Master of Science in Animation & Visual Effects

Semester   : First Semester

S.No.	Course Code	Title of the Course	L	T	P	Total	Regular/ Deficiency
1	FMC-701	Models of Communication & Communication Theories	2	1	0	3	Regular
2	FMC -741	Foundation Art (Basic)	2	1	0	3	Regular
3	FMC -742	Advanced Digital Art	2	1	0	3	Regular
4	FMC -743	2D Classical Animation (Basic)	2	1	0	3	**Regular**
5	FMC -744	Process of Script Writing and Art of Story Board	3	0	0	3	Regular
6.	FMC -745	Film Production Analysis	1	0	2	3	Regular
7	COMP-705	Computer Orientation	2	0	1	3	Regular
					Total Credits	21	

Semester   :   Second Semester

S.No.	Course Code	Title of the Course	L	T	P	Total	Regular/ Deficiency
1.	FMC -746	Visual Effects Design, Animation & Graphics Design	1	0	2	3	Regular
2.	FMC -747	Tools & Techniques of Cinematography	1	0	2	3	Regular
3.	FMC -748	Video Editing & Technologies	1	0	2	3	Regular
4.	FMC -749	3D Animation & Advanced Modelling & Animation.	2	1	0	3	**Regular**
5.	FMC -750	2D Classical Animation (Advanced)	1	0	2	3	**Regular**
6.	FMC -751	Pre Production	2	1			
7	FMC -752	Foundation Art (Advanced)	2	1	0	3	**Regular**
					Total Credits	**21**	

Semester   :   Third Semester

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1.	FMC -753	Science Communication	2	1	0	3	Regular
2.	FMC -754	Advance Modelling with Z- Brush & Mudbox	2	0	2	4	Regular
3.	FMC -755	Post Production	2	1	0	3	Regular
5	FMC-756	Web Technology	2	0	1	3	**Regular**
6	ECE-	Multimedia Communication	2	1	0	3	**Regular**
7	FMC -757	Industrial Training	0	0	2	2	**Regular**
					Total Credits	18	

Semester : Fourth

S.No.	Course Code	Title of the Course	L	T	P	Total	Regular/ Deficiency
1.	FMC -758	Sound Editing with Sound Forge	2	1	0	3	Regular
2	FMC -759	Advance Lighting & Rendering In Maya	0	0	8	8	**Regular**
3	FMC -760	Special Effects (SFX) In Visual Effects & Compositing	2	1	0	3	**Regular**
4	FMC -761 FMC -762	**Elective Paper-I** Advance Illustration Experimental Animation	1 1	0 0	2 2	3	Regular
5	FMC -763 FMC -764 FMC -765	**Elective Paper** 2D- Animation / 3D- Animation/ Game and Animation Scripting	1 1 2	0 0 0	2 2 1	3	**Regular**
6	FMC -766	Project & Dissertation				**Non-credit**	
					Total Credits	**20**	

Syllabus

Models of Communication & Communication Theories

<u>Unit-1</u> Basic idea of Communication System. (Analog and Digital Communication), Origin & Development of Multimedia Communication, Basic techniques of Multimedia. Application of Multimedia Communication.
<u>Unit-II</u>
Signal Representation (continuous Signal and discrete Signal). Types of Signal, Sampling Theorem
<u>Unit- III</u>
Transmission of data through Circuit Switched network and packet switched networks signal coding and decoding.
<u>Unit – IV</u>
 Basic Multimedia file formats, Encryption and Decryption technique.
<u>Unit – V</u>
Internet and its application in multimedia communication.

Foundation Art (Basic)

Unit -1: Introduction to art, Purposes of Art, Art and morality, Art and Religion.
Unit -2: Indian art concept of art and classification of art.
Unit -3: Visual Elements: Line/Shape/Form/Mass Visual Elements: Value/Color/Texture
Unit -4: Principles of Design: Balance/Unity/Variety/Emphasis Principles of Design:
          Direction/Movement/ Scale/Proportion/Repetition
Unit -5: Fine Arts: Drawing and Painting Tools and Techniques, terms of arts.
Practical:-
1. Basic Shapes and Still life2. Anatomy and Portrait3. Figure drawing and posture4. Perspective drawings & Landscape and buildings
5. Practical knowledge of water colour, oil colour, acrylic colour, crayon, pastel, charcoal and pencil study.

Advanced Digital Art

Unit -1: • Fundamental of computer • concept of graphics & illustration • concept of basic art,
        • Concept of digital art
Unit -2: • A survey of computers graphics • multimedia & internet • graphics & illustration
        (2) • basic art, designing process
Unit- 3:• Creating illustrations • image magic
Unit -4:• Overview of graphics systems • Concept of sketching
Unit -5:• Output primitives: • Points and lines, • Properties of circles & ellipse, pixel addressing,
        Adobe Photoshop, Cover Page design

2D Classical Animation (Basic)

Unit 1: Principles of Animation Straight Ahead Action & pose to pose Action Motion Tweens, Shape Tweens and frame by- frame animations Graphic, Button, and Movie Clip Symbols.

Unit 2: Instances Digital 2D Animation orientation – Basic factors affecting the illusion of motion – Impact of digital techniques on the craft of film and video animation – Professional animation practice and job description – Prevailing file format standards and other compatibility issues

Unit 3: History and future trends of computer animation application in the visual arts. 2D graphics editing features – Basic geometric transformations – Boolean, operations on shapes – Object stroke attributes - Objects fill attributes.

Unit 4: Shading, techniques (blends – gradients) – Packaged effects (extensions – plug-ins) – Features specific to the program in use.

UNIT – 5 2D animation frame-sequencing features – Straight-ahead animation – Key frames animation – Motion paths – Applying geometric transformation over time – Intertwining options – Looping and palindrome motion – Features specific to the program in use.2D animation application software interface - Default setting and user preference.

Process of Script Writing and Art of Story Board
Unit- 1: •Understand plot structure• Look in-depth at the key components of classical dramatic narrative • Writing for television& Film
Unit -2: • Create detailed characters • Development of your personal style and voice
Unit- 3: • Write believable, entertaining dialogue• Learning how to 'trigger' your imagination and free yourself as a script writer• Analyse and develop dramatic situations
Unit -4: •Introduction to Traditional Storytelling Structures and Universal hemes • Story boarding   for Animation
Unit- 5: • The Impact of Ever-Evolving Technology on the Creation of New Visual Narratives • Storyboarding Techniques and Visual Thinking for Animation

Film Production Analysis

Unit-1: Introduction of film ,The beginning, The Pioneers, The coming of talkies, the studio system , the golden age of animated film
Unit -2: Different kinds of film format, Documentary, short films & 2d Animation Films, Indian news reel, Parallel cinema, Commercial Cinema, Multiplex Cinema,
Unit-3: Producing animated film, Production crew and their functions, animated film production equipments and steps in 2d & 3d film making.
Unit -4: Appreciation of the animated film , Understanding of visual effects and work of animation in feature film appreciation , review, and critique.
Unit -5: Analysis of some landmark 3d animated movies

Computer Orientation

Semester   :   Second Semester

Visual Effects Design, Animation & Graphics Design
UNIT – 1 Visual Effects- Description- Types- Particles – Analysis- Size- Sand Effects – Smoke Effects- Fire Effects – Cloud Effects – Snow Effects
UNIT-2   Fluid Effects-Coloring- designing Clouds Background – Designing Fog Effects – Explosion Effects– Fire Effects with flames - Space Effects and designs- Designing Thick Smoke
UNIT-3 Designing Paint Effects – Coloring paints- Designing Trees and green effects – Designing Weather and seasons –Effects on seasons- Designing Glass image – Designing Different glass reflection- Designing Glow Effects – Liquid Effects and reflection design
UNIT-4 Designing Special Effects – Designing effects of Hair and shape – Designing Fur Effects- Designing Clothes and effects
UNIT-5 Visual Effects Tool and advanced functions– Converting images from 2D to 3D Pictures. Creating 3D Effects- Differentiation 2D effects and 3D effects.

Tools & Techniques of Still photography

Video Editing & Technologies

3D Animation & Advanced Modelling & Animation.

Unit -1: Keyframes and the Graph Editor Introduction, Setting the playback range Setting key frames , Using the Graph Editor Changing the timing of an attribute , Fine tuning an animation Deleting extra key frames and static channels , Using Play blast to playback an animation, Using Set Driven Key to link attributes, Viewing the results in the Graph Editor
Unit-2 : Path animation Animating an object along a motion path ,Changing the timing of an object along a motion path Rotating an object along a motion path, Blending key frame and motion path animation Using Playblast to playback an animation, Nonlinear animation with Trax Creating clips with Trax ,Changing the position of clips with Trax ,Editing the animation of clips Reusing clips within Trax, Soloing and muting tracks Scaling clips within Trax
Unit-3 : Inverse kinematics   Understanding hierarchies ,Viewing hierarchies using the Hypergraph ,Creating a skeleton hierarchy ,Creating a control object for an IK system, Constraining an IK system,Planning an animation for an IK system, Animating an IK system ,Character Setup ,Skeletons and kinematics
Unit-4: Smooth skinning Smooth binding a skeleton ,Skin weighting and deformations Modifying skin weights ,Influence objects Cluster and blend shape deformers .Creating a target object for a blend shape Creating a cluster deformer on a target object Editing cluster weights Creating a blend shape Refining deformation effects Adding target objects to an existing blend shape

2D Classical Animation (Advanced)

Unit 1: Create an animation from a script and storyboard, Create scene elements for background, Middle ground, and foreground, Create animated text elements, Add sound elements.
Unit 2: Create cut out characters, Set rotation points for element manipulation, Animate the character's arms, legs, feet, etc., Create 2-legged walk cycles, Create 4-legged walk cycles.
Unit 3 Animate the character's facial expressions, Lip-sync the characters mouth shapes to the spoken dialog, Set the timing for the animation, Create turnarounds.
Unit 4: Create scrolling/panning backgrounds, Create repeating animation loops, Create camera moves, Use a variety of camera angles to enhance the story, Create transitions between scenes.
Unit 5: Create title animations, Create closing/credits animations, Publish the animation for the web, Publish the animation in the following movie format types: QuickTime, Flash, and AVI.

Pre   Production

Unit 1: Story Components of a Story, Storytelling, Scriptwriting

    Character Design: Character Design, Character Development

    Visual Direction: Visual Direction, Background Design

Unit 2: Storyboarding: Introduction to Storyboards, Screen Formats, Camera Shot List, Floor Plans Visualization, Using Arrows to Show Character and Camera Movement, Storyboard Workflow, Production Planning

Shot: Types of Framing Shot, Camera Position, Camera View, Camera Motion

Unit 3: Composition: Visual Design Components, Purpose of Framing and Movement, Types of Equilibrium, Types of Lighting, Direction of Light Source,\Use of Color

Perspective: Types of Perspective, Perspective Components, Camera Focus

Unit 4: Human Figure Drawing: Proportion, Manikin Frames, Human Figure Drawing in Perspective, Human Figure Drawing in Action

Continuity, Cuts and Transitions: Fundamental Rules of Continuity, Cuts and Transitions

Unit 5: Animatics : Types of Animatics, Storyboard Preparations for, Animatics, Timing Animation Concepts , Modeling, Materials and Textures, Texture Painting, Character Modeling and Animation, Environment, Lighting, Cameras, Visual Effects I, Rendering, Rendering Effects.

Foundation Art (Advanced)

Unit -1: Introduction to art, Purposes of Art, Art and morality, Art and Religion.
Unit -2: Indian art concept of art and classification of art.
Unit -3: Visual Elements: Line/Shape/Form/Mass Visual Elements: Value/Color/Texture

Unit -4: Principles of Design: Balance/Unity/Variety/Emphasis Principles of Design: Direction/Movement/ Scale/Proportion/Repetition

Unit -5: Fine Arts: Drawing and Painting Tools and Techniques, terms of arts. Practical:-
1.Basic Shapes and Still life 2. Anatomy and Portrait 3. Figure drawing and posture 4. Perspective drawings & Landscape and buildings.
5. Practical knowledge of water color, oil color, acrylic color, crayon, pastel, charcoal and pencil study.

Semester   :   Third Semester

Science Communication

Advance Modeling with Z- Brush & Mudbox

Post Production

Unit 1: Audio: Digital Audio, Music, Sound Effects,

Unit 2: Vocal Tracks, Voice Recording, Audio Editing

Unit3: Video Editing: Video Editing, Titles and Credits.

Unit 4: Transitions.

Unit 5: Export the Final 3D Animation Production
Web Technology
UNIT-1: NEW MEDIA IN MASS COMMUNICATION
Web as a new media of Mass Communication; Strengths and weaknesses of web media; Media convergence. 1.2: Information overloading, digital divide, addiction, virus and vaccines. Credibility issue and research on Internet. Cyber Communication.
UNIT-2: WEBSITE PLANNING AND DESIGNING Topic, Target visitors and domain name. Choosing a web server/hosting service. Creating a layout and Navigation architecture plan. Designing graphics for the web; web image types; web image optimization.
UNIT-3: FRONT PAGE
MS Front page: Interface, Tool boxes, Panels, Menu options,
Text formatting, Navigation Structure: Navigation bar, Site Maps; Hyperlink: Hyperlink to internal and external files; font effects; Hotspots: Graphic and Text hotspot, editing hotspots; Adding interactivity; Forms; Frames; Tables; Cascading Style Sheet (CSS); Banner Ads; Embedding Multimedia Objects.

UNIT-4: CONTENT PLANNING AND WRITING FOR WEB
Content planning, management and retiring of content; Exclusive versus generic content. Writing for web: Basic Principles. Information, news and entertainment on web; Impact of web journalism. Web copy-editing; presentation of content on the web.
UNIT-5: **CASE STUDIES**
Study of a newspaper and TV channel on the basis of same or modified content in their web sites. Comparative study of major news portals on the basis of region, language and nationality. Study of a Business/ Industry website. Study of an Educational Institution's website Business/Industry website

Multimedia Communication

Industrial Training
The students will undergo training in different media house or corporate sectors for one month.

Semester   :   Fourth Semester

Sound Editing with Sound Forge

Advance Lighting & Rendering In Maya

Special Effects (SFX) In Visual Effects & Compositing

UNIT – 1 : Single integrated application – vector paint – motion graphics design – animation – composting – Full 3D composting environment – Advanced visual effects tools – keying, color correction, tracking, grain management, and masking tools inherited from the Flame visual effects system.
UNIT – 2: Edit Operator – break free from your NLE – assemble clips complete with transitions right in Combustion – Rich set of effects-tools – fully integrated – interactive particle system – warping and morphing – 3D Post filters.
UNIT – 3: Comprehensive paint and rot scoping tools – Fully customizable brushes – Comprehensive animation tools –animation curve editor – key framing – Expressions – Intuitive schematic view to simplify visualization and organization of complex effects.
UNIT – 4: OpenGL® application programming interface acceleration – multiprocessor support – extensive caching for improved system performance – Multiple simultaneous view ports.
UNIT – 5: Resolution –independence with 8-, 10, 12, 16, and 32-bit (float) per component image processing – real-time RAM looped playback.

Elective Paper-I

Advance Illustration

Experimental Animation

Elective Paper

2D- Animation /
3D- Animation/
Game and Animation Scripting

Unit-1: Comprehensive exploration of games design mechanics, dynamics and aesthetics. Game design and art, Discuss the history of electronic game development. Distinguish between the different game platforms and player modes.

Unit-2: Detailed exploration of level design using the Unreal Development Kit. Programming and technology, Distinguish between the different game goals and genres.

Unit-3: Experience of the art production pipeline for both 2 D and 3D game engines, Extended game development modules at all levels of the course. Opportunities to specialize, including final year dissertation. Narrative and script development, Apply story and character development to games.

Unit-4: Practical experience of agile games management methodology including bug tracking and testing. The game industry, Computation and Technology, Discuss the production and management of the game design process .Identify the distinct roles and responsibilities of game development team members. Discuss the production and management of the game design process. Discuss various aspects of game play that can be used to design game interaction.

Unit-5: Scripting in Action script 3 and Unity for both 2D and 3D games. Artificial intelligence, Development and project management, Define elements related to game strategy, theory, and game play, Develop game design documentation.

Project & Dissertation