J. C. Bose University of Science and Technology, YMCA, Faridabad, Haryana

Department of Computer Science & Applications

(Faculty of Informatics and Computing)

Scheme and Syllabus

M.Sc. Animation and Multimedia

(W.e.f. July – 2026)

(The Proposed Syllabus is approved in the 10th Meeting of BOS held on 09.06.26)

VISION

The Department of Computer Science and Applications aims to emerge as a center of excellence in computer science & applications by nurturing technically competent, innovative, and ethically responsible professionals who can design, develop, and apply computing solutions to address real-world challenges, contribute to research and entrepreneurship, and support sustainable societal and industrial growth in a rapidly evolving digital ecosystem.

MISSION

M1. To provide strong foundations in computer science and applications through a balanced curriculum that integrates theoretical knowledge, practical skills, and emerging computing technologies.

M2. To foster problem-solving, innovation, and research aptitude by encouraging project-based learning, interdisciplinary collaboration, and exposure to industry-relevant tools and practices.

M3. To develop professionally competent and ethically responsible graduates with effective communication, teamwork, and leadership skills to succeed in diverse computing roles and higher studies.

M4. To promote lifelong learning, entrepreneurship, and societal engagement by nurturing adaptability, sustainability awareness, and a commitment to continuous professional growth.

ABOUT THE PROGRAM

The Master of Science (M.Sc.) in Animation and Multimedia is designed in accordance with the principles of the National Education Policy (NEP) 2020, emphasizing multidisciplinary learning, creativity, innovation, experiential education, industry engagement, and professional skill development. The programme aims to provide students with comprehensive knowledge and advanced technical expertise in Animation, Visual Effects (VFX), Multimedia Design, Digital Content Creation, Game Design, Virtual Reality (VR), Augmented Reality (AR), Motion Graphics, User Experience Design, Artificial Intelligence (AI) for Media, and emerging digital technologies.

The curriculum is carefully structured to develop both artistic and technical competencies through an integrated combination of core courses, discipline-specific electives, laboratory-based practical courses, skill enhancement modules, industry-oriented projects, and research-based learning experiences. The programme fosters creativity, critical thinking, visual communication skills, storytelling abilities, design innovation, and problem-solving capabilities required for the rapidly evolving media and entertainment industries.

Aligned with the objectives of NEP 2020, the programme promotes flexibility through elective choices, interdisciplinary learning opportunities, project-based education, and industry collaborations. Students are encouraged to explore diverse domains including Animation Production, Visual Effects, Motion Graphics, Game Development, Virtual Production, Interactive Media, UI/UX Design, Branding and Advertising Design, Digital Filmmaking, and AI-driven Creative Media. The curriculum also supports innovation, entrepreneurship, and startup-oriented initiatives to prepare learners for emerging opportunities in the creative economy.

The programme places significant emphasis on hands-on learning through well-equipped laboratories, studio-based practices, production workshops, case studies, collaborative projects, portfolio development, internships, and experiential learning activities. Students gain practical exposure to industry-standard software, production pipelines, real-time technologies, virtual production environments, digital asset creation workflows, and advanced multimedia production techniques.

To ensure holistic development, the curriculum incorporates courses focusing on communication skills, professional ethics, environmental sustainability, Indian Knowledge Systems, entrepreneurship, innovation management, leadership, teamwork, and lifelong learning. Students are also encouraged to participate in industry interactions, seminars, workshops, hackathons, design challenges, community engagement activities, and creative competitions.

A dedicated semester is allocated for industrial internship, portfolio development, and major project work, enabling students to apply their knowledge in real-world production environments. This exposure helps bridge the gap between academic learning and professional practice while enhancing employability, creative confidence, and research aptitude.

The M.Sc. Animation and Multimedia programme develops graduates with strong artistic vision, technical proficiency, design thinking abilities, storytelling expertise, production management skills, collaborative competencies, and ethical values. The programme prepares students for successful careers in Animation, Visual Effects, Motion Graphics, Game Design, Digital Filmmaking, Virtual Production, UI/UX Design, Interactive Media, Creative Technology, Advertising, Multimedia Production, Research, Academia, Entrepreneurship, and other emerging domains of the digital creative industry.

M.Sc. Animation and Multimedia 1st Sem

eSr. No	Category	Course code	Course Title	Course Requirements (hr)				Sessional Marks/End-Term Marks		Total Marks	Credits
				L	T	P	Sessional	End Term			
1	Discipline Specific-Course	AMP-101-V1	Animation & Storytelling	4	-	0	4	40	60	100	4
2	Discipline Specific-Course	AMP-119-V1	Digital Graphics	2	1	0	3	40	60	100	3
3	Discipline Specific-Course	AMP-105-V1	Audio-Video Production Techniques	2	1	0	3	40	60	100	3
4	Discipline Specific-Elective		Elective–I	2	-	0	2	40	60	100	2
	Discipline Specific-Elective		Elective–II	2	-	0	2	40	60	100	2
5	Discipline Specific-Elective Lab		Lab Based Elective–I Lab	0	-	4	4	25	25	50	2
6	Discipline Specific-Elective Lab		Lab Based Elective–II Lab	0	-	4	4	25	25	50	2
7	Discipline Specific-Course Lab	AMP-127-V1	Digital Graphics Lab	0	-	2	2	25	25	50	1
8	Discipline Specific-Course Lab	AMP-109-V1	Audio-Video Production Techniques Lab	0	-	2	2	25	25	50	1
9	Skill Based Course	AMP-111-V1	E-Learning Content Development	0	-	4	4	25	25	50	2
				15	1	14	29	300	400	700	22

Elective-I

A. 2D Character Design (AMP-113-V1)
B. Photography & Cinematography (AMP-115-V1)

Elective-I-Lab

A. 2D Character Design Lab (AMP-121-V1)
B. Photography & Cinematography Lab (AMP-123-V1)

Elective-II

C. Storyboarding Techniques (AMP-117-V1)
D. Virtual Reality & Augmented Reality (AMP-103-V1)

Elective-II-Lab

C. Storyboarding Techniques Lab (AMP-125-V1)
D. Virtual Reality & Augmented Reality Lab (AMP-107-V1)

M.Sc. Animation and Multimedia 2nd Sem

eSr. No	Category	Course code	Course Title	Course Requirements (hr)				Sessional Marks/End-Term Marks		Total Marks	Credits
				L	T	L	Sessional	End Term			
1	Discipline Specific-Course	AMP-102-V1	Design Innovation and Entrepreneurship	4		0	4	40	60	100	4
2	Discipline Specific-Course	AMP-104-V1	Design Thinking & Creative Innovation	4		0	4	40	60	100	4
3	Discipline Specific-Course	AMP-106-V1	Game Design	4		0	4	40	60	100	4
4	Discipline Specific-Elective		Elective–III	2		0	2	40	60	100	2
5	Discipline Specific-Elective		Elective–IV	2		0	2	40	60	100	2
6	Discipline Specific-Elective Lab		Lab Based Elective–IV Lab	0		4	4	25	25	50	2
7	Discipline Specific-Elective Lab		Lab Based Elective–IV Lab	0		4	4	25	25	50	2
8	Skill Based Course	AMP-108-V1	Game Design Lab	0		4	4	25	25	50	2
				16		12	28	275	375	650	22

Elective-III

- **A.** 3D Modeling Design(AMP-110-V1)
- **B.** Motion Graphics Design (AMP-112-V1)

Lab Based Elective-III-Lab

- A. 3D Modeling Design Lab(AMP-118-V1)
- **B.** Motion Graphics Design Lab(AMP-120-V1)

Elective-IV

- A. UI/UX Design(AMP-114-V1)
- B. Branding & Advertising Design(AMP-116-V1)

Lab Based Elective-IV-Lab

- A. UI/UX Design Lab(AMP-122-V1)
- B. Branding & Advertising Design Lab(AMP-124-V1)

M.Sc. Animation and Multimedia 3rd Sem

eSr. No	Category	Course code	Course Title	Course Requirements (hr)			Sessional Marks/End-Term Marks			Total Marks	Credits
				L	P	Total	Sessional	End Term			
1	Discipline Specific-Course	AMP-201-V1	Film Production Pipeline	4	-	0	4	40	60	100	4
2	Discipline Specific-Course	AMP-203-V1	AI Tools for Creative Media	2	2	0	4	40	60	100	4
3	Discipline Specific-Elective	AMP-205-V1	Advanced Visual Effects	2	-	0	2	40	60	100	2
4	Discipline Specific-Elective		Elective-V	0	-	4	4	40	60	100	2
5	Discipline Specific-Elective Lab	AMP-213-V1	Advanced Visual Effects Lab	0	-	4	4	25	25	50	2
6	Discipline Specific-Elective Lab	AMP-215-V1	Minor Dissertation	0	-	8	8	50	50	100	4
				12	2	16	30	300	400	700	22

Electives-V

A. 3D Texturing and Lighting(AMP-207-V1)
B. Advance 2D Animation(AMP-209-V1)
C. Advance 3D Animation(AMP-211-V1)

(Option -I)

M.Sc. Animation and Multimedia 4th Sem

eSr. No	Category	Course code	Course Title	Course Requirements (hr)			Sessional Marks/End-Term Marks		Total Marks	Credits
				L	P	Total	Sessional	End Term		
1	Discipline Specific-Course		Elective–VI	4	0	4	40	60	100	4
2	Discipline Specific-Course	AMP-212-V1	Dissertation	0	32	32	100	200	300	16
				4	32	36	140	260	400	20

Electives-VI

A. Game Environment Design(AMP-202-V1)
B. Real-time Rendering(AMP-204-V1)
C. AI Video Production(AMP-206-V1)
D. Advanced Compositing(AMP-208-V1)
E. Interactive Storytelling & Narrative Design(AMP-210-V1)

Note*: Publication of a research paper in a peer-reviewed journal, is desirable.

(Option -II)

M.Sc. Animation and Multimedia 4th Sem

eSr. No	Category	Course code	Course Title	Course Requirements (hr)			Sessional Marks/End-Term Marks		Total Marks	Credits
				L	P	Total	Sessional	End Term		
1	Discipline Specific-Elective	AMP-214-V1	MOOC	4	0	4	40	60	100	4
2	Discipline Specific-Elective Lab	AMP-216-V1	Internship	0	32	32	100	200	300	16
				4	32	36	140	260	400	20

Note*:

Elective–VI will be covered by MOOC through Swayam platform and the duration of the course should be equal or more than 12 weeks, the subject will be decided by the department and floated as per the option available on portal.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-101-V1
Subject Name: Animation & Storytelling

No of Credits-4

L	**4**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of storytelling and narrative structures.
2 To learn story development techniques for animation and digital media.
3 To create compelling characters and engaging story worlds.
4 To understand visual storytelling and storyboarding principles.
5 To develop scriptwriting and production planning skills for animation

Unit-01
Concept, nature and importance of storytelling in animation and digital media. Elements of narrative including theme, plot, setting, conflict, climax and resolution. Types of stories, genres and narrative forms. Traditional and contemporary storytelling approaches. Audience engagement and storytelling across multimedia platforms.

Unit-02
Narrative structures including Three-Act Structure, Hero's Journey and episodic storytelling. Story development process, plot construction, conflict creation, dramatic tension, pacing and story progression. Story sequencing, scene development and narrative continuity for animation projects.

Unit-03
Principles of character creation, character personality, motivation, goals and emotional development. Character arcs, relationships and dialogue writing. Character profiling techniques and development of believable characters for animated narratives.

Unit-04
Visual language, composition, framing, camera angles, visual continuity and cinematic techniques. Storyboarding principles, shot planning, scene visualization and visual narrative development. Use of symbolism and visual metaphors in storytelling.

Unit-05
Scriptwriting formats and screenplay structure for animation. Scene construction, dialogue development, script editing and revision techniques. Story bible preparation, pitch development and pre-production planning for animation projects.

Course Outcomes

A Student will learn the principles of storytelling and narrative design.
B Student will understand story structures and character development techniques.
C Student will create original stories and narrative concepts.
D Student will be able to develop visual storyboards and scripts.
E Student will apply storytelling skills in animation production.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-119-V1
Subject Name: Digital Graphics (Elective-II)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of digital graphics and visual communication.
2 To learn raster and vector graphic design techniques.
3 To create digital illustrations, layouts and visual assets.
4 To understand typography, branding and design principles.
5 To develop professional digital graphics portfolios.

Unit-01
Principles of graphic design, visual communication and digital imaging. Design elements and principles. Applications of digital graphics in multimedia and interactive media.
Unit-02
Bitmap graphics, image resolution and color models. Image enhancement, retouching and photo manipulation techniques. Digital image optimization for various media platforms.
Unit-03
Vector drawing tools, paths and shapes. Logo design, illustration techniques and scalable graphic creation. Typography integration and visual hierarchy.
Unit-04
Typography principles, font selection and text composition. Grid systems, page layout and publication design. Design consistency and branding considerations.
Unit-05
Corporate identity design, branding systems and visual communication strategies. Design of promotional materials, social media graphics and digital publications. Portfolio development and professional presentation techniques.

Course Outcomes

A Student will learn the principles of digital graphics design.
B Student will understand image editing and vector illustration techniques.
C Student will create professional digital graphic assets.
D Student will be able to apply typography and branding principles.
E Student will develop creative digital graphics portfolios.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-105-V1
Subject Name: Audio-Video Production Techniques

No of Credits-3

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
T	**1**		**Total**	**100**

Course Objectives

1 To understand the fundamentals of audio and video production.
2 To learn camera operations, cinematography and recording techniques.
3 To develop audio recording and sound design skills.
4 To understand video editing and post-production workflows.
5 To create professional multimedia content for various platforms.

Unit-01
Concept and scope of audio-video production. Production workflow including pre-production, production and post-production. Roles and responsibilities of production teams. Media formats, standards and production planning..

Unit-02
Camera systems, lenses and exposure control. Composition principles, framing techniques and camera movements. Visual aesthetics, continuity and cinematic storytelling. Lighting fundamentals and visual design for video production.

Unit-03
Camera systems, lenses and exposure control. Composition principles, framing techniques and camera movements. Visual aesthetics, continuity and cinematic storytelling. Lighting fundamentals and visual design for video production.

Unit-04
Principles of non-linear editing, timeline management and sequence construction. Transitions, visual effects, color correction and color grading. Audio synchronization, mixing and mastering. Export formats and delivery standards.

Unit-05
Production of promotional videos, documentaries, interviews and digital media content. Project planning, workflow management and content distribution. Quality assurance, project presentation and professional portfolio development.

Course Outcomes

A Student will learn the principles of audio-video production.
B Student will understand camera, lighting and audio recording techniques.
C Student will create professional audio and video content.
D Student will be able to perform video editing and post-production tasks.
E Student will develop multimedia projects using industry-standard workflows.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-113-V1
Subject Name: 2D Character Design (Elective-I)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of character design and visual development.
2 To learn anatomy, proportions and character construction techniques.
3 To create expressive and appealing animated characters.
4 To understand character styling, costumes and personality development.
5 To develop production-ready character design portfolios

Unit-01
Principles of character design, shape language and visual appeal. Character archetypes, design thinking and concept development. Role of character design in animation, games and visual storytelling.

Unit-02
Human anatomy, body structure and proportion systems. Head construction, facial features, body balance and movement. Stylized and realistic character development techniques.

Unit-03
Facial expressions, emotions, gestures and body language. Personality visualization through design elements. Character behavior, attitude and emotional communication.

Unit-04
Costume design, accessories and cultural influences in character creation. Character styling, color theory and visual identity. Design consistency and production requirements.

Unit-05
Character turnaround sheets, model sheets and expression sheets. Character portfolios and presentation techniques. Character development pipelines for animation and game production.

Course Outcomes

A Student will learn the principles of character design.
B Student will understand anatomy and proportion techniques.
C Student will create original and expressive characters.
D Student will be able to develop professional character sheets.
E Student will build production-ready character design portfolios.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-115-V1
Subject Name: Photography & Cinematography (Elective-I)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of photography and cinematography.
2 To learn camera operations, composition and lighting techniques.
3 To develop visual storytelling skills through photography and film.
4 To understand cinematic language and camera movements.
5 To create professional photographic and cinematographic works.

Unit-01
History and evolution of photography. Camera systems, lenses and image formation. Principles of exposure, focus and depth of field. Photographic genres and professional practices.

Unit-02
Elements and principles of visual composition. Rule of thirds, leading lines, framing and balance. Visual perception and aesthetics in photography and cinematography.

Unit-03
Natural and artificial lighting systems. Lighting patterns, intensity and color temperature. Studio lighting, outdoor lighting and creative lighting applications.

Unit-04
Camera angles, movements and shot types. Visual continuity, screen direction and cinematic language. Storytelling through camera techniques and visual narratives.

Unit-05
Digital image processing, color management and image enhancement techniques. Photo editing workflows, portfolio preparation and professional presentation standards.

Course Outcomes

A Student will learn the principles of photography and cinematography.
B Student will understand exposure, composition and lighting techniques.
C Student will create professional photographs and cinematic visuals.
D Student will be able to apply visual storytelling methods.
E Student will develop creative portfolios for photography and cinematography.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-117-V1
Subject Name: Storyboarding Techniques (Elective-II)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of storyboard design and visual storytelling.
2 To learn scene visualization and shot planning techniques.
3 To create storyboards for animation and multimedia productions.
4 To understand cinematic continuity and narrative sequencing.
5 To develop animatics and production-ready storyboard documents.

Unit-01
Concept, purpose and significance of storyboarding in animation and film production. Visual planning methods, storyboard formats and production workflows. Relationship between script and storyboard development.

Unit-02
Story visualization, scene breakdown and shot sequencing. Visual continuity, pacing and narrative flow. Storytelling through composition, staging and camera placement.

Unit-03
Camera angles, shot sizes and movement indications. Continuity principles, screen direction and visual consistency. Cinematic storytelling and scene transitions.

Unit-04
Character actions, expressions and performance visualization. Timing, staging and movement representation. Storyboarding for animated films, television and digital media projects.

Unit-05
Conversion of storyboards into animatics. Timing, audio synchronization and pre-visualization techniques. Presentation, revision and production documentation for animation projects.

Course Outcomes

A Student will learn the principles of storyboard development.
B Student will understand visual narrative and scene planning techniques.
C Student will create storyboards for animation and digital media projects.
D Student will be able to apply cinematic storytelling methods.
E Student will develop professional storyboard and animatic presentations.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-103-V1
Subject Name: Virtual Reality & Augmented Reality

No of Credits-3

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
T	**1**		**Total**	**100**

Course Objectives

1 To understand the concepts and applications of Virtual Reality and Augmented Reality.
2 To learn the components and technologies used in XR systems.
3 To develop immersive virtual and augmented environments.
4 To understand user interaction and experience design in XR.
5 To explore emerging trends and applications of immersive technologies.

Unit-01
Concepts of Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR). Evolution of immersive technologies, XR ecosystem and emerging trends. Applications of XR in entertainment, education, healthcare, architecture, training and industrial sectors.

Unit-02
VR headsets, AR devices, sensors, tracking systems and input controllers. Display technologies, motion tracking, spatial mapping and interaction devices. Performance requirements and technical considerations of immersive systems.

Unit-03
Principles of virtual world creation, user interaction and navigation. Environment modelling, immersive experience design, user interface design and user experience considerations. Presence, immersion and accessibility in virtual environments.

Unit-04
Marker-based and markerless AR systems. Object recognition, image tracking and spatial computing. Mobile AR applications, content integration and real-time interaction techniques. Development frameworks and deployment platforms.

Unit-05
Metaverse technologies, digital twins and AI integration in XR. Industrial applications and future opportunities of immersive media. Ethical, social, privacy and security issues related to virtual and augmented reality environments.

Course Outcomes

A Student will learn the fundamentals of Virtual Reality and Augmented Reality.
B Student will understand XR hardware and software technologies.
C Student will create immersive virtual and augmented experiences.
D Student will be able to design interactive XR environments.
E Student will apply XR technologies in real-world applications.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-107-V1
Subject Name: Virtual Reality & Augmented Reality Lab

No of Credits-1

L	**0**		**Internal Practical**	**25**
P	**2**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Installation and configuration of Unity, Visual Studio, XR Interaction Toolkit and AR Foundation. Understanding project structure and XR development workflow.
2.	Study and demonstration of VR and AR hardware including Meta Quest, HTC Vive, Microsoft HoloLens, Google Cardboard and mobile AR platforms.
3.	Creation of a virtual environment in Unity using primitive objects and imported assets. Application of rigid body physics, colliders and object interactions.
4.	Design and development of a 3D immersive scene incorporating materials, textures, lighting and environmental effects.
5.	Importing, optimizing and integrating 3D assets from Blender or other modelling software into XR environments.
6.	Implementation of user navigation systems including teleportation, locomotion, gaze-based interaction and controller-based interaction.
7.	Development of interactive VR experiences using animations, triggers, events, audio integration and user interface elements.
8.	Implementation of marker-based and markerless AR applications using image tracking, plane detection, object placement and spatial mapping techniques.
9.	**Design and development of an AR application integrating user interaction, multimedia content, animated objects and real-time environment understanding.**
	Mini-Projects/Case Study
10	Design and develop an immersive XR solution for education, healthcare, training, tourism, gaming or industrial applications, demonstrating the integration of advanced interaction techniques, optimized assets and user-centered design principles.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-109-V1
Subject Name: Audio-Video Production Techniques Lab

No of Credits-1

L	**0**		**Internal Practical**	**25**
P	**2**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Familiarization with professional video cameras, lenses, tripods, gimbals and audio recording equipment.
2.	Camera operations including exposure control, white balance, focus adjustment and frame rate settings.
3.	Composition and framing exercises using various shot sizes, camera angles and camera movements.
4.	Design and implementation of indoor lighting setups using key light, fill light and back light techniques.
5.	Recording of interviews, dialogues and live-action sequences using professional audio-video workflows.
6.	Audio recording using dynamic, condenser and lapel microphones. Noise reduction and audio enhancement techniques.
7.	Multi-camera video production and synchronization of audio and video sources.
8.	Video editing using professional non-linear editing software including transitions, effects and motion graphics integration.
9.	Color correction, color grading, audio mixing and mastering for digital media production.
	Mini-Projects/Case Study
10	Production of a professional audio-video project demonstrating pre-production planning, cinematography, audio design and post-production workflows.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-111-V1
Subject Name: E-Learning Content Development Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Analysis of e-learning platforms and Learning Management Systems (LMS) for educational content delivery.
2.	Development of instructional design documents and course planning structures.
3.	Creation of storyboards and content flowcharts for e-learning modules.
4.	Design of multimedia learning materials incorporating text, graphics, audio and video elements.
5.	Development of interactive presentations and digital learning resources.
6.	Creation of screen-recorded tutorials and educational video content.
7.	Design and integration of quizzes, assessments and learner engagement activities.
8.	Development of SCORM-compliant learning modules using authoring tools.
9.	Publishing, testing and deployment of e-learning content on LMS platforms.
	Mini-Projects/Case Study
10	Design and develop a comprehensive e-learning course on a selected topic, including instructional design, multimedia content, interactive assessments and LMS deployment.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-121-V1
(Lab Based Elective -I) Subject Name: 2D Character Design Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Exploration of shape language, silhouettes and visual appeal through character sketching exercises.
2.	Development of character concepts based on themes, genres and target audiences.
3.	Human anatomy studies focusing on proportions, body structure and movement.
4.	Creation of facial expression sheets demonstrating emotions and personality traits.
5.	Gesture drawing and dynamic pose development for animated characters.
6.	Costume, accessories and prop design for character enhancement and storytelling.
7.	Development of character turnaround sheets including front, side and rear views.
8.	Digital coloring, shading and rendering techniques for character presentation.
9.	Creation of model sheets and production-ready character reference documents.
	Mini-Projects/Case Study
10	Design a complete character package including concept art, turnaround sheet, expression sheet, costume variations and final presentation board.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-123-V1
(Lab Based Elective -I) Subject Name: Photography & Cinematography Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Familiarization with DSLR/Mirrorless cameras, lenses and camera accessories.
2.	Practical implementation of exposure triangle concepts including aperture, shutter speed and ISO.
3.	Experiments on depth of field, focal length and perspective control.
4.	Composition exercises using rule of thirds, framing, symmetry and leading lines.
5.	Portrait photography using natural and artificial lighting techniques.
6.	Product and advertising photography with controlled lighting setups.
7.	Studio lighting using single-light, two-light and three-point lighting arrangements.
8.	Cinematography exercises involving camera movements, tracking shots and visual continuity.
9.	Digital image enhancement, color correction and photo retouching workflows.
	Mini-Projects/Case Study
10	Development of a visual storytelling project through a photo essay or cinematic sequence based on a selected theme.

M.Sc. (Animation and Multimedia) 1st Semester

Subject Code: AMP-125-V1

(Lab Based Elective -II) Subject Name: Storyboarding Techniques Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Creation of thumbnail sketches for visual narrative planning.
2.	Script breakdown and scene visualization exercises.
3.	Development of shot sequences using various camera angles and shot compositions.
4.	Storyboard creation for dialogue-based scenes emphasizing continuity and screen direction.
5.	Visualization of action sequences and character movements through storyboard panels.
6.	Application of cinematic techniques including transitions, camera movements and scene progression.
7.	Digital storyboard development using professional storyboard software.
8.	Creation of storyboards for animation, advertisements and short-form digital content.
9.	Development of animatics incorporating timing, sound effects and transitions.
	Mini-Projects/Case Study
10	Prepare a professional storyboard and animatic for a short animated film, advertisement or educational media project.

M.Sc. (Animation and Multimedia) 1st Semester
Subject Code: AMP-127-V1
(Lab Based Elective -II) Subject Name: Digital Graphics Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Familiarization with industry-standard digital graphics software and workspace customization.
2.	Image enhancement, color correction and photo retouching techniques.
3.	Creation of raster graphics and digital illustrations using advanced editing tools.
4.	Vector drawing and illustration using paths, shapes and pen tools.
5.	Logo design and brand identity development using vector graphics techniques.
6.	Typography exercises involving font selection, hierarchy and layout design.
7.	Design of posters, brochures, banners and promotional materials.
8.	Development of social media creatives and digital marketing assets.
9.	Creation of complete branding collateral including stationery and digital identity systems.
	Mini-Projects/Case Study
10	Develop a complete visual identity system for a startup, product or social campaign including logo, brand guidelines and promotional assets.

Semester 2

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-102-V1
Subject Name:Design Innovation and Entrepreneurship

No of Credits-4

L	**4**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand entrepreneurship and innovation concepts.
2 To identify business opportunities and entrepreneurial ventures.
3 To develop business planning and startup management skills.
4 To understand funding, finance and business operations.
5 To apply innovation strategies for sustainable growth.

Unit-01
Concept, characteristics and significance of entrepreneurship. Entrepreneurial mindset, innovation ecosystems and startup culture. Role of entrepreneurship in economic and social development.
Unit-02
Idea generation, opportunity identification and feasibility analysis. Market research, customer discovery and business model development. Business planning and value proposition design.
Unit-03
Innovation processes, product development and innovation strategies. Startup lifecycle, lean startup methodology and minimum viable product (MVP) development. Team building and leadership in entrepreneurial ventures.
Unit-04
Sources of finance, venture capital, angel investment and crowdfunding. Financial planning, budgeting and resource management. Legal, regulatory and intellectual property considerations.
Unit-05
Business growth strategies, scaling operations and market expansion. Digital entrepreneurship, social entrepreneurship and sustainable business practices. Emerging trends in innovation and entrepreneurship.

Course Outcomes

A Student will learn the fundamentals of entrepreneurship.
B Student will understand innovation and startup ecosystems.
C Student will develop business plans and entrepreneurial ideas.
D Student will be able to evaluate business opportunities.
E Student will apply entrepreneurial skills for venture creation.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-104-V1
Subject Name: Design Thinking & Creative Innovation

No of Credits-4

L	**4**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the principles of Design Thinking and creative problem-solving.
2 To identify user needs through research and observation techniques.
3 To develop innovative ideas using various ideation methods.
4 To create prototypes and validate solutions through testing.
5 To apply design thinking methodologies in real-world challenges.

Unit-01
Concept, principles and significance of design thinking. Human-centered design approach, problem identification, observation techniques and innovation mindset. Applications of design thinking in creative industries, business and technology-driven environments.

Unit-02
Empathy mapping, user research methods, stakeholder analysis and problem framing. User needs assessment, design challenges and opportunity identification. Techniques for defining and refining problem statements.

Unit-03
Brainstorming techniques, lateral thinking, mind mapping and creative ideation methods. Innovation frameworks, concept generation and evaluation techniques. Collaborative creativity and multidisciplinary approaches to innovation.

Unit-04
Low-fidelity and high-fidelity prototyping methods. Wireframes, mockups, proof-of-concepts and rapid prototyping techniques. User testing, feedback collection and iterative design improvement processes.

Unit-05
Innovation strategies, disruptive innovation and emerging technologies. Design-driven entrepreneurship, sustainable innovation and social innovation. Future trends in design thinking and creative problem solving.

Course Outcomes

A Student will learn the fundamentals of Design Thinking.
B Student will understand user-centered design approaches.
C Student will develop innovative solutions for complex problems.
D Student will be able to create and test design prototypes.
E Student will apply creative innovation techniques in professional projects.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-106-V1
Subject Name: Game Design

No of Credits-4

L	**4**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of game design and development.
2 To learn game mechanics, gameplay systems and level design.
3 To develop storytelling and character design for games.
4 To understand player interaction and user experience in games.
5 To create game concepts and production documentation.

Unit-01
Concept, history and evolution of games. Types of games, genres and gaming platforms. Core game elements including mechanics, rules, objectives, challenges and player engagement.
Unit-02
Game mechanics, game loops, progression systems and reward structures. Balancing gameplay, difficulty levels and player motivation. Interactive systems and player decision-making processes.
Unit-03
Narrative design, character development and world-building for games. Level design principles, environmental storytelling and player experience design. Mission structures and gameplay flow.
Unit-04
Game user interface design, heads-up displays and navigation systems. User experience principles in games, accessibility considerations and player feedback mechanisms. Playtesting and usability evaluation.
Unit-05
Game development pipeline, documentation and production workflows. Monetization models, multiplayer systems and live-service games. Virtual reality, augmented reality, artificial intelligence and future trends in gaming.

Course Outcomes

A Student will learn the principles of game design.
B Student will understand gameplay mechanics and player engagement.
C Student will develop game concepts and level designs.
D Student will be able to design game interfaces and user experiences.
E Student will create professional game design documentation.

M.Sc. (Animation and Multimedia) 2nd Semester

Subject Code: AMP-110-V1
Subject Name: 3D Modeling Design (Elective-III)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the fundamentals of 3D modeling and design.
2 To learn polygonal, surface and organic modeling techniques.
3 To create production-ready 3D assets and models.
4 To understand texturing, materials and lighting workflows.
5 To develop rendering and presentation skills for 3D projects.

Unit-01
Introduction to three-dimensional design, modeling principles and applications. Coordinate systems, geometric forms and design workflows. Overview of industry-standard 3D software and production pipelines.

Unit-02
Polygonal modeling techniques, edge loops, topology and mesh construction. Surface modeling methods, subdivision modeling and hard-surface design. Optimization techniques for production-ready models.

Unit-03
Organic modeling concepts, anatomy-based modeling and sculpting techniques. Character creation workflows, detailing and digital sculpting. Retopology and mesh refinement processes.

Unit-04
Material creation, texture mapping and UV unwrapping techniques. Physically based rendering (PBR) workflows and shader applications. Lighting principles and scene enhancement techniques.

Unit-05
Rendering techniques, render engines and output optimization. Asset management, model presentation and portfolio development. Applications of 3D modeling in animation, gaming, virtual reality and visualization.

Course Outcomes

A Student will learn various 3D modeling techniques.
B Student will understand industry-standard 3D workflows.
C Student will create 3D models for animation and games.
D Student will be able to apply materials, textures and lighting.
E Student will develop professional-quality rendered outputs.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-112-V1
Subject Name: Motion Graphics Design (Elective-III)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the principles of motion graphics and animation.
2 To learn typography, composition and visual communication.
3 To create animated graphics using motion design techniques.
4 To integrate audio, video and visual effects in projects.
5 To develop professional motion graphics content for digital media.

Unit-01
Concept, history and applications of motion graphics. Principles of visual communication, animation and kinetic design. Motion graphics in advertising, broadcasting, social media and digital content creation.

Unit-02
Typography, composition, color theory and visual hierarchy in motion design. Storyboarding, concept development and visual planning. Design consistency and brand communication.

Unit-03
Keyframing, timing, spacing and motion principles. Transitions, transformations and animation curves. Motion paths, effects and advanced animation workflows.

Unit-04
Audio synchronization, sound design and music integration. Visual rhythm, pacing and storytelling through motion. Creation of promotional videos, title sequences and explainer content.

Unit-05
2D and 3D motion graphics workflows. Visual effects integration and compositing techniques. Production pipelines, rendering and emerging trends in motion design and digital media.

Course Outcomes

A Student will learn the fundamentals of motion graphics design.
B Student will understand animation principles and visual storytelling.
C Student will create animated graphics and promotional content.
D Student will be able to synchronize motion graphics with audio.
E Student will develop industry-standard motion graphics projects.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-114-V1
Subject Name: UI/UX Design (Elective-IV)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the concepts of User Interface and User Experience Design.
2 To learn user research and information architecture techniques.
3 To create wireframes, prototypes and interface designs.
4 To understand usability, accessibility and interaction design principles.
5 To develop user-centered digital products and experiences.

Unit-01
Concepts of UI and UX design, usability principles and user-centered design approaches. Human-computer interaction, design psychology and digital product design processes.
Unit-02
User research methods, personas, user journeys and stakeholder analysis. Information architecture, content organization and navigation systems. User requirement gathering and analysis techniques.
Unit-03
Wireframe development, low-fidelity and high-fidelity prototypes. User flow design, interaction design and usability considerations. Design systems and component-based design approaches.
Unit-04
Typography, color theory, layout systems and responsive design principles. Mobile-first design, accessibility standards and interface consistency. Design trends and visual communication strategies.
Unit-05
Usability evaluation methods, heuristic analysis and user testing techniques. Iterative design improvement and product validation. Emerging technologies and future trends in UX design.

Course Outcomes

A Student will learn the fundamentals of UI/UX design.
B Student will understand user research and design methodologies.
C Student will create wireframes and interactive prototypes.
D Student will be able to design responsive user interfaces.
E Student will develop effective and user-friendly digital experiences.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-116-V1
Subject Name: Branding & Advertising Design (Elective-IV)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand branding and advertising principles.
2 To learn visual identity and brand communication strategies.
3 To create logos, brand assets and advertising campaigns.
4 To understand consumer behavior and advertising design processes.
5 To develop integrated branding solutions for various media platforms.

Unit-01
Concept, principles and significance of branding. Brand identity, brand image, brand positioning and brand equity. Branding strategies in traditional and digital media environments.

Unit-02
Advertising concepts, communication models and consumer behavior. Creative strategy development, campaign planning and advertising objectives. Message design and persuasive communication techniques.

Unit-03
Logo design, typography, color systems and visual identity development. Brand guidelines, corporate identity systems and visual consistency. Design applications across multiple media platforms.

Unit-04
Print, outdoor, broadcast and digital advertising design. Copywriting fundamentals, visual storytelling and campaign execution. Integrated marketing communication and cross-platform advertising strategies.

Unit-05
Brand evaluation, brand audits and reputation management. Digital branding, influencer marketing and social media campaigns. Emerging trends in branding, advertising and consumer engagement.

Course Outcomes

A Student will learn the fundamentals of branding and advertising.
B Student will understand brand identity and visual communication.
C Student will create logos and advertising design materials.
D Student will be able to develop branding strategies and campaigns.
E Student will design professional branding and advertising solutions.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-108-V1
Subject Name: Game Design Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Study of game genres, mechanics and gameplay systems through analysis of popular games.
2.	Development of game concepts, game objectives and player personas for a selected game genre.
3.	Creation of Game Design Document (GDD) including story, mechanics, rules and progression systems.
4.	Design of character concepts, game assets and environment layouts.
5.	Development of level layouts using level design principles and player flow analysis.
6.	Creation of gameplay mechanics using a game engine such as Unity or Unreal Engine.
7.	Design and implementation of user interface elements including HUDs, menus and navigation systems.
8.	Playtesting, game balancing and usability evaluation of game prototypes.
9.	Integration of audio, visual effects and interactive elements into gameplay.
	Mini-Projects/Case Study
10	Design and develop a complete game prototype incorporating gameplay mechanics, level design, UI elements and player interaction systems.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-118-V1
(Lab Based Elective-III) Subject Name: 3D Modeling Design Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Familiarization with 3D modeling software interface, tools and workflow.
2.	Creation of basic geometric models using primitive objects and transformation tools.
3.	Polygonal modeling of simple objects using extrusion, bevel and subdivision techniques.
4.	Hard-surface modeling of products, furniture or mechanical objects.
5.	Organic modeling using sculpting and digital modeling techniques.
6.	Character modeling based on anatomy and proportion guidelines.
7.	UV mapping and texture preparation for 3D models.
8.	Material creation, texture application and shader assignment.
9.	Lighting setup and rendering of 3D scenes using industry-standard render engines.
	Mini-Projects/Case Study
10	Design and develop a detailed 3D environment, character or product model demonstrating modeling, texturing and rendering workflows.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-120-V1
(Lab Based Elective-III) Subject Name: Motion Graphics Design Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Familiarization with motion graphics software and workspace management.
2.	Creation of animated typography using keyframe animation techniques.
3.	Development of shape animations using motion principles and visual hierarchy.Design of logo reveal and logo animation sequences.
4.	Creation of animated infographics and data visualization graphics.
5.	Development of lower thirds, title sequences and broadcast graphics.
6.	Audio synchronization and animation timing using sound effects and music tracks.
7.	Motion graphics compositing using masks, effects and transitions.
8.	Creation of promotional videos and social media motion content.
9.	Familiarization with motion graphics software and workspace management.
	Mini-Projects/Case Study
10	Create a professional motion graphics advertisement, explainer video or brand promotion sequence for digital media platforms.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-122-V1
(Lab Based Elective-IV) Subject Name: UI/UX Design Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	User research, competitor analysis and requirement gathering for a digital product.
2.	Creation of user personas, empathy maps and user journey maps.
3.	Information architecture development and content organization exercises.
4.	Design of user flows and task flow diagrams for web and mobile applications.
5.	Creation of low-fidelity wireframes for selected digital interfaces.
6.	Development of high-fidelity UI mockups using design tools such as Figma or Adobe XD.
7.	Design of responsive layouts for desktop, tablet and mobile platforms.
8.	Development of interactive prototypes and micro-interactions.
9.	Conducting usability testing and documenting user feedback.
	Mini-Projects/Case Study
10	Design and prototype a user-centered mobile application or web platform demonstrating the complete UX design process.

M.Sc. (Animation and Multimedia) 2nd Semester
Subject Code: AMP-124-V1
(Lab Based Elective-IV) Subject Name: Branding & Advertising Design Lab

No of Credits-2

L	**0**		**Internal Practical**	**25**
P	**4**		**External Practical**	**25**
			Total	**50**

List of Lab Experiments/Assignments (Implementation of each problem statement is mandatory)	
Sr. No	**Group A**
1.	Brand research, competitor analysis and brand positioning exercises.
2.	Creation of mood boards, visual references and brand strategy concepts.
3.	Logo ideation, sketching and digital logo development.
4.	Design of typography systems, color palettes and visual identity components.
5.	Development of stationery design including business cards, letterheads and envelopes.
6.	Creation of print advertising materials such as posters, brochures and flyers.
7.	Design of digital advertising creatives for websites and social media platforms.
8.	Development of advertising campaigns using integrated communication strategies.
9.	Preparation of brand guidelines and visual identity manuals.
	Mini-Projects/Case Study
10	Design and presentation of a complete branding and advertising campaign for a product, service or organization.

Semester-3

M.Sc. (Animation and Multimedia) 3rd Semester
Subject Code: AMP-201-V1
Subject Name: Film Production Pipeline

No of Credits-4

L	**4**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the complete production pipeline of animation and multimedia projects.
2 To learn pre-production, production and post-production workflows.
3 To develop project planning and production management skills.
4 To understand asset creation, integration and pipeline coordination.
5 To create industry-standard production documentation and workflows.

Unit-01
Concept and importance of production pipelines in animation, visual effects, gaming and multimedia industries. Roles and responsibilities of production teams. Production planning, scheduling and workflow management. Industry standards and pipeline structures.

Unit-02
Concept development, scriptwriting, storyboarding and animatics. Character design, environment design and asset planning. Project documentation, production scheduling and resource allocation techniques.

Unit-03
Asset creation, modeling, texturing, rigging, animation and simulation workflows. Team collaboration, version control and pipeline integration. Production tracking and quality control procedures.

Unit-04
Rendering, compositing, editing, color grading and sound integration. Quality assurance, final output preparation and delivery standards. Optimization and workflow efficiency techniques.

Unit-05
Pipeline automation, cloud-based production, virtual production and collaborative workflows. Project management tools, production monitoring and emerging technologies in media production.

Course Outcomes

A Student will learn the stages of animation and multimedia production.
B Student will understand production planning and management processes.
C Student will develop production workflows for creative projects.
D Student will be able to manage assets and production resources.
E Student will create industry-standard production documentation.

M.Sc. (Animation and Multimedia) 3rd Semester
Subject Code: AMP-203-V1
Subject Name: AI Tools for Creative Media

No of Credits-4

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
T	**2**		**Total**	**100**

Course Objectives

1 To understand the role of Artificial Intelligence in creative media industries.
2 To learn AI-powered tools for content creation and design.
3 To develop AI-assisted workflows for multimedia production.
4 To understand ethical and legal considerations of AI-generated content.
5 To apply AI technologies in creative projects.

Unit-01
Fundamentals of Artificial Intelligence, Machine Learning and Generative AI. Evolution of AI technologies. Applications of AI in creative industries and digital media production.

Unit-02
AI-powered tools for image generation, video creation, audio synthesis and content automation. Text-to-image, text-to-video and AI-assisted design workflows. Prompt engineering fundamentals.

Unit-03
Applications of AI in animation, visual effects, motion graphics and game development. AI-assisted character generation, animation automation and intelligent editing techniques.

Unit-04
Integration of AI tools into production pipelines. Productivity enhancement, automation strategies and collaborative AI workflows. Content optimization and personalization using AI technologies.

Unit-05
Ethical implications of AI-generated content. Copyright, intellectual property and responsible AI usage. Future trends, emerging technologies and AI-driven innovation in creative media.

Course Outcomes

A Student will learn the fundamentals of AI in creative media.
B Student will understand AI-assisted content creation workflows.
C Student will create multimedia assets using AI tools.
D Student will be able to integrate AI technologies into production pipelines.
E Student will apply AI responsibly in creative and professional environments.

M.Sc. (Animation and Multimedia) 3rd Semester
Subject Code: AMP-205-V1
Subject Name: Advanced Visual Effects (Elective-V)

No of Credits-4

L	**4**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand advanced visual effects production techniques.
2 To learn compositing, tracking and visual enhancement workflows.
3 To develop skills in integrating CGI with live-action footage.
4 To understand advanced simulation and visual effects techniques.
5 To create professional-quality visual effects sequences.

Unit-01
Visual effects production pipeline, VFX workflows and industry applications. Types of visual effects and production methodologies. Pre-visualization and planning techniques.

Unit-02
Layer-based compositing, masking, rotoscoping and keying techniques. Multi-pass compositing workflows. Color correction and visual enhancement techniques.

Unit-03
2D and 3D tracking techniques. Camera solving, object tracking and motion analysis. CGI integration and scene reconstruction methods.

Unit-04
Particle systems, environmental effects, smoke, fire, explosions and fluid simulations. Dynamic effects and procedural animation techniques.

Unit-05
Integration of 3D assets with live-action footage. Rendering workflows, compositing pipelines and final VFX output production. Emerging trends in visual effects technology.

Course Outcomes

A Student will learn advanced visual effects techniques.
B Student will understand compositing and CGI integration workflows.
C Student will create professional visual effects compositions.
D Student will be able to perform tracking and advanced compositing tasks.
E Student will develop industry-standard visual effects projects.

M.Sc. (Animation and Multimedia) 3rd Semester
Subject Code: AMP-207-V1
Subject Name:3D Texturing and Lighting (Elective-V)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To Describe basics of texturing, UVs, and materials.
2 To Interpret texture maps, shaders, and lighting concepts.
3 To Utilize tools for UV mapping and texture creation.
4 To Construct lighting and camera setups for scenes.
5 To Develop rendered outputs using complete workflow.

Unit-01 Introduction to 3D Texturing
Fundamentals of Texturing, UV Mapping and UV Unwrapping, Types of Texture Maps (Diffuse, Specular, Normal, Bump), Texture Painting Basics, Applying Textures to 3D Models, Introduction to Materials and Shaders, Material Properties Basic Shader Creation.
Unit-02 Texturing and UV Mapping
Hyper-shade Editor, UV Projections: Planar Maps, Cylindrical Maps, Spherical Maps, Automatic Mapping, Normal Maps, Bump Maps, Displacement Maps, 3D Cut and Sew UV Tool, UV Editor and UV Toolkit: Unfold, Normalize, Distribute, Layout, Optimize, Texturing with Substance Painter.
Unit-03 Fundamentals of 3D Lighting
Principles of Digital Lighting, Types of Lights, Three-Point Lighting , Shadows and Basic Camera Setup, Lighting for Product and Character Visualization, Camera Basics for Rendering, Light Properties (Intensity, Color, Falloff)
Unit-04 Scene Lighting and Camera
Product and Character Lighting, Indoor and Outdoor Lighting Setups, Mood and Color Temperature, Basic Camera Positioning and Composition, Lighting for Presentation
Unit-05 Rendering and Final Presentation
Introduction to Rendering, Basic Render Settings, Render Quality and Optimization, Image Output Formats, Final Scene Rendering and Portfolio Presentation

Course Outcomes

At the end of the course, students will be able to

A Explain the concepts of 3D texturing, materials, and lighting.

B Apply UV mapping, texturing, and material creation techniques.

C Design lighting setups and camera compositions for 3D scenes.

D Create quality rendered images using texturing and lighting techniques.

E Present finished 3D scenes for portfolio use.

Reference Materials:

1. Lee Lanier, Advanced Maya Texturing and Lighting, Sybex, 2015, ISBN: 978-1118983522

2. Chris Legaspi, Anatomy for 3D Artists: The Essential Guide for CG Professionals, 3dtotal Publishing, 2015, ISBN: 978-1909414242
3. Jeremy Birn – *Digital Lighting and Rendering*
4. Lee Lanier – *Advanced Maya Texturing and Lighting*
5. Autodesk – *Maya Learning Resources & Documentation*
6. Allegorithmic – *Substance Painter Documentation (PBR Guide)*
7. A. Watt – *3D Computer Graphics (Lighting Fundamentals)*
8. Kelly L. Murdock – *Autodesk Maya 3D Animation Bible*
9. Gnomon Workshop – *Lighting & Rendering Tutorials*

M.Sc. (Animation and Multimedia) 3rd Semester
Subject Code: AMP-209-V1
Subject Name: Advance 2D Animation (Elective-V)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**

			Total	**100**

Course Objectives

1 To understand advanced principles of 2D animation.
2 To learn character acting and performance animation techniques.
3 To develop storytelling through animation.
4 To understand professional animation production workflows.
5 To create industry-standard 2D animation projects.

Unit-01

Review of animation principles, timing, spacing, anticipation and exaggeration. Advanced movement analysis and performance-based animation techniques.

Unit-02

Character emotions, acting principles and personality development through animation. Dialogue-based animation and lip synchronization techniques.

Unit-03

Walk cycles, run cycles, action sequences and complex character interactions. Secondary animation and expressive motion techniques.

Unit-04

Animation staging, visual continuity and cinematic storytelling. Sequence planning, shot composition and animation timing.

Unit-05

Animation pipeline, scene management and production planning. Portfolio development, project presentation and industry standards.

Course Outcomes

A Student will learn advanced principles of 2D animation.
B Student will understand character acting and animation performance.
C Student will create professional-quality 2D animations.
D Student will be able to animate characters according to scripts and storyboards.
E Student will develop industry-standard animation projects.

M.Sc. (Animation and Multimedia) 3rd Semester
Subject Code: AMP-211-V1
Subject Name: Advance 3D Animation (Elective-V)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand advanced principles of 3D animation.
2 To learn character performance and acting techniques.
3 To develop complex character and object animations.
4 To understand production workflows for 3D animation.
5 To create professional-quality 3D animation projects.

Unit-01
Advanced timing, spacing, weight, balance and motion analysis. Character performance and realistic movement techniques.
Unit-02
Facial animation, body language and emotional expression. Dialogue animation and performance-driven storytelling.
Unit-03
Complex walk cycles, action sequences and character interactions. Secondary motion and animation polish techniques.
Unit-04
Animation staging, shot composition and sequence development. Camera animation and cinematic storytelling principles.
Unit-05
Animation production pipelines, scene management and project workflows. Portfolio development, presentation techniques and industry standards.

Course Outcomes

A Student will learn advanced principles of 3D animation.
B Student will understand character acting and performance animation.
C Student will create complex 3D animation sequences.
D Student will be able to animate characters according to scripts and storyboards.
E Student will develop industry-standard 3D animation projects.

Semester 4

M.Sc. (Animation and Multimedia) 4th Semester
Subject Code: AMP-202-V1
Subject Name: Game Environment Design (Elective-VI)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand game environment design principles and workflows.
2 To learn environment modeling and world-building techniques.
3 To create immersive game environments and interactive spaces.
4 To understand level design and environmental storytelling.
5 To develop production-ready game environment assets.

Unit-01
Fundamentals of game environments, world-building and environmental design. Game genres and environment requirements. Visual development and concept creation.

Unit-02
Modeling techniques for landscapes, architecture and props. Asset optimization, modular asset creation and environment assembly workflows.

Unit-03
Storytelling through environment design. Visual cues, scene composition and player guidance techniques. Mood creation and thematic consistency.

Unit-04
Level design principles, gameplay spaces and player navigation systems. Open-world environments and interactive level design techniques.

Unit-05
Lighting, texturing, optimization and performance considerations. Environment presentation and production workflows for modern game engines.

Course Outcomes

A Student will learn game environment design principles.
B Student will understand world-building and level design techniques.
C Student will create immersive game environments.
D Student will be able to develop environment assets for games.
E Student will produce industry-standard game environment projects.

M.Sc. (Animation and Multimedia) 4th Semester
Subject Code: AMP-204-V1
Subject Name: Real-time Rendering (Elective-VI)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand real-time rendering techniques and workflows.
2 To learn rendering systems used in game engines and interactive media.
3 To develop optimized visual assets for real-time applications.
4 To understand lighting, shading and rendering optimization techniques.
5 To create high-quality real-time visual experiences.

Unit-01
Rendering pipeline, graphics processing and rendering workflows. Real-time graphics fundamentals and rendering architectures.

Unit-02
Real-time lighting systems, shadow generation and physically based rendering workflows. Material systems and shader development.

Unit-03
Level of detail systems, occlusion culling, texture optimization and performance management. Rendering efficiency techniques.

Unit-04
Global illumination, ray tracing, screen-space effects and post-processing techniques. Advanced rendering features in modern game engines.

Unit-05
Rendering workflows in game development, virtual production and immersive media. Emerging technologies and future developments in real-time rendering.

Course Outcomes

A Student will learn real-time rendering concepts.
B Student will understand rendering pipelines and graphics workflows.
C Student will create optimized real-time assets and scenes.
D Student will be able to apply advanced lighting and shading techniques.
E Student will develop professional real-time rendering projects.

M.Sc. (Animation and Multimedia) 4th Semester
Subject Code: AMP-206-V1
Subject Name: AI Video Production (Elective-VI)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand AI-driven video production workflows.
2 To learn AI tools for video generation and editing.
3 To develop AI-assisted content creation techniques.
4 To understand automation in video production.
5 To create professional video content using AI technologies.

Unit-01
Fundamentals of AI-powered content creation. Evolution of AI in video production. Applications of AI in filmmaking and digital media.

Unit-02
Text-to-video systems, AI video synthesis and automated content generation. Prompt engineering and creative workflows.

Unit-03
AI-assisted editing, scene detection, object tracking and video enhancement techniques. Audio synchronization and automated workflows.

Unit-04
Visual effects automation, intelligent compositing and AI-powered content optimization. AI tools for motion graphics and multimedia production.

Unit-05
Copyright issues, ethical concerns and responsible AI practices. Future developments and innovations in AI video production.

Course Outcomes

A Student will learn AI-based video production techniques.
B Student will understand AI-powered editing and automation workflows.
C Student will create video content using AI tools.
D Student will be able to integrate AI into production pipelines.
E Student will develop professional AI-assisted video projects.

M.Sc. (Animation and Multimedia) 4th Semester
Subject Code: AMP-208-V1
Subject Name: Advanced Compositing (Elective-VI)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand advanced compositing workflows and techniques.
2 To learn professional compositing and CGI integration methods.
3 To develop visual effects shots using advanced compositing tools.
4 To understand color management and multi-pass compositing.
5 To create production-ready composited visual effects sequences.

Unit-01
Compositing pipelines, workflows and industry practices. Multi-layer compositing and node-based compositing systems.

Unit-02
Advanced chroma keying, masking and rotoscoping techniques. Edge refinement and matte extraction workflows.

Unit-03
Camera tracking, object tracking and CGI integration. Scene reconstruction and compositing workflows.

Unit-04
Render passes, color correction, color grading and image enhancement techniques. High dynamic range workflows.

Unit-05
Complex compositing projects, visual effects integration and production workflows. Emerging trends in compositing technologies.

Course Outcomes

A Student will learn advanced compositing techniques.
B Student will understand professional VFX workflows.
C Student will create high-quality composited visual effects shots.
D Student will be able to integrate CGI with live-action footage.
E Student will develop industry-standard compositing projects.

M.Sc. (Animation and Multimedia) 4th Semester
Subject Code: AMP-210-V1
Subject Name: Interactive Storytelling & Narrative Design (Elective-VI)

No of Credits-2

L	**2**		**Sessional**	**40**
P	**-**		**Theory Exam**	**60**
			Total	**100**

Course Objectives

1 To understand the principles of Interactive Media and Experience Design.
2 To learn user-centered design and interactive storytelling techniques.
3 To develop engaging digital experiences across multiple platforms.
4 To understand immersive technologies and interactive communication systems.
5 To create innovative and user-focused interactive media solutions.

Unit-01
Concept, evolution and significance of interactive media. Interactive communication models, digital engagement strategies and user participation. Applications of interactive media in entertainment, education, marketing and communication industries.

Unit-02
Principles of user-centered design, interaction design and usability. User behavior, user journeys, information architecture and interface design. Design thinking approaches for creating engaging digital experiences.

Unit-03
Narrative structures for interactive media, nonlinear storytelling and user-driven experiences. Content strategy, audience engagement and storytelling techniques for digital platforms. Interactive content development and multimedia integration.

Unit-04
Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and Extended Reality (XR) applications. Interactive installations, smart environments and experiential design. Emerging technologies shaping future interactive experiences.

Unit-05
Design and evaluation of interactive experiences. Accessibility, inclusivity and ethical considerations in interactive media. Artificial Intelligence, adaptive experiences and future trends in interactive media and experience design.

Course Outcomes

A Student will learn the fundamentals of Interactive Media and Experience Design.
B Student will understand user interaction and experience design principles.
C Student will create interactive media content and digital experiences.
D Student will be able to design immersive and user-centered applications.
E Student will develop innovative interactive media solutions.