

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
(Formerly West Bengal University of Technology)
Syllabus of B.Sc. In VFX Film Making
(Effective from 2023-24 Academic Sessions)

Semester VI

Paper Name: Live Action Compositing, Set Extension, Cinematography

Paper Code: BVFM 601 & 691

Credit Points - 2+2

Total Contact Hours – 60

Course Objective: This course provides a comprehensive understanding of 2D compositing, retiming, morphing, and colour correction techniques in VFX. Students will learn to integrate CGI elements in the final stages of production, manipulate clip speeds, optimize circuit designs, create seamless image transitions, and adjust colour properties using LUTs for contrast and gamma correction. The course equips students with essential post-production skills for high-quality visual effects in films, TV, and commercials.

SL No.	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyze the problems	M3, M4
5	Evaluate the problems after analyzing	M3, M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (If applicable)	Remarks (If any)
M1	2D Compositing	10	25	1,2,3	2		
M2	Chroma keying Compositing	10	25	2,3,4	2,5,6		
M3	BG Replacement	5	25	4,5,6	2,5,6		
M4	Color Correction (Day to night Conversion)	5	25	4,5,6	2,5,6,10		
		30	100				

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Paper Name: Live Action, Compositing, Set Extension, Cinematography

Paper Code: BVFM 601

Total Credit: 2

Total Hours of Lectures: 30 hours

SL No.	Topic/Module	Hours
1	Module 1- 2D Compositing: <ul style="list-style-type: none"> • Basic concept of live comparison between layer & node base composition flow structure. • Making node flow concept (foreground/mid ground/background) in Nuke. • Introduction of various tools in Nuke to develop a basic composition. Merge node, Reformat, Transform node. • AddMix node, Defocus node, Grade node, Edge blur etc. 	10
2	Module 2- Chroma keying Compositing: <ul style="list-style-type: none"> • Making a composition from static to dynamic • Introduction Chroma keying. Chroma application used across films, TV and commercials • Classification of Chroma. • Green & Blue Chroma. • Remove Chroma keying using key light & create matte. • Live action Compositing. 	10
3	Module 3- BG Replacement: <ul style="list-style-type: none"> • BG Compositing using matte from keying. • Sky Replacement • Tracking with compositing (2D, four-point, planer tracking, mesh warp, corner pin) color correction and edge blending 	5
4	Module 4 - Color Correction (Day to night Conversion): <ul style="list-style-type: none"> • Allows to make contrast, gamma, gain, and offset adjustments. • Color correction • Set Extension using Mattes in Nuke. • Working with Stock footages of FX and using them • Look development & beautification 	5

Suggested Software:

1. Adobe After Effects
2. Adobe Premiere Pro
3. Foundary Nuke
4. Mocha

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Suggested Reading:

1. The Art and Science of Digital Compositing by Ron Brinkmann.
2. Digital Compositing for Film and Video by Steve Wright.
3. Cinematography: Theory and Practice by Blain Brown.
4. The Visual Story: Creating the Visual Structure of Film, TV and Digital Media by Bruce Block.

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Paper Name: Live Action, Compositing, Set Extension, Cinematography (P)
Paper Code: BVFM 691

Total credit: 2

Total Hours of Lectures: 30 hours

Course Objective: This course provides a comprehensive understanding of 2D compositing, retiming, morphing, and colour correction techniques in VFX. Students will learn to integrate CGI elements in the final stages of production, manipulate clip speeds, optimize circuit designs, create seamless image transitions, and adjust colour properties using LUTs for contrast and gamma correction. The course equips students with essential post-production skills for high-quality visual effects in films, TV, and commercials.

SL No.	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyze the problems	M3, M4
5	Evaluate the problems after analyzing	M3, M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (if applicable)	Remarks (If any)
M1	2D Compositing	10	25	1,2,3	2		
M2	Chroma keying Compositing	10	25	2,3,4	2,5,6		
M3	BG Replacement	5	25	4,5,6	2,5,6		
M4	Color Correction (Day to night Conversion)	5	25	4,5,6	2,5,6,10		
		30	100				

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SL No.	Topic/Module	Hours
1	<p>Module 1- 2D Compositing:</p> <ul style="list-style-type: none"> • Work for basic concept of live comparison between layer & node base composition flow structure. • Work for making node flow concept (foreground/mid ground/background) in Nuke. • Working with various tools in Nuke to develop a basic composition. Merge node, Reformat, Transform node. • Work with AddMix node, Defocus node, Grade node, Edge blur etc. 	10
2	<p>Module 2- Chroma keying Compositing:</p> <ul style="list-style-type: none"> • Chroma application used across films, TV and commercials • Remove Chroma • Set BG & others elements • Color correction (Black point & White point match) • Assignments will be done on following above points indivial on different live footages. 	10
3	<p>Module 3- BG Replacement:</p> <ul style="list-style-type: none"> • Work for BG Compositing using matte from keying. • Working with Sky Replacement • Using Tracking with compositing (2D, four-point, planer tracking, mesh warp, corner pin) color correction and edge blending • Assignments will be done on following above points indivial on different live footages. 	5
4	<p>Module 4 - Color Correction (Day to night Conversion):</p> <ul style="list-style-type: none"> • Working with contrast, gamma, gain, and offset adjustments. • Work for Set Extension using Mattes in Nuke. • Working with Stock footages of FX and using them • Look development & beautification • Assignments will be done on following above points indivial on different live footages 	5

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**Syllabus of B.Sc. In VFX Film Making
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Paper Name: Advance Compositing & CG Integration

Paper Code: BVFM 602& 692

Credit Points - 3+2

Total Contact Hours – 75

Course Objective: This course focuses on advanced compositing techniques, including multi-pass compositing, deep compositing, and integrating CG with 2D elements to create seamless visual effects. Students will learn how to utilize colour lookup tables (LUTs) for colour grading and adjustments, optimize render passes for complex scenes, and apply deep compositing techniques for realistic depth-based integration. By the end, students will have the skills to enhance and finalize visual effects in film, TV, and commercials.

SL No.	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyze the problems	M3, M4
5	Evaluate the problems after analyzing	M3, M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (If applicable)	Remarks (If any)
M1	Advanced Chroma screen compositing	10	25	1, 2	2, 5		
M2	Tracking & Compositing	10	25	3, 4, 5	2, 5		
M3	3D Camera Projection & Compositing	12	25	3, 4, 5, 6	2, 5, 6		
M4	Multi Pass & CG Integration	13	25	3, 4, 5, 6	2, 5, 6		
		45	100				

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Paper Name: Advance Compositing & CG Integration

Paper Code: BVFM 602

Total Credit: 3

Total Hours of Lectures: 45 hours

SL No.	Topic/Module	Hours
1	Module 1 – Advanced Chroma screen compositing: <ul style="list-style-type: none"> • Introduction to Advanced Chroma screen compositing edge details (Secondary Keying), color correction (Black point & White point match). • Creating PIP shot (Laptop, TV & Mobile screen change) • Used in visual effects (VFX) to integrate digital elements with real-world filmed content, often in film, TV, and commercials. • Live-action footage, backgrounds, matte paintings, or pre-existing digital images. 	10
2	Module 2 - Tracking & Compositing: <ul style="list-style-type: none"> • Four Corner Tracking using Corner Pin 2D Node (Laptop tracking & Mobile tracking) set new BG using tracking. • BG Compositing using matte from keying. • Time Warping & Retime Node, Frame hold, Frame Blend, • Frame Range, Z-Defocus, Motion Blur, Defocus, Light 	10
3	Module 3 - 3D Camera Projection & Compositing: <ul style="list-style-type: none"> • 3D Camera Projection & compositing with matte painting • Parallax compositing • 3D card Projection in Nuke. • Stock footages & 3D render pass 	12

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4	<p>Module 4 - Multi Pass & CG Integration:</p> <ul style="list-style-type: none"> • Understanding different render data types. • Understanding different type of 3D render pass • Working with Multi pass EXRs using Shuffle and Shuffle Copy. • Working with different Pass, Working with Position, pass to do the relight workflow in Nuke. • CG Renders, CG Set Extension using Mattes in Nuke. • Working with Stock footages of FX and using them as sprites and cards in Nuke. 	13
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Suggested Software:

1. Foundary Nuke
2. Adobe After Effects
3. Mocha

Suggested Reading:

1. The Visual Effects Arsenal: VFX Solutions for the Independent Filmmaker by Bill Byrne
2. The Filmmaker’s Guide to Visual Effects: The Art and Technique of VFX for Directors, Producers, and Cinematographers by Chris and Trish Meyer
3. Mastering Digital Color by Bruce Fraser
4. Post-Production for Film and Video by Michael G. Uva

Paper Name: Advance Compositing & CG Integration (P)

Paper Code: BVFM 692

Total credit: 2

Total Hours of Lectures: 30 hours

Course Objective: This course focuses on advanced compositing techniques, including multi-pass compositing, deep compositing, and integrating CG with 2D elements to create seamless visual effects. Students will learn how to utilize colour lookup tables (LUTs) for colour grading and adjustments, optimize render passes for complex scenes, and apply deep compositing techniques for realistic depth-based integration. By the end, students will have the skills to enhance and finalize visual effects in film, TV, and commercials.

SL No.	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyze the problems	M3, M4
5	Evaluate the problems after analyzing	M3, M4
6	Create using the evaluation process	M3, M4

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Module Number	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (If applicable)	Remarks (If any)
M1	Advanced Chroma screen compositing	7	25	1, 2	2, 5		
M2	Tracking & Compositing	7	25	3, 4, 5	2, 5		
M3	3D Camera Projection & Compositing	8	25	3, 4, 5, 6	2, 5, 6		
M4	Multi Pass & CG Integration	8	25	3, 4, 5, 6	2, 5, 6		
		30	100				

Paper Name: Advance Compositing & CG Integration (P)

Paper Code: BVFM 692

SL No.	Topic/Module	Hours
1	<p>Module 1 – Advanced Chroma screen compositing:</p> <ul style="list-style-type: none"> • Work for Chroma screen compositing edge details (Secondary Keying), color correction (Black point & White point match). • Working PIP shot (Laptop, TV & Mobile screen change) • Application for visual effects (VFX) to integrate digital elements with real-world filmed content, often in film, TV, and commercials. • Work for Live-action footage, backgrounds, matte paintings, or pre-existing digital images. 	7
2	<p>Module 2 - Tracking & Compositing:</p> <ul style="list-style-type: none"> • Working with Four Corner Tracking using Corner Pin 2D Node (Laptop tracking & Mobile tracking) set new BG using tracking. • Work for BG Compositing using matte from keying. • Work for Time Warping & Retime Node, Frame hold, Frame Blend, • Working with Frame Range, Z-Defocus, Motion Blur, Defocus, Light 	7

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3	<p>Module 3 - 3D Camera Projection & Compositing:</p> <ul style="list-style-type: none"> • Work for 3D Camera Projection & compositing with matte painting • Working with Parallax compositing • Work for 3D card Projection in Nuke. • Working with Stock footages & 3D render pass 	8
	<ul style="list-style-type: none"> • Assignments will be done on following above points individual on different live footages and render images. 	
4	<p>Module 4 - Multi Pass & CG Integration:</p> <ul style="list-style-type: none"> • Working with different render data types. • Work with different type of 3D render pass • Working with Multi pass EXRs using Shuffle and Shuffle Copy. • Working with different Pass, Working with Position, pass to do the relight workflow in Nuke. • CG Renders, CG Set Extension using Mattes in Nuke. • Working with Stock footages of FX and using them as sprites and cards in Nuke. 	8

Suggested Software:

1. Adobe After Effects
2. Foundary Nuke
3. Mocha

Suggested Reading:

1. The Visual Effects Arsenal: VFX Solutions for the Independent Filmmaker by Bill Byrne
2. The Filmmaker's Guide to Visual Effects: The Art and Technique of VFX for Directors, Producers, and Cinematographers by Chris and Trish Meyer
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Paper Name: Portfolio Making

Paper Code: BVFM 603 & 693

Credit Points - 3+2

Total Contact Hours – 75

Course Objective: This course aims to equip students with the skills to create a professional portfolio that showcases their creative work effectively. Students will learn how to curate, present, and organize their projects to highlight their strengths and demonstrate their expertise. The course covers various portfolio formats, including digital and physical portfolios, and provides guidance on tailoring portfolios for different industries, ensuring they meet specific audience expectations.

SL No.	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyze the problems	M3, M4
5	Evaluate the problems after analyzing	M3, M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (If applicable)	Remarks (If any)
M1	Introduction to Portfolio Design	10	25	1, 2	9, 10, 11		
M2	Industry Standard Portfolio Analysis	10	25	2, 3, 4, 5	9, 10, 11		
M3	Understanding Film & VFX Based Portfolio	15	25	2, 3, 4, 5	9, 10, 11		
M4	Understanding Corporate Based Portfolio	10	25	5, 6	9, 10, 11, 12		
		45	100				

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Paper Name: Portfolio Making

Paper Code: BVFM 603

Total Credit: 3

Total Hours of Lectures: 45 hours

SL No.	Topic/Module	Hours
1	Module 1- Introduction to Portfolio Design: <ul style="list-style-type: none"> • Understanding the Purpose of a Portfolio • Types of Portfolios • Portfolio Structure and Organization • Selecting Work for Your Portfolio • Designing for Clarity and Accessibility • Visual Identity and Branding • Tailoring Your Portfolio for Different Audiences • Technical Aspects of Digital Portfolios • Professional Presentation 	10
2	Module 2- Industry Standard Portfolio Analysis: <ul style="list-style-type: none"> • Understanding Industry Expectations • Evaluating Work Quality and Relevance • Showcasing a Range of Skills • Best Practices in Layout and Design • Incorporating Client and Collaborative Work • Utilizing Digital Platforms and Tools • Feedback and Continuous Improvement 	10
3	Module 3- Understanding Film & VFX Based Portfolio: <ul style="list-style-type: none"> • Highlighting Key VFX Skills • Choosing the Right VFX Projects • Focus on Process and Workflow • Integrating VFX with Filmmaking • Showcasing Collaboration and Teamwork • Understanding VFX Industry Standards • Technical and Artistic Balance 	15
4	Module 4- Understanding Corporate Based Portfolio: <ul style="list-style-type: none"> • Defining the Purpose of a Corporate Portfolio • Branding and Visual Identity • Showcasing Projects and Case Studies • Client Testimonials and Testimonials • Highlighting Core Services and Capabilities • Navigation and User Experience • Professional Presentation and Customization 	10

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Suggested Software:

1. Adobe Photoshop
2. Adobe After Effects
3. Adobe Premiere Pro
4. Adobe Audition
5. Silhouette
6. Mocha
7. Foundary Nuke

Suggested Reading:

1. Inside VFX: An Insider's View into the Visual Effects and Film Business - Book by Pierre Grage
2. Adobe Photoshop Restoration & Retouching (Voices That Matter) - Katrin Eismann (Author).
3. The Visual Effects Arsenal: VFX Solutions for the Independent Filmmaker - Bill Byrne (Author).
4. Visual Effects in A Digital World - Book by Karen E. Goulekas.

Paper Name: Portfolio Making (P)

Paper Code: BVFM 693

Total credit: 2

Total Hours of Lectures: 30 hours

Course Objective: This course aims to equip students with the skills to create a professional portfolio that showcases their creative work effectively. Students will learn how to curate, present, and organize their projects to highlight their strengths and demonstrate their expertise. The course covers various portfolio formats, including digital and physical portfolios, and provides guidance on tailoring portfolios for different industries, ensuring they meet specific audience expectations.

SL No.	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyze the problems	M3, M4
5	Evaluate the problems after analyzing	M3, M4
6	Create using the evaluation process	M3, M4

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Module Number	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (If applicable)	Remarks (If any)
M1	Motion Graphics Portfolio	7	25	1, 2	9, 10, 11		
M2	Rotoscoping Portfolio	7	25	2, 3, 4, 5	9, 10, 11		
M3	Paint/Prep Portfolio	8	25	2, 3, 4, 5	9, 10, 11		
M4	Compositing Portfolio	8	25	5, 6	9, 10, 11, 12		
		30	100				

Paper Name: Portfolio Making (P)

Paper Code: BVFM 693

SL No.	Topic/Module	Hours
1	Module 1- Motion Graphics Portfolio: The portfolio should need have <ul style="list-style-type: none"> • Logo Animation • Infographics • Product Advertisement (Based on Shoot) • Digital Reel Design • Movie Trailer Card 	7
2	Module 2- Rotoscoping Portfolio: The portfolio should need have <ul style="list-style-type: none"> • Character Roto (Full Body) • Hair Roto • Stereo Roto • Motion Blur Roto 	7
3	Module 3- Paint/Prep Portfolio: The portfolio should need have <ul style="list-style-type: none"> • Single Clean Plate • Clean Plate Tracking and Setup • Wire Remove • Face Clean Up • Sequence Paint 	8

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4	<p>Module 4- Compositing Portfolio:</p> <p>The portfolio should need have</p> <ul style="list-style-type: none">• Chroma Remove with 2D BG• Chroma Remove with 3D BG• Matte Painting with 3D Camera Projection/Parallax• Day to Night Conversion• Sky Replacement• Device screen replacement and compositing• 3D Compositing	8
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Suggested Software:

1. Adobe Photoshop
2. Adobe After Effects
3. Adobe Premiere Pro
4. Adobe Audition
5. Silhouette
6. Mocha
7. Foundary Nuke

Suggested Reading:

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