lighting, global illumination, and HDRI setups. Students will learn how to use light to enhance storytelling, set the mood, and direct focus within a scene. Advanced techniques such as volumetric lighting, shadow optimization, and color grading will be introduced. The unit will also explore the integration of dynamic and static lighting for real-time rendering workflows.

## **Unit 5: Rendering and Optimization**

**10 hrs**

This unit focuses on rendering workflows, including the setup and optimization of render engines like Arnold, Redshift, or V-Ray. Students will learn about render passes, compositing, and post-processing techniques to enhance the final output. Topics include reducing render times without compromising quality, managing sampling settings, and troubleshooting common rendering issues. Real-world case studies will demonstrate how to achieve production-level rendering.

## **Unit 6: Capstone Project and Portfolio Development**

**10 hrs**

The final unit is dedicated to a comprehensive project where students apply all the concepts learned throughout the course. They will conceptualize, execute, and present a look development project, including a fully textured, shaded, lit, and rendered scene. This unit also

focuses on portfolio preparation, emphasizing the presentation of turntables, wireframe renders, and high-resolution stills. Students will receive peer and instructor feedback to refine

## References

1. *The Art of Maya: An Introduction to 3D Computer Graphics* by Autodesk.
2. *Digital Lighting and Rendering* by Jeremy Birn.
3. *PBR Guide: A Practical Guide to Physically Based Rendering* by Allegorithmic.
4. Online tutorials and resources from Autodesk Maya, Substance Painter, and Arnold Renderer Learning Channels.

## Semester IV

	<b>Animation Film Studies</b>	L	T	P	C
<b>Version 1.0</b>		2	2	0	4
<b>Pre-requisites/Exposure</b>	3d animation				
<b>Co-requisites</b>	-				

## Course Objectives

This course aims to provide an in-depth understanding of animation as a cinematic art form, exploring its history, aesthetics, and cultural significance. Students will critically analyze animated films from various genres, regions, and time periods to appreciate the diversity and evolution of animation. The course emphasizes the study of animation techniques, storytelling methods, and the influence of technology on the medium. Through theoretical and practical assignments, students will engage in discussions about the relationship between animation and society. By the end of the course, students will develop the ability to critically evaluate animation as both an artistic and commercial practice.

## Course Outcomes

Upon completing this course, students will be able to:

- **CO1:** Recall the history and evolution of animation from its origins to the present.
- **CO2:** Analyze the cultural and societal influences of animation films across different regions.
- **CO3:** Evaluate animation styles, techniques, and storytelling approaches in global cinema.
- **CO4:** Apply critical theories and frameworks to assess animated films.
- **CO5:** Discuss the impact of technological advancements on animation production and storytelling.
- **CO6:** Create research-based projects or critiques on the artistic and commercial aspects of animation.

**Unit 1: History and Evolution of Animation****10 hrs**

Origins of animation: Optical toys, zoetropes, and early experimental techniques.  
Silent era of animation: Early pioneers like Winsor McCay and Émile Cohl.  
The Golden Age of Animation: Disney, Warner Bros., and Fleischer Studios.  
Post-war animation: Japanese anime emergence and experimental animation.  
Digital revolution: 3D animation and the rise of CGI.

**Unit 2: Animation Techniques and Styles****10 hrs**

2D hand-drawn animation: Principles and techniques.  
Stop-motion animation: Claymation, puppet animation, and cut-out animation.  
3D animation: Modeling, rigging, and rendering.  
Experimental animation: Abstract and mixed-media techniques.  
Hybrid animation: Combining live-action with animation.

**Unit 3: Global Perspectives in Animation****10 hrs**

Japanese anime: Studio Ghibli, Shonen, and Seinen genres.  
European animation: Aardman Animations, French and Eastern European contributions.  
American animation: Hollywood dominance and independent creators.  
Regional animations: Indian, African, and Latin American animation trends.  
Cultural representation and stereotypes in animated films.

**Unit 4: Storytelling in Animation Films****10 hrs**

Narrative structures in animated films.  
Character development and arcs in animation.  
Role of visual storytelling: Use of color, lighting, and framing.  
Themes in animation: Environment, morality, and human emotion.  
Adapting literature and folklore into animation.

**Unit 5: Technology and Innovation in Animation****10 hrs**

Transition from traditional to digital animation.  
Role of motion capture and virtual production in modern animation.  
Advances in rendering technologies: Ray tracing and real-time rendering.  
Animation in VR, AR, and interactive media.  
The future of AI in animation.

**Unit 6: Critical Analysis and Research in Animation****10 hrs**

Critical frameworks: Semiotics, feminism, post-colonialism, and ecocriticism in animation.  
Comparative analysis of commercial and independent animation.  
Writing research papers and critiques on animation.  
Developing a portfolio or research project on animation film studies.  
Presentation of findings and peer review.

## References

1. *The World History of Animation* by Stephen Cavalier.
2. *Animation: The Global History* by Maureen Furniss.
3. *The Illusion of Life: Disney Animation* by Frank Thomas and Ollie Johnston.
4. *Understanding Animation* by Paul Wells.
5. Online Resources: Ghibli Museum archives, Animation Mentor blogs, and ACM SIGGRAPH conference proceedings.

	<b>DISSERTATION</b>	L	T	P	C
<b>Version 1.0</b>		0	1	3	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	-				

	<b>Specialization Elective Advanced Character Animation</b>	L	T	P	C
<b>Version 1.0</b>		0	0	8	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	-				

## Course Objectives

This course is designed to provide a deep understanding of advanced techniques in character animation, focusing on creating realistic, emotive, and engaging performances. Students will explore the intricacies of body mechanics, facial animation, and emotional expression, mastering the principles of weight, timing, and appeal. The curriculum integrates technical expertise with artistic creativity to prepare students for industry-standard animation workflows. Learners will use industry-leading software such as Autodesk Maya to craft polished animations. By the end of the course, students will develop a professional portfolio showcasing their expertise in advanced character animation.

## **Course Outcomes**

CO1: Demonstrate an understanding of advanced animation principles, including timing, weight, and appeal, in character animation.

CO2: Apply advanced techniques in body mechanics to create fluid and realistic character movements.

CO3: Create expressive facial animations and lip-sync performances that convey emotion and dialogue effectively.

CO4: Design and execute complex animation sequences that integrate character interactions and environmental dynamics.

CO5: Evaluate and refine animations through critiques and iterations to achieve professional quality.

CO6: Produce a portfolio of advanced character animations suitable for industry applications, including film, television, and games.

## **Syllabus**

### **Unit 1: Advanced Animation Principles**

**10 hrs**

This unit focuses on deepening students' understanding of animation principles such as timing, spacing, weight, and arcs. Students will explore the 12 principles of animation at an advanced level, emphasizing their application to complex movements and emotional storytelling. Topics include exaggeration for impact, follow-through and overlapping action, and the importance of secondary motion. The unit concludes with exercises on refining animation curves using the graph editor in Maya.

### **Unit 2: Body Mechanics and Movement**

**10 hrs**

This unit covers advanced body mechanics for creating fluid and realistic animations. Students will learn to animate walking, running, and jumping with a focus on weight distribution and balance. The unit introduces animation for complex movements like acrobatics, fighting, and dance, emphasizing the importance of poses and transitions. Practical exercises include creating animations of characters interacting with objects and navigating varied terrain.

### **Unit 3: Facial Animation and Lip-Sync**

**10 hrs**

This unit delves into the nuances of facial animation, focusing on expressions, emotions, and dialogue delivery. Students will learn to use blend shapes, joint-based systems, and animation layers to achieve realistic and appealing facial movements. Lip-sync techniques, including phoneme matching and syncing dialogue to character performances, are covered in detail. Exercises include animating monologues and emotional reactions to create expressive characters.

**Unit 4: Character Interaction and Dynamic Performance****10 hrs**

This unit emphasizes character interactions and their engagement with environments. Topics include animating multiple characters in a scene, such as conversations, fights, or group actions. Students will also explore how characters interact with props and the environment, ensuring believability in their movements. Practical assignments include animating a two-character interaction scene and a performance involving complex props.

**Unit 5: Integration of Physics and Dynamics****10 hrs**

This unit introduces the integration of physics-based dynamics into character animation. Students will explore the use of ragdoll simulations, nCloth for clothing and fabric, and secondary motion for hair and accessories. The unit also includes the application of physics to enhance the realism of falls, collisions, and weight shifts. Assignments involve creating animations that incorporate dynamic elements seamlessly into the character's movements.

**Unit 6: Final Project and Portfolio Development****10 hrs**

The final unit focuses on conceptualizing and executing a complete character animation sequence. Students will apply all the skills learned throughout the course to create a polished animation, such as a short action scene or emotional performance. The unit also includes portfolio preparation, where students compile their best works, including turntables, playblasts, and final renders, with feedback sessions to refine their projects.

**References**

1. *The Animator's Survival Kit* by Richard Williams.
2. *Acting for Animators* by Ed Hooks.
3. *Animation: The Mechanics of Motion* by Chris Webster.
4. *Maya Character Animation* by Jae-jin Choi.
5. Online Tutorials: Animation Mentor, Autodesk Maya Learning Channel, and Gnomon Workshop.



	<b>Specialization Elective Design for Branding</b>	L	T	P	C
<b>Version 1.0</b>		0	0	8	4
<b>Pre-requisites/Exposure</b>	Graphic Design				
<b>Co-requisites</b>	-				

### Course Objectives

This course aims to provide students with advanced knowledge and skills in creating effective branding strategies through design. It emphasizes the role of visual communication in building strong brand identities and explores the relationship between branding, culture, and consumer behavior. The course covers logo design, typography, color theory, and other essential elements of branding. Students will also learn to create cohesive brand guidelines and apply them across multiple platforms. By the end of the course, students will have the ability to conceptualize, design, and present a professional branding project.

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### Course Outcomes

Upon completing this course, students will be able to:

- CO1:** Understand the fundamental principles and components of branding and brand identity.
- CO2:** Analyze the relationship between design, culture, and consumer perception in branding.
- CO3:** Apply design principles to create effective brand logos, typography, and visual elements.
- CO4:** Develop comprehensive brand guidelines to ensure consistency across platforms.
- CO5:** Critically evaluate the effectiveness of branding strategies in real-world contexts.
- CO6:** Create a complete branding project, including concept, design, and presentation.

### Syllabus

#### **Unit 1: Fundamentals of Branding and Design Principles** **10 hrs**

This unit introduces students to the core concepts of branding, including the role of brand identity, positioning, and values. Students will study the key elements of design, such as balance, contrast, alignment, and repetition, and their application in branding. The unit also covers the psychology of branding, including how colors, typography, and symbols influence consumer perception. By the end of this unit, students will have a clear understanding of the theoretical framework behind branding and design.

#### **Unit 2: Logo Design and Visual Identity** **10 hrs**

In this unit, students will explore the principles of logo design, including simplicity, scalability, and versatility. They will study examples of iconic logos and analyze their design principles and effectiveness. Students will learn how to conceptualize and create logos that reflect a brand's identity, values, and target audience. This unit also covers designing other visual identity

components, such as business cards, letterheads, and packaging, ensuring a cohesive brand presence.

### **Unit 3: Typography and Color Theory in Branding**

**10 hrs**

This unit delves into the importance of typography and color in branding. Students will explore the use of fonts to convey brand personality and communicate effectively. They will study the psychological effects of color and how it influences emotions and brand perception. The unit includes practical assignments where students will create branding palettes and typographic systems for hypothetical brands.

### **Unit 4: Brand Guidelines and Consistency**

**10 hrs**

Students will learn to develop comprehensive brand guidelines that ensure consistency across all platforms and touchpoints. This unit covers creating detailed instructions for logo usage, typography, color palettes, imagery, and tone of voice. Students will analyze real-world brand guidelines from leading companies to understand best practices. By the end of this unit, students will create a brand book for a fictional or real brand.

### **Unit 5: Branding Across Digital and Print Media**

**10 hrs**

This unit focuses on applying branding principles across different media formats. Students will learn to design for digital platforms, including websites, social media, and mobile apps, as well as traditional print materials such as brochures and advertisements. The unit explores the challenges of adapting branding for diverse formats while maintaining consistency and effectiveness.

### **Unit 6: Capstone Project: Designing a Comprehensive Branding Solution**

**10 hrs**

In the final unit, students will apply their knowledge and skills to create a complete branding project. They will choose or be assigned a brand and work on every aspect of its identity, including logo design, visual elements, typography, color palette, and brand guidelines. Students will also develop digital and print materials for the brand and present their project as a professional pitch. This unit emphasizes real-world application, critical feedback, and iterative refinement.

## **References**

1. *Designing Brand Identity: An Essential Guide for the Whole Branding Team* by Alina Wheeler.
2. *Logo Design Love: A Guide to Creating Iconic Brand Identities* by David Airey.
3. *Thinking with Type* by Ellen Lupton.
4. *Brand Gap: How to Bridge the Distance Between Business Strategy and Design* by Marty Neumeier.

5. Online resources: Awwwards for digital branding inspiration, Behance for professional branding portfolios.

	<b>Specialization Elective VFX in After Effects</b>	L	T	P	C
<b>Version 1.0</b>		0	0	8	4
<b>Pre-requisites/Exposure</b>	Basic After Effects				
<b>Co-requisites</b>	-				

### Course Objectives

This course aims to provide an advanced understanding of visual effects (VFX) creation using Adobe After Effects. Students will learn to conceptualize, design, and execute professional-grade visual effects for films, advertisements, and multimedia projects. The course emphasizes both creative and technical aspects of VFX, including compositing, motion tracking, and integrating 3D elements. Learners will explore industry-standard workflows and tools to produce realistic effects and dynamic motion graphics. By the end of the course, students will be prepared to create complex VFX projects and contribute to professional production pipelines.

### Course Outcomes

Upon completing this course, students will be able to:

- CO1: Understand the fundamentals of VFX creation and the interface of Adobe After Effects.
- CO2: Apply advanced compositing techniques to create seamless visual effects.
- CO3: Integrate motion tracking and stabilization to enhance VFX projects.
- CO4: Utilize particle systems and dynamic simulations to create realistic effects.
- CO5: Incorporate 3D elements and camera effects into VFX workflows.
- CO6: Design and execute a professional-quality VFX project, showcasing advanced skills.

### Syllabus

#### Unit 1: Introduction to After Effects and VFX Basics

**10 hrs**

This unit introduces students to the interface and fundamental concepts of Adobe After Effects. Topics include understanding the After Effects workspace, importing and managing assets, and key tools used in VFX creation. Students will learn basic keyframing techniques, creating compositions, and using masks and mattes. The unit also covers fundamental concepts like blending modes, layering, and rendering basics. By the end of this unit, students will be able to create simple VFX sequences.

#### Unit 2: Compositing Techniques and Green Screen Workflows

**10 hrs**

In this unit, students will dive into advanced compositing techniques, focusing on green screen removal using the Keylight tool. Topics include understanding chroma keying, edge refinement, spill suppression, and color matching. The unit also explores rotoscoping techniques and advanced

masking workflows for creating seamless composites. Students will practice combining live-action footage with CGI elements to produce realistic visual effects.

### **Unit 3: Motion Tracking and Stabilization**

**10 hrs**

This unit focuses on the principles and applications of motion tracking in VFX. Topics include 2D and 3D motion tracking, stabilizing shaky footage, and integrating tracked elements into scenes. Students will learn to use tools like the Tracker Panel, Mocha AE, and 3D Camera Tracker. Real-world applications include adding digital objects to live-action shots and enhancing scenes with stabilized footage.

### **Unit 4: Particle Systems and Simulations**

**10 hrs**

Students will explore the use of particle systems and dynamic simulations to create realistic effects like fire, smoke, rain, and explosions. Topics include understanding particle emitters, creating custom particles, and working with physics-based simulations. The unit introduces third-party plugins such as Trapcode Particular and Stardust for more advanced effects. Students will experiment with combining particle effects with live-action footage for dramatic visuals.

### **Unit 5: Integrating 3D Elements and Camera Effects**

**10 hrs**

This unit focuses on incorporating 3D elements into After Effects workflows. Topics include working with 3D layers, cameras, and lights to create depth and perspective. Students will learn to import and integrate 3D assets from external software like Cinema 4D and Blender. The unit also covers camera effects like depth of field, motion blur, and lens distortion to enhance the realism of VFX.

### **Unit 6: Final VFX Project and Portfolio Development**

**10 hrs**

In the final unit, students will conceptualize, plan, and execute a professional VFX project. This includes pre-production (storyboarding and planning), production (asset creation and compositing), and post-production (rendering and editing). Students will create a portfolio showcasing their VFX projects, including turntables, breakdowns, and rendered sequences. Peer reviews and instructor feedback will help refine their projects for professional presentation.

## **References**

1. *Adobe After Effects Classroom in a Book* by Adobe Creative Team.
2. *Creating Motion Graphics with After Effects* by Chris and Trish Meyer.
3. *The VFX Handbook: Software Techniques for Visual Effects* by Eran Dinur.
4. Online resources like Video Copilot, Motion Design School, and Adobe Help Center tutorials.

	<b>FINAL PROJECT</b>	L	T	P	C
<b>Version 1.0</b>		0	1	3	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	-				

	<b>Research Methodology</b>	L	T	P	C
<b>Version 1.0</b>		0	1	3	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	-				