

Maulana Abul Kalam Azad University of Technology, West Bengal

Syllabus of B.Sc.in VFX Film Making (CBCS)

Effective from academic session 2021-22

SEMESTER-6

Paper : LIVE ACTION ; COMPOSITING, SET EXTENSION

Code : BVFM 601

Course Objective: This Course creates the final image of a frame, shot or VFX sequence. They take all the different digital materials used (assets), such as computer-generated (CG) images, live action footage and matte paintings, and combine them to appear as one cohesive image and shot.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3, M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	2D Compositing	10	25		
M 2	Retiming	5	25		
M 3	Morphing	7	25		
M 4	Colour Curves and White & Black Levels	8	25		
		30	100		

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Effective from academic session 2021-22

Paper Code: BVFM- 601

LIVE ACTION ; COMPOSITING, SET EXTENSION

Total Credit: 4

Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	Module 1- 2D Compositing <ul style="list-style-type: none">How compositing and Finishing (sometimes called 2D or 2D VFX) is a crucial part of any VFX project and is used across films, TV and commercials.What are the final step of the visual effects pipeline which consists in putting all the CGI elements together in order to present a complete and finished product.	10
2.	Module 2- Retiming <ul style="list-style-type: none">Work on slow down, speed up, or even reverse select frames in a clip without necessarily altering its overall length.Technique for optimizing sequential circuits.How to repositions the registers in a circuit leaving the combinational portion of circuitry untouched.How to central objective of retiming is to find a circuit with the minimum number of registers for a specified clock period.	5
3.	Module 3- Morphing <ul style="list-style-type: none">Concepts of Distortions, Camera and scene parameters two images together so that the subject of one image seems to change shape and turn into the subject of the other through a seamless transition	7
4.	Module 4 - Colour Curves and White & Black Levels <ul style="list-style-type: none">Allows to make contrast, gamma, gain, and offset adjustments (and, in fact, many others) using lookup tables (LUTs). LUTs refer to line graphs of a given color channel's brightness.	8

REFERENCE BOOKS

1.Nuke 101: Professional Compositing and Visual Effects Pdf

2.NUKE USER GUIDE by foundry pdf

3. Sze Chianly / Samantha Goh, Digital Compositing with Nuke 101, Fatbars Limited-2010

4.Ganbar R, NUKE 101. Professional Compositing and Visual Effects -

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Syllabus of B.Sc.in VFX Film Making (CBCS)

Effective from academic session 2021-22

Paper : LIVE ACTION ; COMPOSITING, SET EXTENSION (lab)

Code : BVFM 691

Course Objective: The Students will develop advanced compositing skills with a focus on various pipeline workflows and shot finishing. Students will practice advanced compositing techniques using plates from actual film projects. Students will also learn stereo compositing techniques and workflow. Compositing the two elements together, Changing properties for a single view, 3D Scene Setups, Moving Images with a 3D Scene. Setting up a Nuke 3D scene. Navigating the 3D world, Importing a camera, Creating a cube, Reconcile3D: Transforming 3D Data into 2D Data, Setting up a Reconcile3D node, Using Reconcile3D's output with a Tracker node, Final Disclosure. Understanding Nuke's Approach to Color, Color Manipulation Building Blocks, Dynamic range, Using an I/O Graph to Visualize Color Operations, Creating Curves with ColorLookup, Color Matching with the Grade Node, Using the Grade node, Using CurveTool to match black and white points, Matching midtones by eye. Achieving a "Look" with the ColorCorrect Node, Using the ColorCorrect node, Using the mask input to color correct a portion of the image. Importing files, Setup the preference for Comp and Creating basic Comp & creating composition, arranging nodes and trees. Colour correction Foreground images according to Background or vice versa, Colour Matching the image based on Reference Image, Colour Replacing certain portions of the Image. Morphing, Image to image morphing and Motion morphing. Retiming a sequence slow and fast effect, Speed up the sequence Using Retiming and Warping.

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
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Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	2D Compositing	15	40		
M 2	Retiming	6			
M 3	Morphing	10	40		
M 4	Colour Colour Curves and White & Black Levels	9			
		40	80		

Paper Code: BVFM- 691

LIVE ACTION ; COMPOSITING, SET EXTENSION (lab)

Total Credit: 2

Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	<p>Module 1- 2D Compositing</p> <ul style="list-style-type: none"> • Compositing the two elements together. • Changing properties for a single view • Approach to Color Manipulation Building Blocks, Dynamic range, • Dynamic range, Using an I/O Graph to Visualize Color Operations, Creating Curves. • Post Effect Filters (Blur, Glow, Compose, Text, Film etc..,) • Assignments will be done on following above points indivial on different live footages. 	15
2.	<p>Module 2- Retiming</p> <ul style="list-style-type: none"> • Temporal Median • Time Wrap • Time offset • Time Blur • Time Echo • Of low retiming • Assignments will be done on following above points indivial on different live footages. • Distorted, long pan, zoom, dolly, crane and motion blur and stabilize shot 	6

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3.	Module 3- Morphing <ul style="list-style-type: none">• Warping• Transforming and animating wraps• Warping with Grid wrap trackers• Temporal Operations• Assignments will be done on following above points indivial on different live footages.• Morphing two different character face together as Assignments.• Morphing two different Bg together as Assignments.	10
4.	Module 4 - Colour Curves and White & Black Levels <ul style="list-style-type: none">• Work with colour curves.• Working with colour Wheel• RGB Colour Matching• Working with premult,Addchannel,Channel Merge• Working with Grade node• Working with Shuffle, Shuffle copy and Copy nodes• Assignments will be done on following above points indivial on different live footages.	9

Suggested Softwares : Nuke
Adobe Photoshop
Syntheyes

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Syllabus of B.Sc.in VFX Film Making (CBCS)

Effective from academic session 2021-22

Paper : ADVANCE COMPOSITING & CG INTEGRATION

Code : BVFM 602

Course Objectives:

Compositing is the **process of combining multiple images to form a single, cohesive image**. It's a common visual technique in photography and film. In the early days of film and photography, compositing was done by manually cutting and pasting together photographs or film prints

SI	Course Outcome	Mapped modules
1	Remembering	M1, M2
2	Understanding the course	M1, M2, M3, M4
3	Applying the general problem	M3, M4
4	Analyse the problems	M3, M4
5	Evaluate the problems after analysing	M3, M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Multipass Compositing	10	25		
M 2	Deep compositing	5	25		
M 3	CG and 2D element Integration	10	25		
M 4	Colour Lookup	5	25		
		30	100		

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Syllabus of B.Sc.in VFX Film Making (CBCS)

Effective from academic session 2021-22

Paper Code: BSC(VFM)- 602

ADVANCE COMPOSITING & CG INTEGRATION

Total Credit: 4

Total hours: 30 Hrs

Sl.	Topic/Module	Hour
1.	Module 1- Multipass Compositing <ul style="list-style-type: none">• Introduction to advanced 2D animation compositing and Ink paint techniques.• Creating color models as per the model sheets. Creating color pallets as required paint and ink fields. Understand the dope sheets / X- sheets in production level.• Arranging and adjusting the layers as per X- sheet. Advanced panning of camera and background, multiple cameras for showing depth in-between background, over lay and character layers.• Introduction to compositing special effects into a scene using 3d graphics and 3d special effects in 2d layers. Concepts for Broadcast animation for logos, channel IDs and montages. Multi-Layer Compositing, Special Effects, Superimposition and Titling. Exporting various file format outputs as per the end user requirements.	10
2.	Module 2- Deep compositing <ul style="list-style-type: none">• Concept of Film LUTS and 2D image contains a single value for each channel of each pixel. In contrast, deep images contain multiple samples per pixel at varying depths and each sample contains per-pixel information such as color, opacity, and camera-relative depth.• Introducing how core deep comp is a different way of rendering and working with visual elements. Rather than layering a series of flat 2D renderings of say 3D imagery one on top of another – often times with hold-out mattes• How deep compositing aims to provide a channel of data in the rendered image that defines not a single Z depth for a point in the image (or pixel value), but rather an array of values that defines how say the fog density changes in front and behind a point in space represented at a pixel value. Concept of film grains and matching it.	5

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3.	Module 3- CG and 2D element Integration <ul style="list-style-type: none">• Concept to do the integration of live action footage and other live action footage or CG elements to create realistic imagery.	10
4.	Module 4 - Colour lookup <ul style="list-style-type: none">• Concept to make contrast, gamma, gain, and offset adjustments (and, in fact, many others) using lookup tables (LUTs). LUTs refer to line graphs of a given color channel's brightness.• How to use the horizontal axis represents the channel's original, or input, values, and the vertical axis represents the channel's new, or output values.	5

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Paper : ADVANCE COMPOSITING & CG INTEGRATION (lab)

Code : BVFM 692

Course Objectives: This course allows the students how to set up a 3D scene in Nuke, and how to add objects and cameras in the 3D workspace. Working with Multipass compositing using blend modes and colour correcting according to requirement of a live action plate.

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4	Analyse the problems	M3, M4

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5	Evaluate the problems after analysing	M3,M4
6	Create using the evaluation process	M3, M4

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	Multipass Compositing	10	40		
M 2	Deep compositing	5			
M 3	CG and 2D element Integration	15	40		
M 4	Colour lookup	5			
		40	80		

Paper Code: BVFM- 692

ADVANCE COMPOSITING & CG INTEGRATION (lab)

Total Credit: 2

Total hours: 40 Hrs

Sl.	Topic/Module	Hour
1.	<p>Module 1- Multipass Compositing</p> <ul style="list-style-type: none"> • Multipass compositing using blend modes • Working with Exr Files • Light and geometry in nuke. • Working nuke Zdepth and motion Blur. • Assignments will be done on following above points induvial on different live footages and render images. 	15

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2.	Module 2- Deep compositing <ul style="list-style-type: none">• Alembic geometry• Modelling 3D geometry from a 2D scene• Creating point clouds from CG renders• HDRs, Finding proper lighting and correct lighting models to real interaction between the CGI character• Light wrap, match lens curvature and properties.• modeling set from live shoot footage and gathering survey data for tracking -• Assignments will be done on following above points indivial on different live footages and render images.	5
3.	Module 3- CG and 2D element Integration <ul style="list-style-type: none">• The integration of CG elements into real-world footage.• Matching Camera Movements• Matching Light• Matching Film Grains• Matching Blurs and Defocus• Assignments will be done on following above points indivial on different live footages and render images.	15
4.	Module 4 - Colour lookup <ul style="list-style-type: none">• Work with colour curves.• Working with colour Wheel• RGB Colour Matching• Working with premult, Addchannel, Channel Merge• Working with Grade node• Working with Shuffle, Shuffle copy and Copy nodes• Assignments will be done on following above points indivial on different live footages and render images.	5

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