Department of Technology
Savitribai Phule Pune University

Syllabus for
B.Sc. In Creative Media Science

B.Sc. in Creative Media Science

Academic year 2023-2024

Intake: 60

Eligibility: Any 10+2 Pass or Equivalent

Savitribai Phule Pune University
(Formerly University of Pune)

Department of Technology
Board of Studies, UG Degree in Creative Media Science
Curriculum Structure for UG Program

Sr. No.	Subject Code	Subject Name	Credits	Teaching Scheme (Theory)	Teaching Scheme (Lab)
Semester (I)					
1	BSCCM1	History of Indian Art	**2**	2	
2	BSCCM2	Photography & Cinematography [VSC]	**2**	2	
3	BSCCM3	Fundamental of Arts & Design [AEC] [VEC]	**4**	2	2
4	BSCCM4	Colour Theory & Design Principles [SEC][CC]	**4**	2	2
5	BSCCM5	Digital Graphics I [Major Core]	**6**	4	2
6	BSCCM6	Digital Graphics II [General Elective]	**4**	2	2
Semester (II)					
7	BSCCM7	Digital & Motion Graphics	**4**	2	2
8	BSCCM8	Introduction to Web languages	**4**	2	2
09	BSCCM9	Advance Graphics & Web – UI/UX	**4**	2	2
10	BSCCM10	Digital Marketing	**2**	2	
11	BSCCM11	Script to screen: Film Making	**2**	2	
12	BSCCMPR1	Graphics & Web Project	**6**	4	2
Semester (III)					
13	BSCCM12	Seminar/Workshops on community project	**2**	2	
14	BSCCM13	Pre-Production for Animation	**4**	2	2
15	BSCCM14	Animation Principles	**4**	4	
16	BSCCM15	Classical Animation	**4**	2	2

17	BSCCM16	2D Technical Animation	**4**	2	2
18	BSCCMPR2	2D Animation Project	**4**	2	2
Semester (IV)					
19	BSCCM17	Human & Animal Anatomy	**2**	2	
20	BSCCM18	Introduction to 3D Software	**2**	2	
21	BSCCM19	3D Modelling & Texturing	**4**	2	2
22	BSCCM20	3D Lightening & Rendering	**4**	2	2
23	BSCCM21	3D Rigging & Animation	**4**	2	2
24	BSCCMPR3	3D Animation Project	**6**	4	2
Award of Under Graduate Diploma with 88 Credits with 4 credits of internship					
Semester (V)					
25	BSCCMS22	Seminar/Workshop Film Making	**2**	2	
26	BSCCMS23	3D Fx & Dynamics	**4**	2	2
27	BSCCMS24	Rotoscopy, Paint, Matte Painting & Compositing	**4**	2	2
28	BSCCMS25	Camera Tracking & Match Moving	**4**	2	2
29	BSCCMS26	AR/VR/ER Metaverse	**2**	2	
30	BSCCMPR4	Visual Effects Project	**6**	4	2
Semester (VI) Elective I					
31	BSCCMS1	Advance Character Modelling	**4**	2	2
32	BSCCMS2	Advance Props Modelling	**2**	2	
33	BSCCMS3	Game Asset & Character Development	**2**	2	
34	BSCCMS4	Advance Texturing & substance Painter	**4**	2	2
35	BSCCMS5	Z brush for Modelling & Texturing	**4**	2	2
36	BSCCPRO1	Modelling & Texturing Project	**6**	4	2
Semester (VI) Elective II					
31	BSCCMS6	Advance Shading	**4**	2	2
32	BSCCMS7	Creating Material & PBR	**4**	2	2
33	BSCCMS8	Advance Camera Setup	**2**	2	
34	BSCCMS9	Rendering & Compositing	**2**	2	
35	BSCCMS10	V-ray & Arnold Lighting & Rendering	**4**	2	2

36	BSCCPRO2	Lighting & Rendering Project	**6**	4	2
Semester (VI) Elective III					
31	BSCCMS11	Adv. Rigging – Biped	**2**	2	
32	BSCCMS12	Adv. Rigging - Quadruped	**4**	2	2
33	BSCCMS13	Adv. Character Animation 1	**4**	2	2
34	BSCCMS14	Adv. Character Animation 2	**4**	2	2
35	BSCCMS15	Skinning and Facial Expressions	**2**	2	
36	BSCCPRO3	Rigging & Animation Project	**6**	4	2
Semester (VI) Elective IV					
31	BSCCMS16	Adv. RotoScopy	**2**	2	
32	BSCCMS17	Adv. Compositing	**4**	2	2
33	BSCCMS18	3D Special Effects	**4**	2	2
34	BSCCMS19	Camera Tracking & Match Moving	**2**	2	
35	BSCCMS20	Clean plate & Paint	**4**	2	2
36	BSCCPRO4	Visual Effects Project	**6**	4	2
Award of Under Graduate Degree on completion of 132 Credits					
Semester (VII) Elective I					
37	BSCCMS21	Advance 2D Animation	**4**	2	2 RP
38	BSCCMS22	Advance 3D Animation	**4**	2	2 RP
39	BSCCMS23	Game Design	**4**		4
40	BSCCMS24	Synopsis /Thesis	**4**	4 RM	
41	BSCCPRO5	Animation-Gaming Project	**6**	4	2
Semester (VII) Elective II					
37	BSCCMS25	Advance Rotoscopy & paint	**4**	2	2 RP
38	BSCCMS26	Advance Compositing	**4**	2	2 RP
39	BSCCMS27	Advance 3D Fx	**4**		4
40	BSCCMS28	Synopsis /Thesis	**4**	4 RM	
41	BSCCPRO6	Visual Effects Project	**6**	4	2
Semester (VII) Elective III					
37	BSCCMS29	Advance Graphics for Print	**4**	2	2 RP

38	BSCCMS30	Advance Motion Graphic	**4**	2	2 RP
39	BSCCMS31	Advance Web Design & UI/UX	**4**		4
40	BSCCMS32	Synopsis /Thesis	**4**	4 RM	
41	BSCCPRO7	Graphics Design Project	**6**	4	2
Semester (VIII)					
42	BSCCMS33	Production Management	**10**	6	4
43	BSCCMS34	OJT Internship	**8**		8
44	BSCCMS35	Emerging Technology	**4**	2	2
Four Year UG Degree with Research Degree in Major and Minor with 176 Credits					

Notes:

1) Electives can also be Open Electives in spirit of DSCS.

2) Students can select one elective in semester VI, Semester VII.

3) Candidates are expected to perform minimum eight (8) assignments for every Lab Practice, and submit report as a bona fide document to course instructor. The assignment may be in the form of image or video.

4) **Internship:** Students are encouraged to do Internship during Semester VII & Semester VIII which will enable them towards state-of-art technologies and best practices followed by Industries. Internship Letter has to be submit to the course coordinator. Post Internship Presentation and report is to be submitted.

5) **Synapsis\Journal\Conference-** Students are expected to present their research findings in standard Research conferences and encouraged to publish in reputed Journals approved by Course Coordinator and Research Guide.

6) Students can do their Projects either in Industry or in academic Institution's\Research Lab. Students pursuing Projects in Industry cannot earn credits towards through Internship, they are encouraged to earn those credits through their own projects

7) **Exit Norms:** Student can exit the programme after one year of completion of earning 44 credits, certificate in Creative Media Science, 88 credits will award Diploma in Creative Media Science, 132 credit will award Undergraduate Degree in Creative Media Science, 176 Credit will award Under Graduate Honors in Creative Media Science as per NEP 2022.

Learning Outcome

1. Developing and understanding Level01 interpersonal communication competence
2. Analyze the historical and theoretical foundations of art, design and Technology
3. Understanding the fundamental of art and design Students will be able to apply theoretical, critical, and historical concepts when making style choices in their own projects
4. Develop and hone skills in creating, editing and revising in the student's primary genre.
5. Demonstrate ability to read and respond thoughtfully and critically in both oral and written form to other student's work.

6. Developing & Understanding Graphic Designs, Photo Editing etc.
7. Developing Print and Digital Graphics Skills as per industry norms.
8. Developing and understanding Level01 interpersonal communication competence
9. Analyze the historical and theoretical foundations of art, design and Technology
10. Understanding the fundamental of art and design Students will be able to apply theoretical, critical, and historical concepts when making style choices in their own projects
11. Develop and hone skills in creating, editing and revising in the student's primary genre.
12. Demonstrate ability to read and respond thoughtfully and critically in both oral and written form to other student's work.
13. Developing & Understanding Graphic Designs, Photo Editing etc.
14. Developing Print and Digital Graphics Skills as per industry norms.
15. Produce a series of cohesive storyboards from a script and recognize and define common Storyboard terminology.
16. Apply basic drawing techniques to create legible storyboards.
17. Understanding of the 12 principles of animation.
18. Describe characteristics of well-designed and executed animation.
19. Relate some knowledge of the history of animation.
20. Demonstrate and understanding of design of traditional animation.
21. Identify good and bad composition & staging; identify and build an emotional impact using colour light.
22. Create surfaces and lighting set-ups that strengthen the overall project design.
23. Describe principles of video editing and visual effects used to enhance screen productions
24. Analyze techniques and processes of video editing and visual effects used in a range of screen productions
25. Produce a series of cohesive storyboards from a script and recognize and define common Storyboard terminology.
26. Apply basic drawing techniques to create legible storyboards.
27. Understanding of the 12 principles of animation.
28. Describe characteristics of well-designed and executed animation.
29. Relate some knowledge of the history of animation.
30. Demonstrate and understanding of design of traditional animation.
31. Identify good and bad composition & staging; identify and build an emotional impact using colour light.
32. Create surfaces and lighting set-ups that strengthen the overall project design.
33. Describe principles of video editing and visual effects used to enhance screen productions
34. Analyze techniques and processes of video editing and visual effects used in a range of screen productions
35. Students will have reliably demonstrated the ability to: -create a variety of effects involving simulations -integrate different simulation techniques -understand and be able to implement production requirements such as caching for efficiency and automation of procedures.
36. Create cloth simulation, hair & fur, Fire, Smoke, Water Effects in 3D
37. Create Matte painting for various scene, Make roto and 3D roto for video.
38. Understand using chroma and create alfa from video.
39. Create Camera tracking digitally and other effects for video.
40. Understand and create AR/VR scene. Understand Metaverse.
41. Students will have reliably demonstrated the ability to: -create a variety of effects involving simulations -integrate different simulation techniques -understand and be able to implement production requirements such as caching for efficiency and automation of procedures.

42. Create cloth simulation, hair & fur, Fire, Smoke, Water Effects in 3D
43. Create Matte painting for various scene.
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45. Understand using chroma and create alfa from video.
46. Create Camera tracking digitally and other effects for video.
47. Understand and create AR/VR scene. Understand Metaverse.

Seminars & Workshops

Colour Theory
Design Elements
Design Principles
Typography
Design Thinking
Character Designing
Graphics For Print
Digital Graphics
Motion Graphics
Design Thinking
Economy for Print Graphics
Photo Editing
Composition
Digital Painting
Character Designing,
Character Modelling,
Animation.
2D Animation
3D Animation
Rigging
Compositing
Matchmoving
Camera tracking
Acting
Music
Dancing
Audio Effects
Special Effects
Film Making

Semester I

BSCCM1: History of Indian Art

Introduction to Indian Art and Architecture : Overview of the history of Indian art and architecture, Major

periods and dynasties in Indian history, Prehistoric and Early Historic Art
Rock art and megalithic art : Indus Valley Civilization art and culture, Mauryan and Sunga art and architecture, Buddhist Art and Architecture
Evolution of Buddhist art: Stupas, monasteries, and rock-cut caves, Gandhara and Mathura schools, Hindu Art and Architecture
Evolution of Hindu temple architecture: Major temple styles (Nagara, Dravida, Vesara).
Iconography and symbolism in Hindu art, Jain Art and Architecture
Jain temple architecture: Iconography and symbols in Jain art, Development of Jain miniature painting, Medieval Indian Art.

Islamic art and architecture in India: Mughal art and culture, Rajput and Deccan Sultanate art, Colonial and Modern Indian Art.
Impact of British colonialism on Indian art: Emergence of modern Indian art, Prominent artists and movements in modern Indian art, Folk and Tribal Art
Diversity of folk and tribal art forms in India: Regional variations and cultural significance, Contemporary Indian Art.
Contemporary Indian artists and their contributions: Themes and trends in contemporary Indian art.

Semester I

BSCCM2: Photography & Cinematography

Introduction to Photography and Cinematography:

Overview of the course objectives and learning outcomes, Understanding the basics of visual storytelling through photography and cinematography, Introduction to the principles of composition, lighting, and framing.

Camera Basics and Equipment: Understanding different types of cameras and their functionalities, Exploring camera settings, exposure controls, and shooting modes, Introduction to lenses, filters, and other essential equipment.

Exposure and Lighting Techniques: Understanding the exposure triangle: aperture, shutter speed, and ISO, Exploring different lighting conditions and their impact on photography, Using natural and artificial light effectively in photography and cinematography.

Composition and Visual Elements: Applying the principles of composition: rule of thirds, leading lines, and symmetry, Understanding visual elements such as colour, texture, and depth, Exploring different perspectives and angles in photography and cinematography.

Portrait Photography: Techniques for capturing compelling portraits, Working with natural and studio lighting for portrait photography, Poses, expressions, and directing subjects for effective portraits.

Landscape and Nature Photography: Techniques for capturing breathtaking landscapes and natural scenery, Understanding the use of depth of field and focal length in landscape photography, Working with natural lighting and weather conditions in outdoor photography.

Still Life and Product Photography: Techniques for capturing still life compositions and product shots. Understanding lighting setups and props for still life photography. Creating visual narratives and storytelling through product photography.

Motion and Action Photography: Techniques for capturing motion and action shots.

Understanding shutter speed and freezing or blurring motion. Sports, wildlife, and street photography techniques.

Cinematography and Visual Storytelling: Introduction to the fundamentals of cinematography, Understanding shot composition, camera movement, and framing in cinematography. Visual storytelling techniques through sequences and editing.

Cinematic Lighting and Colour Grading: Exploring lighting techniques for cinematic scenes. Understanding colour temperature, colour grading, and visual aesthetics in cinematography. Creating mood and atmosphere through lighting and colour.

Post-Processing and Editing: Introduction to photo and video editing software (e.g., Adobe Lightroom, Adobe Photoshop, Adobe Premiere Pro). Techniques for enhancing and retouching photographs. Editing video footage, adding transitions, and incorporating sound in post-production.

Portfolio Development and Presentation: Curating and organizing a professional portfolio of photographs and video projects. Developing a personal style and visual identity as a photographer or cinematographer. Presenting and showcasing work effectively to potential clients or employers.

Semester I

BSCCM3 : Fundamental of Art & Design

Introduction to Art and Design: Overview of the principles and elements of art and design. Exploration of various art mediums and techniques, Introduction to art history and influential artists.

Drawing Fundamentals: Basic drawing techniques, such as line, shape, form, and shading. Understanding proportions, perspective, and composition. Still life drawing exercises.

Colour Theory: Understanding the colour wheel and colour relationships. Exploration of colour harmonies and contrasts. Colour mixing techniques and colour psychology.

Principles of Design: Exploration of design principles such as balance, contrast, emphasis, rhythm, and unity. Applying design principles to various art forms, including 2D and 3D compositions. Experimentation with visual hierarchy and focal points.

Introduction to Digital Art: Introduction to digital art tools and software. Basic digital art techniques and workflows. Exploring digital painting, image manipulation, and digital illustration.

Introduction to Typography: Understanding the basics of typography and type design. Exploration of different typefaces, font families, and typographic hierarchy. Applying typography principles in print and digital media.

Introduction to 3D Design: Basic concepts of 3D design and Modelling . Introduction to 3D software and tools. Creating simple 3D objects and exploring basic lighting and rendering techniques.

Art Critique and Analysis: Developing skills in critiquing and analyzing artwork. Understanding art theory and aesthetics. Engaging in group discussions and providing constructive feedback.

Portfolio Development: Guidance on building a comprehensive art and design portfolio. Selecting and presenting artwork effectively. Developing a personal artistic style and vision.

Project Work and Exploration: Undertaking individual and group projects to apply learned concepts, Exploring various art and design mediums and techniques, Encouraging experimentation and creativity.

Semester I

BSCCM4 : Colour Theory & Design Principles

Introduction to Colour Theory: Overview of colour terminology and the colour wheel. Understanding the properties of colour: hue, value, and saturation. Exploring the psychological and emotional effects of colour.

Colour Systems and Models: Introduction to different colour systems, such as RGB, CMYK, and HSB. Colour mixing and blending techniques. Exploring colour models like additive and subtractive colour.

Colour Harmony and Relationships: Understanding colour harmonies and their application in design. Exploring complementary, analogous, triadic, and monochromatic colour schemes. Analysing famous artworks and design examples for colour harmony.

Value and Contrast: Exploring the concept of value and its role in creating depth and form. Understanding high and low contrast and their impact on visual perception. Applying value scales and creating tonal compositions.
Colour Psychology and Symbolism: Exploring the psychological and cultural associations of colours. Understanding how colours convey meaning and emotions. Applying colour symbolism in design and communication.
Colour in Composition and Layout: Understanding the role of colour in composition and visual hierarchy. Applying colour dominance, focal points, and colour balance. Using colour to guide the viewer's eye and create visual impact.
Colour in Branding and Marketing: Understanding the use of colour in branding and marketing strategies. Analyzing successful brand colour palettes and their impact on consumer perception. Creating cohesive and effective colour schemes for brand identities.
Colour in Digital Design: Applying colour theory principles in web design and user interface (UI) design. Understanding colour accessibility and designing for diverse audiences. Exploring colour trends and using colour tools in digital design software.
Design Principles and Elements: Introduction to design principles such as balance, contrast, and harmony. Exploring the use of typography, layout, and composition in design. Applying design principles in colour choices and combinations.
Applying Colour Theory in Various Design Fields: Applying colour theory in graphic design, illustration, and advertising. Colour in interior design and spatial planning. Colour in fashion design and textiles.
Colour and Sustainability: Exploring the use of colour in sustainable design practices. Understanding the environmental impact of colour production and usage. Designing with a focus on eco-friendly and socially responsible colour choices.
Project Work and Critique: Applying colour theory and design principles in practical design projects. Engaging in critiques and discussions of design choices and colour usage. Reflecting on personal colour choices and experimentation in design.

Semester I
BSCCM5 : Digital Graphics I

Introduction to Adobe Photoshop: Overview of the Photoshop interface and workspace. Understanding image resolution, file formats, and colour modes. Introduction to basic tools and panels in Photoshop.
Image Editing and Retouching: Cropping, resizing, and rotating images. Adjusting brightness, contrast, and levels. Removing blemishes and imperfections using retouching tools.
Selection Techniques: Using various selection tools to isolate and manipulate parts of an image. Refining selections using feathering, smoothing, and masking techniques. Working with selection modes and creating complex selections.
Layers and Layer Masks: Understanding the concept of layers and their importance in non-destructive editing. Creating, organizing, and managing layers. Using layer masks to control the visibility and transparency of image elements.
Image Manipulation and Compositing: Combining multiple images to create a seamless composite. Applying blending modes and layer effects for creative effects. Working with adjustment layers for global image modifications.
Typography and Text Effects: Adding and formatting text in Photoshop. Applying text effects and styles. Creating typographic compositions and integrating text with images.
Image Filters and Special Effects: Applying filters for creative and artistic effects. Using adjustment filters for colour correction and tonal adjustments. Creating popular effects like blurring, sharpening,

and distortion.
Introduction to Adobe Illustrator: Overview of the Illustrator interface and workspace. Understanding vector graphics and their advantages. Introduction to basic tools and panels in Illustrator.
Shape Creation and Transformation: Creating and editing basic shapes using the shape tools. Using the Pen tool to create custom shapes and paths. Transforming and modifying objects using rotation, scaling, and skewing.
Drawing and Illustration: Using drawing tools to create freeform illustrations. Working with brushes and strokes for creating custom artwork. Applying gradients and patterns to add depth and texture.
Typography and Text Design: Creating and formatting text in Illustrator. Using text effects and styles to enhance typographic designs. Incorporating text into illustrations and designs.
Advanced Techniques and Projects: Creating complex illustrations and artwork. Using advanced features like layers, masks, and blend modes in Illustrator. Applying Photoshop and Illustrator integration for design workflows.
Project Work and Portfolio Development: Applying Photoshop and Illustrator skills to real-world design projects. Developing a portfolio showcasing Photoshop and Illustrator work. Presenting and showcasing design projects effectively.

Semester I
BSCCM6 : Digital Graphics II

Introduction to Adobe InDesign: Overview of the InDesign interface and workspace. Understanding document setup, margins, and bleeds. Introduction to basic tools and panels in InDesign.
Layout Design and Page Setup: Creating and managing multiple pages in a document. Applying master pages for consistent layout elements. Using grids, guides, and rulers for precise positioning.
Text Formatting and Styles: Importing and formatting text in InDesign. Creating and applying paragraph and character styles. Working with text frames and columns.
Working with Images and Graphics: Importing and placing images in InDesign. Adjusting image size, resolution, and cropping. Wrapping text around images and creating image masks.
Typography and Advanced Text Features: Working with advanced typography features, including OpenType fonts. Creating and applying drop caps, nested styles, and text variables. Creating table of contents and index.
Colour Management and Swatches: Understanding colour modes and colour profiles in InDesign. Creating and managing swatches and colour libraries. Applying colour to text, objects, and backgrounds.
Creating and Formatting Tables: Creating tables and managing table structure. Formatting cells, rows, and columns. Importing and linking data from external sources.
Working with Vector Graphics: Introduction to CorelDRAW interface and workspace. Creating and editing vector graphics using drawing tools. Working with shapes, curves, and nodes.
Object and Layer Management: Managing and organizing objects and layers in CorelDRAW. Applying transformations and effects to objects. Creating and managing object styles and libraries.
Logo Design and Illustration: Creating logos and illustrations using CorelDRAW. Applying colour and gradients to objects. Incorporating text and typography into designs.
Print Preparation and Output: Understanding preflighting and preparing files for print. Creating print-ready PDFs and understanding print production processes. Dealing with print issues and colour management.
Project Work and Portfolio Development: Applying InDesign and CorelDRAW skills to real-world design projects. Developing a portfolio showcasing InDesign and CorelDRAW work. Presenting and showcasing design projects effectively.

Semester II

BSCCM7 : Digital & Motion Graphics

Introduction to Digital & Motion Graphics: Overview of digital and motion graphics and their applications. Understanding the principles of motion and visual storytelling. Introduction to the Adobe Creative Cloud ecosystem.

Introduction to Adobe Premiere Pro: Overview of the Premiere Pro interface and workspace. Importing media files and organizing projects. Basic video editing techniques: trimming, cutting, and rearranging clips.

Video Transitions and Effects: Applying video transitions to create seamless scene transitions. Using effects and filters to enhance video footage. Keyframing and animating effects for dynamic motion.

Audio Editing with Adobe Audition: Introduction to Adobe Audition interface and audio terminology. Importing and editing audio files. Applying audio effects and cleaning up audio recordings.

Colour Correction and Grading: Understanding colour correction and colour grading concepts. Adjusting and balancing colour levels in video footage. Applying colour grading techniques to enhance visual aesthetics.

Titles, Text, and Graphics: Creating and animating titles and text overlays. Working with graphics and logos in video projects. Applying motion graphics templates for dynamic visuals.

Working with Layers and Masks: Utilizing video and audio layers for multi-track editing. Applying blending modes and opacity adjustments. Creating and using masks for targeted effects and corrections.

Audio Mixing and Sound Design: Balancing audio levels and adjusting audio tracks. Creating soundscapes and adding background music. Implementing sound effects and audio transitions.

Advanced Editing Techniques: Multi-camera editing for synchronized footage. Using advanced editing tools and keyboard shortcuts. Creating and managing project timelines and sequences.

Exporting and Delivery: Exporting video projects in various formats and resolutions. Understanding compression settings and file formats. Publishing videos for different platforms and online sharing.

Project Work and Portfolio Development: Collaborating on group projects and creating individual projects. Applying learned techniques to real-world scenarios. Building a portfolio showcasing digital and motion graphics work.

Semester II

BSCCM8 : Introduction to Web Languages

Introduction to Web Development: Overview of web technologies and their importance. Understanding the client-server architecture. Introduction to web browsers, URLs, and HTTP.

HTML (Hypertext Markup Language): Basics of HTML structure and syntax. Creating and formatting text content with HTML tags. Working with links, images, and media elements.

CSS (Cascading Style Sheets): Introduction to CSS and its role in web design. Selectors, properties, and values in CSS. Applying CSS styles to HTML elements for visual design.

Introduction to JavaScript: Basics of JavaScript syntax and data types. Working with variables, operators, and control structures. Introduction to functions and event handling in JavaScript.

Document Object Model (DOM): Understanding the DOM and its relationship with HTML and JavaScript. Accessing and manipulating HTML elements using JavaScript. Dynamic updates and interactivity with DOM manipulation.

Responsive Web Design: Introduction to responsive web design principles. Creating flexible layouts using CSS media queries. Designing mobile-friendly and adaptable web interfaces.
Introduction to PHP: Basics of PHP syntax and variables. Working with PHP functions and control structures. Incorporating PHP code within HTML pages for server-side scripting.
Introduction to Databases and SQL: Overview of databases and their role in web development. Introduction to SQL (Structured Query Language) for database management. Creating and querying databases using SQL statements.
Web Development Frameworks and Libraries: Introduction to popular web development frameworks (e.g., Bootstrap, Foundation). Utilizing CSS frameworks for rapid and responsive design. Exploring JavaScript libraries and frameworks (e.g., jQuery, React) for enhanced functionality.
Web Development Best Practices: Understanding web accessibility and inclusive design. Optimizing website performance and loading speed. Introduction to search engine optimization (SEO) techniques.
Introduction to Version Control: Overview of version control systems (e.g., Git). Managing code repositories and collaborating on web projects. Basic Git commands and workflows.
Project Work and Portfolio Development: Applying web development skills to real-world projects. Building a portfolio showcasing web development projects. Presenting and showcasing web projects effectively.

Semester II
BSCCM9 : Advance Graphics & Web UI UX

Advanced Graphic Design Principles: Exploring advanced design principles and techniques. Understanding visual hierarchy, composition, and typography. Applying advanced colour theory and psychology in design.
Advanced Web Design Concepts: Responsive web design techniques and frameworks. Advanced CSS layout techniques and grid systems. Web design trends and best practices.
User Interface (UI) Design: Understanding the principles of UI design. Designing user-friendly and intuitive interfaces. Creating wireframes, mockups, and prototypes.
User Experience (UX) Design: Introduction to UX design principles and methodologies. Conducting user research and creating user personas. Information architecture and interaction design.
Interaction Design: Advanced techniques for designing interactive elements. Applying microinteractions and animation in UI/UX design. Designing for different platforms and devices.
Web Graphics and Animation: Creating and optimizing web graphics using advanced techniques. Implementing CSS animations and transitions. Integrating multimedia elements like video and audio.
Advanced Web Development: Introduction to advanced web development languages (e.g., JavaScript, Python). Implementing dynamic and interactive features using JavaScript libraries and frameworks. Integrating APIs and server-side technologies.
Prototyping and Testing: Prototyping tools and techniques for UI/UX design. Conducting usability testing and gathering feedback. Iterative design and continuous improvement.
Designing for Accessibility: Understanding accessibility guidelines and best practices. Designing inclusive interfaces for users with disabilities. Conducting accessibility audits and optimizations.
Web Analytics and Conversion Optimization: Introduction to web analytics tools and data analysis. Using data to optimize user flows and conversion rates. A/B testing and conversion rate optimization techniques.
Designing for Mobile and Emerging Technologies: Mobile-first design principles and considerations. Designing for different screen sizes and resolutions. Exploring emerging technologies like AR/VR and voice interfaces.
Project Work and Portfolio Development: Applying advanced graphics, web, and UI/UX design skills to real-world projects. Developing a portfolio showcasing advanced design and development

work.Presenting and showcasing design projects effectively.

Semester II
BSCCM10 : Digital Marketing

Introduction to Digital Marketing: Overview of digital marketing and its significance. Understanding the digital marketing landscape and trends. Exploring various digital marketing channels and platforms.
Website Planning and Development: Importance of a website in digital marketing. Website planning, structure, and design principles. Introduction to content management systems (CMS) and website builders.
Search Engine Optimization (SEO): Understanding search engines and their algorithms. On-page and off-page SEO techniques. Keyword research, optimization, and tracking.
Pay-Per-Click (PPC) Advertising: Introduction to PPC advertising and search engine marketing (SEM). Setting up and managing PPC campaigns (e.g., Google Ads). Creating effective ad copy and optimizing campaigns.
Social Media Marketing: Leveraging social media platforms for marketing purposes. Creating and managing social media profiles and pages. Social media advertising and content strategies.
Email Marketing: Building an email marketing strategy and growing an email list. Designing effective email campaigns and templates. Analyzing email marketing metrics and optimizing campaigns.
Content Marketing: Creating a content marketing strategy and editorial calendar. Writing compelling and engaging content for digital platforms. Content promotion and distribution strategies.
Influencer Marketing: Understanding influencer marketing and its role in digital marketing. Identifying and collaborating with influencers. Measuring the effectiveness of influencer campaigns.
Social Media Analytics and Reporting: Introduction to social media analytics tools. Monitoring and analyzing social media metrics. Reporting on social media performance and campaign effectiveness.
Digital Marketing Analytics: Introduction to web analytics tools (e.g., Google Analytics). Setting up goals, tracking conversions, and analyzing website data. Using data to optimize digital marketing campaigns.
Mobile Marketing: Mobile marketing strategies and techniques. Mobile app marketing and advertising. Optimizing websites and campaigns for mobile devices.
Digital Marketing Strategy and Planning: Developing a comprehensive digital marketing strategy. Setting objectives, targeting audiences, and allocating budgets. Evaluating and adjusting digital marketing plans.
Ethical and Legal Considerations in Digital Marketing: Understanding privacy regulations and data protection. Ethical practices in digital marketing. Managing online reputation and handling customer feedback.
Emerging Trends in Digital Marketing: Exploring emerging technologies and trends in digital marketing. AI and machine learning in digital marketing. Voice search, chatbots, and virtual assistants.
Project Work and Portfolio Development: Applying digital marketing skills to real-world projects. Developing a portfolio showcasing digital marketing campaigns. Presenting and showcasing digital marketing projects effectively.

Semester II
BSCCM11 : Script to Screen: Film Making

Introduction to Film Making: Overview of the film making process and its components.

Understanding the roles and responsibilities of different film crew members. Introduction to film genres, styles, and storytelling techniques.
Pre-production: Developing a film concept and creating a compelling script. Storyboarding and visualizing the film's shots and sequences. Casting, location scouting, and production design.
Screenwriting: Elements of effective storytelling and screenplay structure. Developing characters and dialogue. Formatting and writing a screenplay.
Cinematography: Understanding camera techniques and shot composition. Working with different camera angles, movements, and lenses. Lighting principles and techniques for different moods and aesthetics.
Directing: Role and responsibilities of a film director. Working with actors and establishing the director's vision. Blocking, staging, and directing performances.
Production: Filming techniques and on-set procedures. Managing production logistics and schedules. Capturing high-quality audio and video footage.
Editing and Post-production: Introduction to video editing software (e.g., Adobe Premiere Pro, Final Cut Pro). Organizing and managing footage in the editing software. Editing techniques, transitions, and visual effects.
Sound Design: Importance of sound design in film making. Recording and editing dialogue, Foley, and ambient sound. Incorporating music and sound effects.
Colour Grading and Visual Effects: Enhancing the visual aesthetics through colour grading. Introduction to colour grading software (e.g., DaVinci Resolve). Adding visual effects and enhancing the film's visual storytelling.
Film Distribution and Marketing: Understanding film distribution channels and strategies. Film festivals and film marketing techniques. Promoting and distributing the film through digital platforms.
Legal and Ethical Considerations: Copyright and licensing in film making. Understanding contracts and agreements. Ethical considerations in storytelling and representation.
Film Analysis and Critique: Analyzing and critiquing films from various genres and eras. Developing critical thinking and analyzing film techniques. Applying film analysis principles to improve one's own work.
Collaboration and Teamwork: Effective communication and collaboration in film making. Managing and working with a film crew. Understanding the importance of teamwork in the creative process.
Project Work and Portfolio Development: Applying script to screen film making skills to produce short films or scenes. Developing a portfolio showcasing film making projects.
Presenting and showcasing film projects effectively.

Semester II
BSCCMPR1: Graphics & Web Project

Introduction to Web Design UI/UX: Overview of web design and the importance of user experience (UX). Understanding the role of user interface (UI) in web design. Exploring the principles of effective web design and usability.
User-Centered Design: Introduction to user-centered design (UCD) principles. Conducting user research and creating user personas. Applying usability testing and user feedback in the design process. Structuring and organizing website content effectively. Developing site maps and navigation systems.
Information Architecture: Implementing intuitive and user-friendly information architecture.
Wireframing and Prototyping: Creating wireframes to outline the structure and layout of web pages. Designing interactive prototypes for user testing and feedback. Utilizing prototyping tools and software.

Visual Design Principles: Understanding visual design principles for web interfaces. Typography, colour theory, and visual hierarchy. Creating visually appealing and consistent designs.
Responsive Web Design: Introduction to responsive web design principles. Designing flexible layouts using CSS media queries. Testing and optimizing websites for different devices and screen sizes.
UI Design Patterns and Components: Exploring common UI design patterns and best practices. Designing effective navigation menus, forms, and interactive elements. Creating reusable UI components and style guides.
Interaction Design and Microinteractions: Designing interactive and engaging user experiences. Incorporating microinteractions and animations. Enhancing user engagement and delight through interactive elements.
UI/UX Evaluation and Iteration: Conducting usability testing and user feedback sessions. Analyzing data and user behavior to inform design decisions. Iterating and improving the UI/UX based on user insights.
Designing for Accessibility: Understanding web accessibility guidelines and best practices. Designing inclusive interfaces for users with disabilities. Conducting accessibility audits and optimizations.
Web Design Project Management: Introduction to project management methodologies. Planning and organizing web design projects. Managing timelines, resources, and client communication.
Creating a Web Design Portfolio: Showcasing web design projects effectively in a portfolio. Designing and developing a personal website or portfolio platform. Presenting and marketing the portfolio to potential employers or clients.
Industry Trends and Emerging Technologies: Staying updated with the latest trends in web design and UI/UX. Exploring emerging technologies and design tools. Incorporating cutting-edge techniques and features in web design.
Professional Development and Career Guidance: Exploring career paths in web design and UI/UX. Developing a professional online presence and personal branding. Preparing for job interviews and portfolio reviews.

Semester III
BSCCM13 : Preproduction for Animation

Introduction to Animation Preproduction: Overview of the animation preproduction phase and its significance. Understanding the role of preproduction in the animation pipeline. Exploring the different stages and processes involved in animation preproduction.
Story Development: Storytelling techniques and principles for animation. Developing compelling characters and engaging narratives. Creating storyboards and animatics to visualize the story.
Character Design: Understanding the importance of character design in animation. Exploring different character design styles and aesthetics. Developing character sheets and model sheets.
Environment and Prop Design: Designing and creating the environments and backgrounds for animation. Developing concept art and reference materials for settings and props. Creating design documents and style guides.
Scriptwriting and Dialogue: Writing scripts for animated projects. Understanding the structure and format of animation scripts. Incorporating dialogue and character interactions effectively.
Storyboarding: Introduction to storyboarding techniques and principles. Creating sequential visualizations of the story. Applying composition, camera angles, and pacing in storyboards.
Animatics and Timing: Creating animatics to establish the timing and rhythm of the animation. Understanding the relationship between timing and storytelling. Incorporating sound effects and temporary audio in animatics.

Layout and Composition: Understanding the principles of layout and composition in animation. Designing and arranging elements within the frame for visual appeal. Creating dynamic and visually interesting compositions.
Colour Theory and Palette Development: Exploring colour theory and its application in animation. Developing colour palettes that convey mood and atmosphere. Applying colour to characters, environments, and props.
Sound Design and Music: Introduction to sound design principles for animation. Incorporating sound effects and Foley into the preproduction process. Collaborating with composers and musicians for original music.
Production Planning and Pipeline: Planning and organizing the production process for animation. Establishing timelines, milestones, and deliverables. Collaborating with production teams and managing resources.
Previsualization and 3D Layout: Creating previsualization animatics and layouts in 3D software. Blocking out camera movements and staging in 3D environments. Exploring the relationship between previsualization and final animation.
Pitching and Presenting: Presenting animation preproduction materials effectively. Developing pitching skills to communicate ideas and concepts. Receiving and incorporating feedback for refinement.

Semester III
BSCCM14: Animation Principles

Introduction to Animation Principles: Overview of animation principles and their importance in creating believable and engaging animations. Understanding the role of animation principles in conveying motion, emotion, and storytelling.
Squash and Stretch: Exploring the principle of squash and stretch in animation. Understanding how to exaggerate and deform characters and objects to convey weight, flexibility, and impact.
Timing and Spacing: Understanding the relationship between timing and spacing in animation. Applying the principles of timing and spacing to create realistic and dynamic motion.
Anticipation and Follow-through: Using anticipation to prepare the audience for an action. Incorporating follow-through and overlapping actions to create natural and fluid movement.
Staging and Composition: Understanding the principles of staging and composition in animation. Utilizing visual elements to guide the viewer's attention and convey the intended message.
Straight Ahead and Pose-to-Pose: Exploring different approaches to animating, including straight ahead animation and pose-to-pose animation. Understanding the advantages and challenges of each approach.
Arcs and Path of Action: Understanding the importance of arcs and the path of action in creating smooth and natural motion. Applying the principles of arcs and path of action to characters' movements and object trajectories.
Exaggeration and Appeal: Using exaggeration to create more expressive and entertaining animations. Incorporating appeal to make characters and objects visually appealing and engaging to the audience.
Secondary Action: Understanding the role of secondary actions in adding depth and richness to animations. Incorporating secondary actions to enhance the primary action and convey additional meaning.
Solid Drawing and Volume: Mastering the principles of solid drawing and creating the illusion of volume and three-dimensional forms. Understanding the importance of understanding anatomy and form in character animation.

Acting and Performance: Exploring the principles of acting in animation.
Understanding how to convey emotions, expressions, and character personalities through movement and gestures.
Lip Sync and Dialogue Animation: Understanding the principles of lip sync and dialogue animation. Syncing character movements and expressions with recorded dialogue or voice-over.
Walk Cycles and Character Locomotion: Mastering the principles of walk cycles and character locomotion. Understanding the mechanics of different types of walks and incorporating personality into character movements.

Semester III
BSCCM15 : Classical Animation

Introduction to Classical Animation: Overview of classical animation techniques and their historical significance. Understanding the principles and foundations of traditional hand-drawn animation
Basic Drawing Skills: Developing fundamental drawing skills for animation. Practicing observational drawing, gesture drawing, and anatomy studies. Understanding the use of line, shape, and form in character design.
Animation Principles: Reviewing and applying the core principles of animation, including squash and stretch, timing and spacing, anticipation, follow-through, arcs, and more. Analysing and studying examples of classic animated sequences.
Flipbook Animation: Learning the basics of flipbook animation. Creating simple animated sequences using a flipbook or paper-based animation tools.
Traditional Animation Techniques: Understanding the process of traditional hand-drawn animation. Exploring techniques such as keyframing, inbetweening, and clean-up.
Walk Cycles and Character Locomotion: Mastering the principles of walk cycles and character locomotion. Creating believable and dynamic walks for different character types.
Acting and Performance: Exploring the principles of acting in animation. Learning how to convey emotions, expressions, and character personalities through movement and gestures.
Lip Sync and Dialogue Animation: Understanding the principles of lip sync and dialogue animation. Syncing character movements and expressions with recorded dialogue or voice-over.
Scene Planning and Storyboarding: Developing skills in scene planning and storyboarding for animated sequences. Creating storyboards to visualize and plan out animation sequences.
Traditional Animation Software: Introduction to traditional animation software such as Toon Boom Harmony or TV Paint. Exploring the digital tools and techniques available for traditional hand-drawn animation.
Colour and Background Design: Understanding the role of colour in animation. Exploring techniques for designing and creating appealing backgrounds and colour schemes.
Traditional Special Effects: Introduction to traditional special effects animation techniques. Creating effects such as smoke, water, fire, and explosions using traditional methods.
Film Analysis and Critique: Analysing and critiquing classic animated films and sequences. Understanding the storytelling, animation techniques, and artistic choices in these films.

Semester III
BSCCM16 : 2D Technical Animation

Introduction to 2D Technical Animation: Overview of technical animation and its applications in various industries. Understanding the role of Adobe Animate in creating 2D technical animations.

Interface and Workspace: Familiarizing students with the Adobe Animate interface and workspace. Exploring the different panels, tools, and features relevant to technical animation.
Drawing and Vector Basics: Mastering the basics of drawing and vector-based graphics in Adobe Animate. Understanding the use of shapes, lines, and curves in technical illustrations.
Creating Technical Illustrations: Techniques for creating accurate technical illustrations using Adobe Animate. Incorporating measurement, proportion, and scale in technical drawings.
Animation Principles for Technical Animation: Applying animation principles such as timing, spacing, and anticipation to technical animations. Creating smooth and visually appealing movement in technical illustrations.
Working with Symbols and Libraries: Utilizing symbols and libraries in Adobe Animate for efficient asset management. Creating reusable components and elements for technical animations.
Motion Paths and Keyframe Animation: Using motion paths to animate objects along predefined paths. Keyframe animation techniques for creating complex animations in technical illustrations.
Camera Movement and Perspective: Applying camera movement and perspective techniques to enhance technical animations. Creating the illusion of depth and three-dimensional space in 2D animations.
Masking and Clipping: Understanding the use of masking and clipping techniques in technical animations. Creating dynamic effects and revealing hidden elements using masks.
Adding Interactivity: Incorporating interactivity into technical animations using Adobe Animate. Creating interactive buttons, menus, and clickable elements.
Exporting and Publishing: Exporting technical animations in various formats for different platforms. Publishing animations for web, mobile, or other delivery mediums.
Project Work and Portfolio Development: Applying technical animation techniques to create a final animation project. Developing a portfolio showcasing various technical animation exercises and projects. Presenting and showcasing technical animation work effectively.

Semester III
BSCCMPR2 : 2D Animation Project

Introduction to 2D Animation Project: Overview of the course objectives and expectations. Introduction to the animation production pipeline.
Concept Development: Generating ideas for an animated project. Developing a compelling concept, story, and characters.
Storyboarding: Understanding the importance of storyboarding in the animation process. Creating a visual narrative through sequential drawings.
Character Design: Exploring the principles of character design in 2D animation. Developing appealing and expressive characters for the project.
Background Design: Creating visually engaging and appropriate backgrounds for the animation project. Incorporating mood, atmosphere, and depth into the backgrounds.
Animation Techniques and Principles: Reviewing and applying the core principles of animation, such as squash and stretch, timing and spacing, anticipation, follow-through, and more. Applying animation techniques to bring characters and objects to life.
Keyframe Animation: Understanding the concept of keyframes and their role in creating animation. Practicing keyframe animation techniques to create dynamic and expressive movements.
In between and Timing: Exploring the process of in between and timing in 2D animation. Creating smooth and fluid motion between keyframes.
Sound Design and Editing: Incorporating sound effects and music into the animation project. Understanding the importance of sound in enhancing the storytelling and overall experience.
Finalizing and Polishing: Refining and fine-tuning the animation project. Addressing feedback and

making necessary adjustments.
Rendering and Exporting: Preparing the animation project for final output. Understanding different rendering settings and file formats for different platforms.
Presentation and Critique: Presenting the completed animation project to the class or a panel of reviewers. Engaging in a constructive critique session to receive feedback for improvement.
Project Documentation and Reflection: Documenting the animation project, including concept art, storyboards, character designs, and production notes. Reflecting on the creative process and lessons learned during the project.

Semester IV
BSCCM17 : Human & Animal Anatomy

Introduction to Anatomy: Overview of the importance of anatomy in art. Understanding the basic anatomical terms and concepts.
Skeletal System: Detailed study of the human and animal skeletal system. Identifying major bones, their structures, and functions.
Muscular System: Examination of the major muscles and muscle groups in the human and animal body. Understanding muscle actions and how they affect body movement and form.
Surface Anatomy: Analyzing the surface features and landmarks of the human and animal body. Identifying and drawing the bony prominences, muscle insertions, and other surface details.
Proportions and Body Measurements: Understanding the principles of proportion and scale in figure and creature drawing. Studying the standard measurements and ratios for human and animal body parts.
Joint and Limb Anatomy: Detailed study of the joints and their range of motion. Analyzing the anatomy of limbs, including arms, legs, hands, and feet.
Facial Anatomy: Exploring the structure and features of the human and animal face. Understanding the underlying anatomy of the skull, muscles, and facial expressions.
Gesture and Movement: Analyzing the dynamics of human and animal movement. Capturing the essence of gesture and movement in figure and creature drawing.
Comparative Anatomy: Comparing the anatomical differences and similarities between different species. Understanding how to adapt anatomical knowledge to depict various animals and creatures.
Visualization and 3D Forms: Developing the ability to visualize and depict three-dimensional forms. Understanding how anatomy informs the construction and representation of 3D objects.
Life Drawing and Figure Studies: Applying anatomical knowledge to life drawing sessions. Practicing figure studies to improve accuracy and understanding of the human form.
Animal Anatomy: Studying the anatomy of specific animal groups, such as mammals, birds, reptiles, or aquatic creatures. Understanding the unique anatomical features and adaptations of different animal species.
Reference Materials and Resources: Exploring various reference materials, such as anatomical books, models, and digital resources. Learning how to use references effectively to enhance anatomical accuracy in art.

Semester IV
BSCCM18 : Introduction to 3D Software

Introduction to 3D Modelling: Understanding the fundamentals of 3D modelling. Overview of the different software options: 3ds Max, Maya, Blender.
User Interface and Navigation: Familiarizing students with the user interface of the selected

software. Learning navigation tools and shortcuts for efficient 3D workspace navigation.
Basic 3D Modelling Techniques: Introduction to basic 3D Modelling techniques, such as creating primitive shapes, extruding, beveling, and editing vertices, edges, and faces. Creating simple objects and structures using the software's Modelling tools.
Material and Texture Mapping: Understanding the principles of material creation and texture mapping. Applying textures and materials to 3D models using the software's tools and options.
Lighting and Rendering: Exploring lighting techniques in a 3D environment. Understanding the rendering process and using the software's rendering features.
Animation and Keyframing: Introduction to basic animation principles and techniques. Creating simple animations using keyframes and timeline controls.
Rigging and Character Animation: Understanding the concept of rigging for character animation. Exploring the software's tools and features for rigging and animating characters.
Particle Systems and Dynamics: Introduction to particle systems and dynamic simulations. Creating realistic effects such as smoke, fire, water, and cloth simulations.
Camera and Composition: Understanding camera settings and composition techniques for 3D scenes. Creating dynamic camera movements and shots.
Rendering and Output: Exploring advanced rendering options and settings. Outputting final rendered images or animations in various formats.
Integration with Other Software: Understanding the workflow for integrating 3D software with other software applications, such as video editing or compositing software.

Semester IV
BSCCM19 : 3D Modelling & Texturing

Introduction to 3D Modelling: Overview of the principles and concepts of 3D Modelling. Understanding the role of 3D Modelling in various industries.
User Interface and Navigation: Familiarizing students with the user interface of 3ds Max, Maya, and Blender. Learning navigation tools, viewports, and keyboard shortcuts.
Polygonal Modelling: Introduction to polygonal Modelling techniques. Creating and manipulating polygonal objects using 3ds Max, Maya, and Blender.
NURBS and Subdivision Surface Modelling: Understanding NURBS and subdivision surface Modelling. Creating smooth and organic surfaces using NURBS and subdivision techniques.
Modelling Tools and Techniques: Exploring a variety of Modelling tools and techniques available in 3ds Max, Maya, and Blender. Understanding the use of tools like extrusion, beveling, edge loops, and more.
Sculpting and Organic Modelling: Introduction to sculpting tools and techniques. Creating detailed organic models using sculpting tools available in the software.
UV Mapping and Texturing: Understanding UV mapping and its importance in texturing. Applying textures to 3D models using UV mapping techniques.
Material Creation and Shading: Exploring material creation and shading techniques. Understanding the software's material editor and shader nodes.

Semester IV
BSCCM20 : 3D Lighting & Rendering

Introduction to 3D Lighting and Rendering: Overview of the role and importance of lighting and rendering in 3D graphics. Understanding the principles of light behavior and how it affects the appearance of objects.
Lighting Techniques: Exploring different lighting techniques, including ambient lighting, direct

lighting, and global illumination. Understanding the properties of light sources and their effects on the scene.
Light Types and Properties: Understanding various types of light sources, such as point lights, spotlights, and area lights. Adjusting light properties, such as intensity, colour, falloff, and shadows.
Shadows and Reflections: Understanding the principles of shadows and reflections in 3D rendering. Configuring and controlling shadows and reflections in the scene.
Light Placement and Composition: Exploring techniques for placing lights in the scene for effective composition and storytelling. Creating lighting setups to enhance the mood and atmosphere of the scene.
Texturing and Material Shading: Understanding the interaction of light with textures and materials. Applying shaders and materials to objects for realistic lighting and rendering.
Image-Based Lighting: Introduction to image-based lighting (IBL) techniques. Using high dynamic range (HDR) images and environment maps for realistic lighting and reflections.
Rendering Settings and Optimization: Understanding rendering settings and options in 3ds Max, Maya, and Blender. Optimizing render settings for efficiency and quality.
Render Engines and Plugins: Exploring different render engines available for 3ds Max, Maya, and Blender. Understanding the capabilities and features of popular render engines and plugins.
Rendering Passes and Compositing: Creating render passes for efficient compositing and post-processing. Exploring techniques for combining and enhancing rendered elements in compositing software.
Render Farm and Distributed Rendering: Understanding the concept of a render farm and distributed rendering. Configuring and utilizing multiple machines for faster rendering.
Advanced Rendering Techniques: Exploring advanced rendering techniques, such as global illumination, caustics, and subsurface scattering. Understanding the principles and settings required for these advanced effects. Finalizing and Output, Preparing the rendered images or animations for final output. Understanding file formats and settings for different purposes, such as print or web.

Semester IV
BSCCM21 : 3D Rigging & Animation

Introduction to 3D Animation: Overview of the principles and concepts of 3D animation. Understanding the role of animation in various industries.
Animation Principles: Exploring the fundamental principles of animation, including timing, spacing, squash and stretch, anticipation, and follow-through. Understanding the principles of character animation and storytelling.
Keyframe Animation: Understanding the concept of keyframes and animation curves. Creating animation sequences using keyframe animation techniques.
Character Rigging: Introduction to character rigging and the role of rigging in character animation. Understanding the components of a character rig, including joints, controls, and constraints.
Rigging Techniques: Exploring different rigging techniques, such as FK (forward kinematics), IK (inverse kinematics), and blendshapes. Creating rigs for characters with various body parts, including limbs, spine, and facial features.
Skinning and Weight Painting: Understanding the process of skinning and weight painting. Assigning joint influences and adjusting weights to create realistic deformation of character models.
Facial Rigging and Lip Sync: Exploring techniques for rigging facial features and creating facial expressions. Understanding the process of lip sync and facial animation for dialogue-driven character animations.
Advanced Animation Techniques: Exploring advanced animation techniques, such as character locomotion, secondary motion, and overlapping action. Creating complex animation sequences with

multiple characters and interactions.
Dynamic Simulations: Introduction to dynamic simulations in 3D animation. Simulating realistic effects such as cloth, hair, particles, and physics-based interactions.
Animation Workflow and Pipeline: Understanding the animation workflow and the role of animation in the production pipeline. Collaborating with other departments, such as Modelling , texturing, and lighting, for effective animation integration.
Motion Capture Integration: Exploring the process of integrating motion capture data into character animation. Cleaning and editing motion capture data to fit specific character performances.
Advanced Rigging Techniques: Understanding advanced rigging techniques, such as muscle systems, advanced facial rigging, and complex character setups. Implementing custom rigging solutions for specific animation requirements.
Industry Standards and Practices: Familiarizing students with industry-standard animation techniques and practices. Understanding the expectations and requirements for 3D animation in various industries, such as film, gaming, and advertising.

Semester IV

BSCCMPR3 : 3D Animation Project

3D Modelling Techniques: Introduction to polygonal modelling. Creating and editing 3D objects. Exploring organic and hard-surface modelling techniques. UV mapping and texturing basics.
Lighting and Materials: Understanding lighting principles and techniques. Applying different types of lighting setups. Material creation and texture mapping. Introduction to shaders and rendering settings.
Animation and Rigging: Keyframe animation techniques. Creating character rigs and skeletal systems. Applying basic animation principles. Exploring advanced animation techniques (e.g., physics-based animation).
Advanced 3D Techniques: Introduction to particle systems and simulations. Exploring dynamics and simulations in 3D. Advanced texturing and shading techniques. Advanced rendering and compositing.
Building a Portfolio: Understanding the importance of a professional portfolio. Selecting and organizing 3D projects for the portfolio. Creating presentation materials (e.g., showreel, demo reel). Developing effective communication and presentation skills.
Project Work: Undertaking individual or group projects. Applying the knowledge and skills acquired throughout the course. Regular feedback sessions and critiques. Refining and finalizing the portfolio.

Semester V

BSCCM23 : 3D Fx & dynamics

Introduction to 3D FX & Dynamics: Overview of 3D special effects and dynamics in film and animation. Introduction to 3ds Max, Maya, and Blender software. Understanding the interface and basic tools of each software.
Particle Systems: Introduction to particle systems and their applications. Creating and controlling particle emitters. Particle attributes and behaviours. Advanced particle effects and customization.
Physics-Based Animation: Understanding physics principles for animation. Simulating realistic motion using dynamics engines. Applying rigid body dynamics for collisions and interactions. Soft body dynamics for deformable objects.
Fluid Dynamics and Simulations: Introduction to fluid dynamics in 3D. Simulating fluid behavior (liquids, smoke, fire). Controlling fluid properties and parameters. Creating realistic fluid simulations.
Advanced Visual Effects: Exploring advanced effects such as cloth simulation, fur, and hair. Integrating effects with character animation. Applying advanced shading and rendering techniques.

Compositing visual effects into a final scene.

Semester V

BSCCM24 : Rotoscopy, Paint, Matte painting & Compositing

Introduction to Rotoscopy, Paint, Matte Painting & Compositing: Overview of rotoscopy, paint, matte painting, and compositing in visual effects. Introduction to Adobe After Effects, Nuke, and Silhouette software. Understanding the interface and basic tools of each software.
Rotoscopy and Masking: Fundamentals of rotoscopy and its applications. Creating accurate shapes and masks for object isolation. Techniques for rotoscopy of complex elements (e.g., hair, fur, transparent objects). Refining and animating rotoscope masks.
Paint and Clean-Up: Introduction to paint tools for removing unwanted elements. Repairing footage imperfections (dust, scratches, wires, etc.). Object removal and clean plate creation. Match-moving and tracking for paint tasks.
Matte Painting: Introduction to matte painting and its role in visual effects. Digital painting techniques for creating realistic backgrounds. Extending or replacing backgrounds using matte paintings. Integrating matte paintings with live-action footage.
Advanced Compositing Techniques: Compositing basics: layering, blending modes, and alpha channels. Green screen and blue screen keying. Integration of 3D elements into live-action footage. Colour grading and matching for seamless composites.

Semester V

BSCCM25 : Camera Tracking & Match Moving

Introduction to Camera Tracking and Match Moving: Overview of camera tracking and its applications in visual effects. Introduction to industry-standard camera tracking software. Understanding the interface and basic tools of the software.
Principles of Camera Tracking: Camera tracking concepts and terminology. Different types of camera movements (pan, tilt, dolly, etc.). Planning and shooting footage for optimal camera tracking. Camera tracking workflow and best practices.
Camera Tracking Software: In-depth exploration of camera tracking software (e.g., SynthEyes, PFTrack). Importing and organizing footage for tracking. Feature extraction and point tracking techniques. Refining and validating tracking data.
Solving 3D Camera Movements: Principles of 3D camera solving. Using tracked data to recreate virtual cameras. Understanding coordinate systems and camera calibration. Evaluating and refining camera solves.
Match Moving Techniques: Introduction to match moving and its applications. Integrating virtual elements into live-action footage. Techniques for accurate object tracking and match moving. Fine-tuning match moves for seamless integration.
Advanced Camera Tracking and Compositing: Advanced camera tracking scenarios (motion blur, lens distortion, etc.). Tracking and integrating 3D objects into the scene. Camera tracking for complex shots (moving objects, dynamic lighting, etc.). Compositing virtual elements with live-action footage.

Semester V

BSCCM26 : AR/VR/XR Metaverse

Introduction to AR/VR/XR and the Metaverse : Overview of AR, VR, and XR technologies and their applications. Introduction to the concept of the metaverse. Understanding the hardware and software requirements for immersive experiences. Overview of Unreal Engine, Maya, and Blender and their roles in AR/VR/XR development.

Basics of 3D Asset Creation: Introduction to 3D Modelling and asset creation techniques. Creating 3D models using Maya and Blender. UV unwrapping and texture mapping for realistic assets. Exporting and optimizing 3D assets for use in AR/VR/XR.

Introduction to Unreal Engine: Understanding the interface and basic tools of Unreal Engine. Importing 3D assets created in Maya and Blender. Setting up scenes and environments for AR/VR/XR experiences. Applying materials, textures, and lighting in Unreal Engine.

Building AR Experiences : Introduction to AR development in Unreal Engine. Implementing marker-based and markerless AR tracking. Placing virtual objects in the real world. User interaction design and input mapping.

Creating VR Experiences: Introduction to VR development in Unreal Engine. Implementing VR locomotion techniques. Creating interactive VR interactions and UI systems. Performance optimization for smooth VR experiences. Understanding XR and its applications in the metaverse.

Extended Reality (XR) and the Metaverse : Utilizing Unreal Engine for XR development. Creating immersive XR experiences with Maya and Blender assets. Implementing hand tracking and spatial computing techniques.

Storytelling and User Experience in the Metaverse : Applying storytelling principles in immersive experiences. Creating compelling narratives in AR/VR/XR applications. User experience design for intuitive and immersive interactions. Iterative development and user testing.

Deployment and Distribution: Packaging and deploying AR/VR/XR applications to target platforms. Considerations for multi-platform compatibility. Testing and debugging AR/VR/XR experiences. Sharing and distributing AR/VR/XR projects.

Semester V

BSCCMPR4 : VFx Project & Portfolio

Introduction to VFX Project & Portfolio: Overview of the course objectives, expectations, and deliverables. Introduction to the visual effects project workflow and pipeline. Understanding the importance of project planning and organization. Overview of industry-standard VFX software and tools.

Concept Development and Previsualization: Developing VFX concepts and brainstorming ideas. Storyboarding and previsualization techniques. Planning the shot breakdown and asset requirements. Creating a project timeline and schedule.

Asset Creation and Integration : Creating or sourcing necessary assets for the VFX project. Modelling , texturing, and rigging 3D assets (if applicable). Shooting or sourcing live-action footage for integration. Implementing advanced compositing techniques for seamless integration.

Advanced Compositing Techniques: Introduction to advanced compositing techniques. Matte painting and digital set extension. Particle effects and simulations. Chroma keying and green screen integration.

Sound Design and Post-Production: Understanding the importance of sound design in VFX projects. Adding and syncing audio elements to enhance visual effects. Implementing sound effects, Foley, and background music. Balancing and mixing audio for the final project.

Project Management and Collaboration: Establishing effective project management strategies. Collaborating with team members and delegating tasks. Tracking progress and adjusting the project timeline as needed. Effective communication and feedback exchange.

Portfolio Development and Presentation: Planning and organizing a professional VFX portfolio. Selecting and curating the best VFX projects for inclusion. Creating compelling demo reels and presentations. Showcasing the portfolio to potential employers or clients.

Semester VI Elective I Modelling & Texturing

BSCCMS1 : **Advance Character Modelling**

Introduction to Advanced Character Modelling: Overview of character modelling pipeline, Understanding the requirements and challenges of advanced character modelling.
Anatomy and Proportions: Study of human anatomy and proportions, Importance of understanding skeletal structure and muscle anatomy, Techniques for achieving realistic proportions in character models
Concept Art and Reference Gathering: Gathering and analysing reference material, Translating 2D concept art into 3D models, Working with character design briefs and style guides
Character Sculpting: Introduction to digital sculpting software (e.g., ZBrush, Mudbox), Blocking out the character's basic forms and proportions, Refining the sculpted details, including facial features, muscles, and clothing.
Retopology and Optimization: Techniques for creating clean and efficient topology, Understanding edge flow and its importance in animation, Optimization strategies for reducing polygon count and improving performance.

Semester VI Elective I Modelling & Texturing

BSCCMS2: Advance Props Modelling

Introduction to Advanced Props Modelling, Overview of props modelling pipeline, Understanding the requirements and challenges of advanced props modelling
Reference Gathering and Analysis: Gathering and analysing reference material for props modelling, Studying different types of props and their design characteristics, Identifying key details and features to capture in the model
Modelling Techniques and Tools: Introduction to 3D modelling software (e.g., Maya, 3ds Max, Blender), Polygonal modelling techniques for props, Understanding and implementing subdivision surfaces for smooth models
Hard-Surface Modelling: Techniques for creating hard-surface props such as weapons, vehicles, and machinery, Understanding edge loops, bevels, and chamfers for clean and precise models, Working with Booleans and other tools for complex shapes.
Organic Props modelling: modelling organic props like plants, trees, rocks, and natural elements, Utilizing sculpting software (e.g., ZBrush, Mudbox) for intricate organic details, Incorporating reference materials and textures for realistic organic props.

Semester VI Elective I Modelling & Texturing

BSCCMS3: Game Asset and Character Development

Introduction to Game Asset & Character Development, Overview of the game development pipeline Understanding the role of game assets and characters, Introduction to industry-standard software and tools.
Concept Art and Design: Understanding the importance of concept art in game development, Creating mood boards and visual references, Translating 2D concept art into 3D models
Modelling Fundamentals: Introduction to 3D modelling software (e.g., Maya, 3ds Max, Blender), Polygonal modelling techniques for game assets and characters, Optimization strategies for real-time

rendering.

High and Low-Poly Modelling: Creating high-poly models for detailed sculpting, Techniques for creating efficient low-poly models for real-time performance, Baking normal maps and other texture maps from high to low-poly models.

Props and Environment Modelling : Techniques for creating props and environmental assets, Building modular assets for efficient level design, Integrating props and environments into game engines.

Semester VI Elective I Modelling & Texturing

BSCCMS4: Advance Texturing and Substance Painter

Overview of the texturing pipeline in game development: Understanding the role of Substance Painter in the texturing workflow, Introduction to PBR (Physically Based Rendering) materials and workflows

Substance Painter Interface and Navigation: Familiarization with the Substance Painter user interface, Navigation and basic controls for efficient texturing.

Material Creation and Customization: Creating custom materials using Substance Painter's material library, Exploring material channels and their functions, Modifying and customizing existing materials for specific assets.

Texture Projection Techniques: Understanding texture projection methods, such as tri-planar and UV projection, Using projection techniques for efficient and accurate texturing, Texture projection for organic and hard-surface assets.

Smart Materials and Procedural Texturing: Utilizing Substance Painter's Smart Materials for efficient texturing, Creating custom Smart Materials for reusable texturing workflows, Exploring procedural texturing techniques for complex surfaces.

Texture Painting and Brush Techniques: Understanding brush types and settings in Substance Painter, Painting base colours, details, and weathering effects, Utilizing masks and generators for precise texture application.

Working with Texture Maps and Baking: Importing texture maps into Substance Painter, Baking texture maps from high-poly to low-poly models, Understanding and utilizing texture maps like normal, ambient occlusion, and curvature.

Advanced Material Effects: Creating realistic material effects such as scratches, rust, and wear, Working with height maps and displacement for surface details, Incorporating subsurface scattering and translucency for organic materials.

Texture Export and Integration: Exporting textures from Substance Painter for use in game engines, Optimizing textures for real-time performance, Texture map organization and naming conventions.

Project Portfolio and Presentation: Creating a portfolio of textured assets, Showcasing work in a professional manner, Preparing and presenting final textured assets.

Semester VI Elective I Modelling & Texturing

BSCCMS5 : Z brush for Modelling & Texturing

Advanced Sculpting Techniques: Review of basic sculpting techniques, Advanced brush settings and customization, Mastering the use of alphas and stencils, Sculpting complex organic forms, Sculpting realistic faces and expressions

Retopology and High-Resolution Sculpting: Understanding the importance of clean topology, ZRemesher and ZSpheres for retopology, High-resolution sculpting on a low-poly base, Creating efficient edge flow for animation, Character rigging considerations.

Detailing and Anatomy: In-depth study of human and creature anatomy, Adding micro details like pores and

wrinkles, Sculpting clothing and drapery, Working with multiple subdivision levels, Sculpting realistic creatures or characters.
Advanced UV Mapping and Texturing: UV unwrapping for complex models, Multiple UV sets and UDIMs, Polypaint vs. UV-based texturing, Baking maps (Normal, Ambient Occlusion, etc.), Creating custom textures in external software.
Advanced Texture Painting: Hand-painting textures for stylized characters, PBR texturing workflow Substance Painter integration, Texture maps optimization and organization, Using layers and masks for intricate textures,
Fibermesh and Hair Creation: Introduction to Fibermesh for hair and fur, Sculpting and styling hair Using FiberMesh for creating facial hair and eyebrows, Exporting hair for rendering in external software, Hair texturing and shader setup.
Hard Surface Modelling : Transition to hard surface Modelling in ZBrush, ZModeler and QMesh tools Creating robots, vehicles, and props, Advanced detailing on hard surface models, Combining organic and hard surface elements,
Advanced Rendering and Presentation: Advanced rendering settings in ZBrush, Using BPR (Best Preview Render) for high-quality output, Post-processing in external software (e.g., Photoshop), Creating environment scenes for presentation, Preparing a professional portfolio
Specialized Techniques: 3D Printing and ZBrush, ZBrush for Game Art: Optimization and Export Character Design and Concept Sculpting, ZBrush for Illustration and 2D/3D Integration, Character rigging and posing in ZBrush.

Semester VI Elective II Lightning & Rendering
BSCCMS6 : Advance Shading

Fundamentals Review: Brief review of basic shading concepts, such as diffuse, specular, and ambient reflection, Recap of UV mapping and texture coordinates.
Advanced Shading Techniques: Physically-Based Rendering (PBR): Introduction to PBR principles and workflows, including metallic, roughness, and normal maps. Explanation of how PBR improves realism and consistency, Subsurface Scattering (SSS): Understanding the behavior of light within translucent materials like skin, wax, or marble. Techniques for simulating SSS using shaders, Anisotropic Shading: Exploring materials with directional characteristics, such as brushed metal or hair. How to achieve anisotropic reflections.
Procedural Texturing: Noise and Patterns: Using procedural noise functions to generate textures for various materials, such as wood grain, marble, and clouds. Fractals and Procedural Variation: Techniques for generating complex and natural variations in textures using fractals and procedural algorithms.
Material Layering and Blending: Material Blending: How to blend multiple textures and materials to create complex surfaces. Covering techniques like alpha blending, layer masks, and weight maps, Decals and Overlays: Adding decals, logos, and other details to textures without modifying the underlying base materials.
Advanced Mapping Techniques: Normal Mapping: Creating fine surface details without adding geometry by using normal maps, Displacement Mapping: Simulating geometry deformation at render time using displacement maps, Parallax Mapping: Enhancing the illusion of depth using parallax mapping techniques.
Specialized Materials: Transparency and Glass: Achieving realistic transparent materials like glass, water, and ice. Exploring refraction and Fresnel effects, Fur and Hair: Techniques for simulating fur, hair, and other fibrous materials using advanced shaders.
Real-Time and Game Development Considerations: Optimization: Balancing visual quality with performance considerations for real-time rendering, Texture Compression: Understanding different texture compression techniques and their impact on quality and performance, Shader Complexity: Managing shader complexity and optimizing shaders for various platforms.
Industry Practices and Case Studies: Analyzing and deconstructing shaders and textures from industry-standard software, animated films, and games, Guest lectures or workshops by professionals from the animation and game development industries.

Semester VI Elective II Lightning & Rendering

BSCCMS7 : Creating Material & PBR

Review of Materials and PBR Basics: Recap of fundamental material properties and PBR principles, Advanced understanding of the energy conservation principle in PBR
Advanced Texture Mapping Techniques: Triplanar mapping for seamless texture blending, Texture atlases and mega-textures for optimized rendering, UV packing techniques for efficient use of texture space.
Advanced Normal Mapping Techniques: Implementing micro-detail normal maps for intricate surface details, Normal map baking from high-poly to low-poly models, Hybrid normal mapping methods for improved realism.
Advanced Roughness and Microfacet Modelling : Analyzing the microfacet model for roughness interpretation, Microsurface detail manipulation for artistic control, Fine-tuning roughness maps for varying materials.
Advanced Material Layering and Blending: Nested material layers for complex surface appearances, Weighted and procedural material blending for intricate results, Implementing detail masks for dynamic material customization.
Advanced Translucency and Subsurface Scattering: Analyzing real-world translucency and subsurface scattering behaviour, Implementing advanced SSS techniques for realistic skin, wax, and more, Simulating light diffusion and colour scattering in translucent materials
Advanced Shader Optimization and Real-time Techniques: Shader compilation and execution optimization strategies, Implementing LOD (Level of Detail) techniques for varying distances, Real-time PBR considerations for game engines and interactive experiences

Semester VI Elective II Lightning & Rendering
BSCCMS8 : Advance Camera Setup

Review of Basic Camera Principles
Recap of fundamental camera concepts: field of view, focal length, depth of field
Basics of camera placement and framing in 3D scenes
Introduction to camera rigs and controllers
Advanced Camera Composition
Advanced composition rules: the rule of thirds, leading lines, symmetry, etc.
Exploring advanced composition techniques for emotional impact
Using camera composition to guide viewer attention and storytelling
Advanced Camera Movement Techniques
Introduction to camera rigs and gimbals for realistic camera movement
Advanced camera movement dynamics: tracking, dolly shots, crane shots
Crafting dynamic and fluid camera movements for different emotions
Advanced Cinematic Techniques
Introduction to cinematic language: shots, angles, and editing principles
In-depth exploration of shot types: establishing, wide, medium, close-up, etc.
Storytelling through camera: framing choices, revealing information, visual metaphors
Advanced Camera Effects
Depth of field manipulation for cinematic focus control
Motion blur and time-based effects for dynamic realism
Special effects through camera manipulation: shaky cam, slow motion, etc.
Advanced Lighting and Camera Interaction
Understanding how camera settings affect lighting in a scene
Collaborative lighting and camera setup for visual harmony
Creating mood and atmosphere through lighting-camera interaction

Advanced Camera Animation and Rigging

Rigging camera systems for complex shots: multi-axis movements, complex paths

Animating camera movements and timing for dramatic impact

Achieving parallax and 3D depth through camera animation

Semester VI Elective II Lightning & Rendering

BSCCMS9 : Rendering & Composition

Review of Rendering Fundamentals: Recap of rendering basics: ray tracing, global illumination, render passes, Introduction to advanced rendering engines and tools

Advanced Lighting Techniques: Advanced lighting models: area lights, volumetric lighting, HDRI lighting, Analyzing lighting scenarios for different moods and visual effects.

Physically Based Rendering (PBR) in Detail: In-depth exploration of PBR principles and workflows, Creating and managing PBR materials for realism and consistency.

Advanced Render Settings and Optimization: Fine-tuning render settings for quality and efficiency, Render optimization techniques: adaptive sampling, denoising, GPU rendering.

Advanced Shader Creation: Node-based shader creation for complex materials, Shader networks for intricate surface effects: anisotropy, layered materials.

Advanced Effects and Rendering for Animation: Particle systems and dynamic effects in rendering, Motion blur, depth of field, and motion vector pass for animated scenes

Advanced Compositing Techniques: Advanced compositing principles and techniques, Matte painting and environment integration in post-production.

Semester VI Elective II Lightning & Rendering

BSCCMS10: V-ray & Arnold Lighting & Rendering

Introduction to V-Ray: Overview of V-Ray and its features, Understanding the rendering pipeline, Setting up V-Ray in your 3D software

Basic Lighting Techniques: Types of lights in V-Ray: point, directional, spot, area lights, Light properties: intensity, colour, falloff, Creating realistic lighting setups

Advanced Lighting Techniques: Global Illumination (GI) in V-Ray: Brute Force and Irradiance Map, HDRI lighting for realistic environment lighting, Creating studio lighting setups.

Materials and Textures: Material creation in V-Ray: diffuse, reflection, refraction, Using V-Ray Material Editor efficiently, Applying textures and maps for realistic surfaces.

V-Ray Render Settings and Optimization: Sampling settings: adaptive DMC, image sampler, V-Ray Frame Buffer and post-processing options.

Render elements and passes for advanced compositing: Advanced Rendering Techniques, Depth of field and motion blur.

Distributed rendering and network setup: Using V-Ray Fur for realistic hair and fur, Scene Integration and Final Projects.

Importing scenes from 3D software to V-Ray: Advanced scene setup for architectural visualization and product rendering, Student-led projects with guidance and critiques.

Arnold Lighting and Rendering: Introduction to Arnold Renderer, Overview of Arnold Renderer and its capabilities, Setting up Arnold in your 3D software, Understanding the Arnold rendering workflow

Basic Lighting Techniques: Arnold light types: point, distant, spot, area, skydome lights, Using light filters and area lights for realistic soft shadows, Achieving proper light exposure and intensity.

Global Illumination and Ray Tracing: Ray tracing and GI in Arnold, Importance of physical light units in Arnold, Creating realistic interiors with proper light bounces.

Materials and Shaders in Arnold: Standard Surface Shader for realistic materials, Node-based material creation in Arnold, Displacement mapping for adding fine details.

Arnold Render Settings and Optimization: Adaptive sampling for noise reduction, AOVs (Arbitrary Output Variables) for advanced compositing, Render options and quality settings.

Advanced Rendering Techniques: Volume rendering for smoke, fog, and atmospheric effects, Motion blur and camera effects, Procedural textures for realistic surfaces.
Scene Integration and Final Projects: Importing scenes from 3D software to Arnold, Advanced scene setup for character rendering and visual effects, Student-led projects with guidance and critiques.

Semester VI Elective III Rigging & Animation
BSCCMS11 & BSCCMS12 : Rigging Biped and Quadruped (2 Subjects)

Review of Basic Rigging Concepts: Recap of basic joint and IK/FK rigging techniques, Overview of character anatomy and joint placement for biped and quadruped models.
Advanced Joint and IK/FK Setup: Creating advanced joint hierarchies for complex characters, IK/FK blending techniques for seamless character posing and animation.
Advanced Deformation Rigging: Stretchy limbs and squash-and-stretch setups, Advanced spine and neck rigs with curvature and secondary motion.
Facial Rigging for Biped and Quadruped: Advanced facial rigging techniques using blendshapes, joints, and controllers, Lip-sync setup and advanced phoneme controls for expressive character animation.
Advanced Foot and Hand Rigging: Creating foot roll setups and advanced foot control systems, Hand rigging with finger curl controls and dynamic hand poses
Rigging for Quadrupeds: Quadruped anatomy and rigging considerations, Quadruped limb IK/FK setups and spine rigging.
Advanced Rigging Problem-Solving: Tackling complex rigging challenges and deformation issues, Custom control shapes and UI design for user-friendly rigs.

Semester VI Elective III Rigging & Animation
BSCCMS13 & BSCCMS14 : Animation Character Animation (I & II)

Review of Animation Fundamentals: Recap of animation principles: squash and stretch, anticipation, timing, and more, Advanced understanding of timing and spacing for nuanced animations
Advanced Character Acting: Analyzing and recreating complex emotional expressions and body language, Subtext and subtle acting: conveying internal thoughts and emotions
Advanced Pose and Gesture: Exploring strong silhouettes and dynamic poses, Gesture drawing techniques for capturing movement and energy.
Advanced Walk and Run Cycles: Mastering walk and run cycles for diverse characters and personalities, Adding weight, personality, and variations to basic locomotion.
Advanced Lip Sync and Dialogue: Fine-tuning lip sync accuracy and mouth shapes, Lip sync challenges in complex dialogue and emotional scenes.
Advanced Body Mechanics: Dynamic physical actions: jumps, falls, flips, and spins, Realistic weight shifts and secondary motion in dynamic movements
Specialized Animation Styles: Exploring different animation styles: realistic, cartoony, abstract, etc., Applying advanced techniques to match style requirements

Semester VI Elective III Rigging & Animation
BSCCMS15 : Skinning & Facial Expression

Review of Character Rigging Basics: Recap of basic rigging principles: joint hierarchy, IK/FK, controllers, Understanding the importance of a well-rigged character for successful skinning.
Advanced Joint and Skin Binding Techniques: Advanced joint placement for better deformation, Joint orientation for smoother and more natural skinning

Advanced Skin Deformation: Skinning techniques: weight painting, influence objects, and clusters, Corrective blend shapes and joint-driven deformations

Advanced Facial Rigging Basics: Anatomy of facial muscles and expressions, Building a versatile facial rig with controls for expressions.

Advanced Facial Animation Principles: Analyzing reference videos and capturing facial expressions, Advanced lip sync and phoneme controls for expressive dialogue.

Facial Rigging for Emotional Expressions: Creating a range of facial expressions: joy, anger, sadness, surprise, etc., Subtle micro-expressions and the psychology of emotion

Semester VI Elective IV Visual Effects

BSCCMS16 : Advance Rotoscopy

Review of Rotoscoping Fundamentals: Recap of basic rotoscoping principles and techniques, Introduction to advanced rotoscoping tools and software.

Advanced Rotoscoping Workflow: Advanced planning and shot breakdown for efficient rotoscoping, Multi-layer rotoscoping: handling complex scenes with multiple elements.

Advanced Shape Creation: Bezier curves and advanced masking techniques, Fine-tuning mask shapes for accurate object isolation.

Advanced Tracking and Stabilization: Tracking tools for attaching elements to moving objects, Stabilization techniques for steady rotoscoping on shaky footage

Advanced Detail Refinement: Achieving smooth edge detail with feathering and anti-aliasing, Fine-tuning transparency and opacity for seamless integration.

Advanced Object Interaction: Rotoscoping for objects interacting with live-action elements, Advanced techniques for rotoscoping elements behind complex foreground objects.

Advanced Motion Blur and Deformation: Handling motion blur in rotoscoping, Rotoscoping elements with complex deformations and perspective changes.

Semester VI Elective IV Visual Effects

BSCCMS17 : Advance Compositing

Review of Compositing Fundamentals: Recap of basic compositing principles: layers, blending modes, masks, Introduction to advanced compositing software and workflows.

Advanced Layering and Blending Techniques: Advanced layer organization and grouping, Complex blending modes and blending techniques for realistic integration.

Advanced Colour Correction and Grading: Advanced colour correction using curves, levels, and colour wheels, Creative colour grading for enhancing mood and visual appeal.

Advanced Matte Extraction and Keying: Advanced chroma keying and luma keying techniques, Fine-tuning matte extraction with despill and spill suppression.

Advanced Tracking and Stabilization: Planar tracking and advanced tracking techniques, Stabilization and match moving for seamless integration of elements.

Advanced Rotoscoping Integration: Integrating rotoscoped elements into complex scenes, Advanced techniques for seamless interaction between live-action and animated elements

Advanced Visual Effects Integration: Integration of CG elements into live-action footage, Creating realistic particle effects, fire, smoke, and explosions.

Semester VI Elective IV Visual Effects

BSCCMS1 8: Advance 3D Special Effects

Review of Special Effects Basics: Recap of basic special effects principles: particle systems, simulations, shaders, Introduction to advanced special effects software and workflows,

Advanced Particle Systems: Advanced particle emission and behavior controls, Using forces and fields for complex particle interactions.

Advanced Fluid and Smoke Simulations: Fluid simulations for realistic liquids and gaseous effects, Smoke, fire, and explosion simulations with advanced control parameters.

Advanced Cloth and Soft Body Simulations: Cloth simulations for realistic fabric and dynamic surfaces, Soft body simulations for deformable and squishy objects.

Advanced Physics-based Simulations: Rigid body dynamics for realistic object interactions and collisions, Simulating complex scenarios like destruction and fracturing.

Advanced Lighting and Shading for Effects: Shading techniques for realistic rendering of special effects, Advanced lighting setups to enhance the visual impact of effects.

Advanced Visual Effects Integration: Integrating special effects into live-action footage, Advanced techniques for seamless interaction between live-action and 3D effects.

Semester VI Elective IV Visual Effects

BSCCMS19 : Advance Camera Tracking & Match Moving

Review of Camera Tracking Fundamentals: Recap of basic camera tracking principles: tracking points, solving camera motion, Introduction to advanced camera tracking software and workflows.

Advanced Tracking Point Selection: Advanced point selection techniques for challenging footage, Handling reflective and difficult-to-track surfaces.

Advanced Camera Solving Techniques: Refining camera motion solving for accurate tracking, Handling complex camera movements and lens distortions.

Advanced Object Tracking: Tracking objects and integrating CG elements with live-action, Advanced object tracking for interactive and dynamic scenes.

Advanced Motion Capture Integration: Integrating motion capture data with live-action footage, Fine-tuning motion capture data for realism and accuracy.

Advanced Match Moving Workflow: Matching CG elements with live-action lighting and perspective, Advanced techniques for achieving seamless integration.

Advanced Camera Calibration: Camera calibration techniques for accurate camera matching, Stereo camera tracking for 3D integration and depth.

Semester VI Elective IV Visual Effects

BSCCMS20 : Clean Plate & Paint

Review of Clean Plate and Digital Painting Basics: Recap of basic clean plate principles: removing unwanted elements, Introduction to advanced digital painting software and workflows.

Advanced Clean Plate Techniques: Creating clean plates for challenging scenarios: moving objects, camera motion, Advanced techniques for fixing continuity and perspective issues.

Advanced Object Removal: Removing objects from live-action footage and replacing with CG elements, Seamless integration of CG objects with practical elements.

Advanced Rig and Wire Removal: Rig and wire removal techniques for animated characters and objects, Advanced techniques for handling complex scenes with multiple elements.

Advanced Matte Painting Integration: Integrating matte paintings with live-action footage, Advanced techniques for matching lighting, perspective, and depth

Advanced Texture and Detail Painting: Adding texture and fine details to 3D models and backgrounds, Advanced techniques for creating realistic surfaces and environments.

Advanced Visual Enhancement Painting: Enhancing visual elements using digital painting: adding

highlights, shadows, etc., Advanced techniques for visual storytelling through painting.

Semester VII Elective I
BSCCMS21: Advance 2D Animation

Character Design and Development: Anatomy basics for character design, Developing character personalities and traits, Creating character turnaround sheets, Exploring different art styles for characters

Storyboarding and Scene Composition: Fundamentals of storyboarding, Blocking out scenes and camera angles, Creating animatics as a blueprint for animation, Understanding the importance of pacing and rhythm in storytelling.

Animation Techniques: Keyframe animation vs. frame-by-frame animation, Animating different types of motion: walk cycles, run cycles, facial expressions, etc. Easing and interpolation for smooth motion, Creating secondary motion for more lifelike animations

Digital Painting and Colouring: Introduction to digital painting tools and techniques, Colour theory and its application in animation, Adding texture and highlights to characters and scenes, Using layers effectively for colouring and shading

Inking and Line Art: Understanding the importance of clean line work, Techniques for inking digitally, Applying line weights for depth and emphasis, Combining line art with painted backgrounds

Special Effects and Finishing Touches: Adding visual effects such as smoke, fire, and water, Incorporating lighting and shadows, Finalizing scenes with background details, Reviewing and refining animations based on feedback.

Sound and Post-Production: Importance of sound in animation, Syncing audio with animation, Adding sound effects and music tracks, Exporting and formatting animations for different platforms

Semester VII Elective I
BSCCMS22: Advance 3D Animation

Advanced 3D Animation Principles: Reviewing fundamental animation principles in the context of 3D, Understanding the principles of weight, anticipation, and overlapping action, Exploring advanced timing and spacing for more complex animations, Incorporating secondary motion and squash-and-stretch techniques

Character Rigging and Skinning: In-depth study of character rigging techniques, Creating custom rigs for different character types, Exploring inverse and forward kinematics, Understanding skinning and weight painting for realistic deformations.

Dynamics and Simulations: Introduction to physics-based simulations in 3D animation, Creating realistic cloth, hair, and fur simulations, Implementing rigid body dynamics for object interactions, Simulating complex particle systems for special effects.

Advanced Lighting and Rendering: Mastering lighting setups for various scenarios: outdoor, indoor, night scenes, etc. Implementing Global Illumination and ray tracing techniques, Exploring advanced rendering engines (Arnold, V-Ray, RenderMan), Optimizing rendering settings for high-quality output

Visual Effects and Motion Graphics: Creating advanced visual effects: explosions, smoke, fire, and more, Integrating 3D animation with live-action footage, Exploring motion graphics techniques for titles and branding, Using particle systems to create dynamic and intricate visual effects

Character Animation in Depth: Animating complex characters with multiple limbs and joints, Mastering facial animation: lipsync, expressions, and emotive gestures, Implementing advanced posing and staging techniques, Creating convincing interactions between characters

Advanced Cinematography and Camera Techniques: Utilizing cinematic camera techniques to enhance storytelling, Implementing camera movement: dollies, cranes, handheld shots, Using camera angles and focal lengths for visual impact, Creating dynamic camera transitions for seamless scene changes

Project: Short Film Production: Collaborative production of a short 3D animated film, Students take on specialized roles: animator, rigger, modeler, etc., Applying all learned techniques to create a cohesive and

polished project, Emphasis on teamwork, time management, and problem-solving

Semester VII Elective I
BSCCM23: Game Design

Advanced Game Mechanics and Systems: Designing complex gameplay mechanics and systems, Exploring emergent gameplay through interactions between mechanics, Balancing and tuning game mechanics for optimal player experience, Integrating player feedback to refine mechanics

Advanced Level Design: Designing non-linear and open-world levels, Crafting levels for exploration, puzzle-solving, and combat, Implementing verticality and multi-layered environments, Integrating narrative elements into level design

Narrative Design and Storytelling: Advanced techniques for creating engaging narratives in games

Non-linear storytelling: branching narratives and player choices, Crafting deep and meaningful characters and character arcs, Integrating story with gameplay mechanics

Player Psychology and Engagement: Understanding player motivations and player types, Implementing psychological principles for player engagement, Designing for player emotions: excitement, tension, satisfaction, Creating feedback loops and rewards to drive player progress

Game Analytics and User Testing: Utilizing analytics to measure player behavior and engagement,

Conducting playtesting sessions to gather valuable feedback, Iterative design based on playtest results and analytics, Balancing data-driven design with creative intuition

Monetization and Game Economics: In-depth exploration of monetization models: free-to-play, premium, etc., Implementing microtransactions and virtual economies, Ethical considerations in game monetization, Balancing player experience with revenue generation

Serious Games and Gamification: Designing games for educational and training purposes, Applying game design principles to non-game contexts (gamification), Addressing ethical considerations in serious game design, Measuring learning outcomes and effectiveness

Project: Advanced Game Design: Collaborative development of an advanced game concept, Students take on specialized roles: designer, writer, artist, etc., Applying advanced design principles to create a polished game prototype, Emphasis on teamwork, iteration, and design documentation

Industry Trends and Emerging Technologies: Exploring current trends in the game industry, Guest lectures from industry professionals and experts, Navigating the impact of emerging technologies (VR, AR, AI, etc.), Opportunities and challenges in the evolving game landscape

Semester VII Elective II
BSCCMS25: Advance Rotoscopy and Paint

Advanced Rotoscoping Techniques: Review of basic rotoscoping principles and tools, Mastering advanced techniques for intricate object extraction, Working with motion blur, depth of field, and challenging background elements, Implementing rotoscoping for complex camera movements

Matte Painting Integration: Introduction to matte painting and its role in visual effects, Creating seamless integration between live-action and painted elements, Advanced colour correction and lighting adjustments for realistic blending, Applying parallax and 3D projection techniques for dynamic scenes

Advanced Digital Painting Techniques : Pushing the boundaries of digital painting with advanced brushes and tools, Creating hyper-realistic textures for characters, environments, and objects, Exploring techniques for fine detail work and micro texturing, Integrating digital painting with 3D assets and renders

Complex Rotoscoping Scenarios: Rotoscoping for characters with complex clothing and hair, Handling challenging situations like reflections and transparent objects, Implementing rotoscopy in fast-paced action sequences, Efficiently rotoscoping multi-layered scenes

Visual Effects and Compositing: Integrating rotoscoped and painted elements into live-action footage, Applying particle systems, dynamics, and simulations for added realism, Exploring camera tracking and

matchmoving for accurate integration, Adding visual effects like fire, smoke, and explosions to scenes

Project: Advanced Rotoscoping and Painting: Collaborative project: students take on specialized roles like rotoscoper or painter, Applying advanced techniques to a complex scene, Emphasis on seamless integration, attention to detail, and artistic vision, Iterative workflow based on feedback and critique

Semester VII Elective II

BSCCMS26: Advance Compositing

Advanced Compositing Principles: Review of fundamental compositing concepts, Understanding colour spaces and gamma correction, Advanced blending modes and channel operations, Techniques for achieving realistic lighting and shadows.

Green Screen and Keying Techniques: Mastering advanced green screen keying and spill suppression, Handling challenging keying scenarios, like fine hair and translucent materials, Refining edges and achieving realistic integration, Compositing characters and objects onto new backgrounds.

3D Integration and CG Compositing: Integrating CG elements seamlessly with live-action footage, Matching lighting, shadows, and perspective for a cohesive look, Implementing techniques for motion blur and depth of field, Compositing multi-pass renders for full control over individual elements.

Advanced Matte Painting Integration: Integrating complex matte paintings into live-action scenes, Applying parallax and camera projection techniques for depth, Creating dynamic environments with realistic lighting and atmosphere, Seamless blending of digital and real-world elements.

Particle Systems and Effects Integration: Compositing particle effects, such as smoke, fire, and explosions, Applying motion blur and depth-based effects for realism, Integrating simulations and dynamics with live-action footage, Achieving convincing interaction between elements and effects

Advanced Colour Correction and Grading: Mastering colour correction and grading for cohesive visuals, Applying advanced colour correction techniques for different lighting conditions, Colour matching and continuity across shots and scenes, Enhancing storytelling through colour grading choices

Stereoscopic 3D Compositing: Understanding the principles of stereoscopic 3D compositing, Integrating left-eye and right-eye images for realistic depth perception, Addressing challenges like parallax and convergence adjustments, Creating comfortable and visually pleasing 3D viewing experiences

Semester VII Elective II

BSCCMS27: Advance 3D Fx

Advanced Particle Systems and Dynamics: In-depth study of particle systems for effects like smoke, fire, and fluid simulations, Advanced control over particle behavior, emitter properties, and collisions, Creating realistic physical simulations for explosions, debris, and environmental effects, Combining particle systems with dynamic simulations for complex interactions

Advanced Destruction and Deformation Effects: Mastering techniques for simulating destruction: crumbling buildings, collapsing structures, Applying advanced deformation methods for realistic impact and stress, Integrating simulations with character or object animations, Achieving dynamic destruction effects through procedural workflows

Cloth and Hair Simulation: Creating realistic cloth simulations for garments and fabrics, Advanced hair and fur grooming and simulation techniques, Combining cloth and hair simulations with character animation, Integrating dynamics into storytelling to enhance character movement and interactions

Advanced Lighting and Rendering for VFX: Exploring advanced lighting setups for VFX shots, Using advanced shaders and materials for realistic surfaces, Optimizing rendering settings for complex scenes and effects, Applying compositing techniques to integrate rendered VFX elements.

Advanced Compositing for VFX Integration: Mastering advanced techniques to seamlessly integrate VFX elements with live-action footage, Applying motion blur, depth of field, and lens effects for realism, Compositing complex VFX elements such as fire, smoke, and destruction, Integrating VFX with matte paintings, set extensions, and CG environments.

Advanced Fluid Dynamics and Simulations: Exploring advanced fluid simulations for water, liquids, and gases, Implementing complex interactions between fluids and other elements, Combining fluid simulations with other VFX elements for dynamic scenes, Achieving realistic fluid behavior and visual fidelity

Advanced Visual Effects Production Workflow: In-depth understanding of the VFX production pipeline and industry practices, Collaborative teamwork and communication across departments, Guest lectures from industry professionals sharing insights and experiences, Navigating challenges and tight deadlines in VFX production.

Semester VII Elective III

BSCCMS29: Advance Graphics for Print

Advanced Typography for Print: Exploring advanced typographic principles and creative typography techniques, Mastering hierarchy and readability in complex layouts, Combining typefaces effectively and creating custom type treatments, Pushing the boundaries of expressive and experimental typography

Complex Layout Design: Designing intricate layouts for magazines, brochures, and editorial projects, Exploring multi-page spreads and creating visual narratives, Balancing text and imagery within complex layouts, Integrating hierarchy, white space, and grid systems effectively,

Advanced Colour Theory and Application: Mastering colour harmonies and advanced colour combinations, Exploring colour psychology for impactful print designs, Implementing colour separation techniques for spot and process colours, Designing for different colour printing methods and substrates.

Packaging Design and 3D Visualization: Creating visually engaging packaging designs for various products, Applying advanced techniques for dielines and structural design, Utilizing 3D visualization tools to mock up packaging designs realistically, Exploring material textures, lighting, and shadows for compelling presentations.

Print Production Techniques: In-depth understanding of print production processes and technologies, Preparing files for offset, digital, and specialty printing, Applying advanced colour management and proofing techniques, Integrating specialty printing effects such as foiling, embossing, and spot varnish.

Advanced Illustration Integration: Integrating intricate illustrations into print designs, Applying advanced techniques in vector illustration software, Designing custom icons, patterns, and illustrations, Balancing illustrations with typography and imagery in complex layouts.

Photography in Print Design: Selecting and editing high-quality images for print projects, Advanced retouching and colour correction techniques, Integrating photography seamlessly into layout designs, Enhancing storytelling through the use of impactful imagery

Project: Advanced Print Design Campaign: Collaborative project: students take on specialized roles like layout designer, packaging designer, etc., Applying advanced techniques to create a cohesive print design campaign, Emphasis on branding consistency, attention to detail, and creative execution, Iterative workflow based on feedback and critique.

Semester VII Elective III

BSCCMS30: Advance Motion Graphics

Advanced Animation Principles: Review of fundamental animation principles in the context of motion graphics, Mastering advanced timing, easing, and motion dynamics, Exploring advanced keyframe animation techniques. Applying principles of anticipation, follow-through, and overlapping action

Advanced 2D and 3D Animation Integration: Integrating 2D and 3D elements seamlessly in motion

graphics, Applying advanced techniques for camera animation and depth, Creating complex animations with multi-layered compositions, Achieving realistic lighting and shading in 3D motion graphics

Advanced Visual Effects and Compositing: Incorporating visual effects into motion graphics projects, Mastering advanced particle systems, simulations, and dynamics, Integrating live-action footage and 3D renders with motion graphics, Applying advanced compositing techniques for seamless integration.

Advanced Typography and Kinetic Text Animation: Exploring advanced techniques for kinetic typography, Integrating text with motion, timing, and dynamic animations, Applying advanced typographic principles for impactful designs, Creating complex text animations with depth and visual interest.

Advanced Expressive Motion Graphics: Pushing the boundaries of creative expression in motion graphics, Applying advanced experimental techniques and styles, Crafting animations that evoke emotions and tell stories, Exploring abstraction, surrealism, and other artistic concepts

Interactive and UI Motion Graphics: Designing motion graphics for user interfaces (UI) and interactive experiences, Exploring principles of usability, feedback, and visual hierarchy, Applying advanced techniques for responsive motion design, Creating seamless transitions and animations for digital platforms

Semester VII Elective III

BSCCMS31: Advance Web Design & UI/UX

Advanced User Experience Design (UX): In-depth exploration of advanced UX research methodologies, Applying advanced user personas and journey mapping techniques, Conducting advanced usability testing and user feedback analysis, Integrating data-driven insights into design decisions.

Advanced User Interface Design (UI): Pushing the boundaries of visual design for web interfaces, Advanced techniques for creating visually appealing layouts and components, Applying advanced typography, colour theory, and branding consistency, Exploring micro-interactions and animation in UI design

Advanced Interaction Design: Mastering advanced interactive design techniques, Creating complex navigation systems and user flows, Implementing advanced touch and gesture interactions for mobile, Designing for non-traditional interfaces such as voice and AI.

Advanced Responsive and Mobile Design: Designing responsive websites that adapt to various screen sizes, Mastering advanced techniques for mobile-first design, Applying advanced methods for responsive typography and layout, Integrating advanced media queries and viewport-based interactions.

Advanced Prototyping and Testing: Exploring advanced prototyping tools and techniques, Creating interactive prototypes for user testing and stakeholder feedback, Applying advanced user testing methodologies for real-world insights, Iterative design based on advanced prototyping feedback,

Accessibility and Inclusive Design: Mastering advanced accessibility guidelines and best practices, Designing for users with disabilities and diverse needs, Applying advanced techniques for inclusive design and equal access, and Integrating advanced assistive technologies into web interfaces.

Advanced UI/UX Portfolio Development: Compiling an advanced portfolio showcasing diverse web design projects, Highlighting specialization in specific industries or design challenges, Creating case studies that showcase advanced problem-solving and design thinking, Building a compelling online portfolio and presentation.

Industry Trends and Emerging Technologies: Exploring current trends and innovations in web design UI/UX, Guest lectures from industry professionals sharing insights and experiences, Navigating the impact of emerging technologies (AR, VR, AI) on web design, Opportunities and challenges in the evolving web design landscape.

Freelancing and Client Management Strategies: Strategies for freelancing in the web design UI/UX field, Navigating client relationships and expectations, Building effective communication and project management skills, Pricing, contracts, and negotiation strategies for freelancers

Semester VIII

BSCCMS33: Production Management

Introduction to Animation and VFX Production Management: Understanding the unique challenges and requirements of Animation and VFX production, Overview of key responsibilities and skills required for managing Animation and VFX projects, Introduction to the training structure and objectives.

Time Management and Planning for Animation and VFX: Adapting time management techniques for Animation and VFX projects, Creating production schedules that account for rendering, simulations, and complex animation workflows, Techniques for managing unpredictable timelines and iterative processes, Handling unexpected delays and managing project risks specific to Animation and VFX

Problem-Solving and Decision Making in Animation and VFX: Analyzing problems unique to Animation and VFX production, Implementing problem-solving methodologies that consider technical challenges, Making informed decisions in a dynamic and rapidly evolving field, Case studies and simulations tailored to Animation and VFX sc**enarios.**

Leadership and Team Management in Animation and VFX: Applying leadership principles to manage Animation and VFX teams, Building cross-functional teams that include animators, modelers, compositors, and more, Addressing technical skill gaps and fostering collaboration among diverse specialists, Communication strategies tailored for Animation and VFX projects.

Financial Management for Animation and VFX Productions: Budgeting and cost estimation for Animation and VFX projects, considering software licenses, rendering costs, etc., Tracking expenses and managing budgets for resource-intensive processes, Calculating and managing production costs associated with rendering and simulations, Financial reporting and analysis specific to Animation and VFX decision-making

Project Management and Coordination in Animation and VFX: Applying project management methodologies to Animation and VFX projects, Managing complex production pipelines involving previs, animation, rendering, and compositing, Coordinating various departments involved in Animation and VFX production, Monitoring progress and maintaining creative continuity throughout the pipeline.

Animation and VFX Logistics and Resource Allocation: Procurement and allocation of resources specific to Animation and VFX projects, Managing hardware and software resources, licenses, and render farms, Strategies for optimizing resource utilization and minimizing rendering bottlenecks

Risk Management and Contingency Planning for Animation and VFX: Identifying and managing risks unique to Animation and VFX processes, Developing risk mitigation strategies considering technical challenges, Creating contingency plans for unexpected technical issues and project setbacks, Balancing innovation and risk in Animation and VFX projects.

Quality Assurance and Process Improvement in Animation and VFX: Implementing quality control measures tailored for Animation and VFX, Applying process improvement methodologies to complex Animation and VFX pipelines, Monitoring and measuring KPIs related to Animation and VFX production, Case studies highlighting successful quality assurance strategies in Animation and VFX

Sustainability and Ethical Considerations in Animation and VFX: Integrating sustainability practices into Animation and VFX production, Ethical considerations in managing technical challenges and resource-intensive processes, Balancing environmental concerns with creative and technical demands, Strategies for sustainable and ethical Animation and VFX production.

Capstone Animation and VFX Production Project and Case Studies: Collaborative capstone project applying all learned concepts to Animation and VFX production, Real-world case studies showcasing Animation and VFX production management challenges and solutions, Presentation and analysis of capstone project outcomes specific to Animation and VFX.

Industry Insights and Future Trends in Animation and VFX: Guest lectures from Animation and VFX industry experts sharing practical insights, Exploring current and future trends in Animation and VFX production, Preparing participants for the evolving landscape of Animation and VFX production management

Semester VIII

BSCCMS35: Emerging Technologies

Introduction to Advanced Emerging Technologies in AVGC: Overview of the role of emerging technologies in transforming the AVGC landscape, Understanding the synergy between open source tools and innovative tech solutions, Introduction to the course structure and objectives.

Real-Time Rendering and Game Engines: In-depth exploration of real-time rendering techniques and open-source game engines, Creating interactive environments and characters using game engines, Real-time cinematic production using advanced rendering pipelines, Hands-on exercises with popular open-source game engines.

Augmented Reality (AR) and Virtual Reality (VR) Applications: Designing immersive AR and VR experiences for AVGC applications, Integrating AR and VR into animation, VFX, and gaming pipelines, Case studies of successful AR and VR projects. Hands-on exercises using open-source AR and VR development tools.

AI and Machine Learning for AVGC: Applying AI-driven techniques for animation, VFX, and gaming, Introduction to open-source AI and ML frameworks for creative applications, Hands-on exercises using AI to enhance animations, simulations, and effects,

Blockchain and Open Source Solutions: Understanding blockchain technology and its potential in AVGC, Integrating blockchain for secure asset management and ownership, Exploring open-source blockchain platforms and tools, Hands-on exercises for creating blockchain-based AVGC projects,

Advanced Simulation and Dynamics with Open Source Tools: Mastering advanced simulation techniques using open-source software, Applying physics-based simulations for realistic animations and effects, Integrating open-source simulations with AR, VR, and gaming projects, Hands-on exercises using popular open-source simulation tools.

Open Source Content Creation Tools: Overview of open-source software for 2D and 3D content creation, Exploring open-source tools for Modelling , texturing, and animation, Hands-on workshops with open-source software for AVGC content creation,

Collaborative Project: Applying Emerging Tech and Open Source: Collaborative project where participants leverage emerging technologies and open-source tools, Applying concepts learned in the course to create innovative AVGC content, Emphasis on interdisciplinary collaboration and creativity.

Industry Trends and Future Prospects: Guest lectures from professionals highlighting the impact of emerging tech and open source on AVGC, Exploring career opportunities and trends in the evolving AVGC industry, Strategies for continuous learning and staying updated in the field.