

**Programme Name: B.Sc. -ANIMATION & Visual Effects (B.Sc-AVFX)**

**Total Credits of the Program: 163**

**Semester : First Semester**

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1.	FMC-361	Foundation Art-I	2	0	1	3	Regular
2.	FMC-362	Classical Animation-I	2	0	1	3	Regular
3.	FMC-363	Digital Art	2	0	1	3	Regular
4.	FMC-373	Media & Cyber Laws	2	1	0	3	Regular
5	FMC-331	Communication & Communication Theories	3	0	0	3	Regular
6	BAM-327	Business Communication	2	1	0	3	Regular/ Offered by JSBS
7	LNG-304	Professional Communication & Technical Writing	2	0	1	3	Regular/ Offered by DEFL
8	GPT-301	Moral Value & Education	3	0	0	3	Regular/ Offered by GPST
						24	

**Semester : Second Semester**

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1	FMC-365	Foundation Art-II	2	0	2	4	Regular
2	FMC-366	Classical Animation-II	2	0	1	3	Regular
3	FMC-367	3D Design & Modelling	1	0	3	4	Regular
4	FMC-337	Advertising & Public Relations	3	0	0	3	Regular
5	FMC-368	Animation Techniques	2	0	1	3	Regular
6	FMC-340	Web Technology	2	0	1	3	Regular
7	ECE- 306	Introduction to Multimedia Communication	2	1	0	3	Regular/ Offered by SSET
<b>Total Credits</b>						23	

**Semester : Third Semester**

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1	FMC-369	3D Animation-I	2	0	2	4	Regular
2	FMC-370	Pre production	2	0	1	3	Regular
3	FMC-371	Visual Effects(VFX) Design	1	0	2	3	Regular
4	FMC-332	Television & Film Production Analysis	1	0	2	3	Regular
5	FMC-364	Concept Visualization	3	0	0	3	Regular
6	FMC-374	Video & Sound Editing	1	0	2	3	Regular
7	BAM - 213	Principles of Management	2	1	0	3	Regular
<b>Total Credits</b>						22	

**Semester : Fourth Semester**

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1.	FMC-375	3D Animation-II	1	0	2	3	Regular
2.	FMC-376	Special Effects (SFX)	2	0	1	3	Regular
3.	FMC-377	Post Production	2	0	1	3	Regular
4.	FMC-347	Introduction to Cinematography & Lights	1	1	1	3	Regular
5	ECE- 307	Introduction to TV & Satellite Communication	2	1	0	3	Regular/ Offered by SSET
6	FMC-344	Media Economics	2	1	0	3	Regular
						<b>Total Credits</b>	<b>18</b>

**Semester : Fifth Semester**

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1	FMC-378	Production Process	2	0	1	3	Regular
2	BAM-545	Management Information System	2	1	0	3	Regular
3	FMC-352	Communication Research	2	1	0	3	Regular
4	FMC-379 FMC-380	<b>Elective-I</b> Modelling &Texturing/ Lighting & Shading/	1	0	2	3	Regular
5	FMC-381 FMC-382	<b>Elective-II</b> 3DAnimation / Game Art	1	0	2	3	Regular
6	FMC-319	Industrial Training				20	Non Credit
7	ECE- 305	Introduction to Digital Image Processing	2	1	0	3	Regular/ Offered by SSET
						<b>Total Credits</b>	<b>38</b>

**Semester : Sixth Semester**

S.No.	Course Code	Title of the Course	Credit Hr.				Regular/ Deficiency
			L	T	P	Total	
1.	FMC-384	Digital Film Production	0	0	20	20	Regular
2	FMC-385	Visual Perception	2	1	0	3	Regular
3	FMC-358	Project & Dissertation				15	Non Credit
						<b>Total Credits</b>	<b>38</b>

# **Syllabus**

## **Foundation Art-I**

### **(Fmc-361)**

**Credit Hours 3(2+0+2)**

#### **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 colour, oil colour, acrylic colour, crayon, pastel, charcoal and pencil study.

## **Classical Animation-1**

**(FMC-362)**

**Credit Hr.:3(2+0+2)**

### **Unit 1**

- Design & animation suite
- concept of classical animation
- fundamental of computer, multi media Unit 2
- Concept of 2D animation
- Concept of story boarding
- concept of basic animation

### **Unit 3**

- Working with audio
- Video streaming & editing
- Graphics & animation with flash

### **Unit 4**

- Drawing & animation with Toon Boom Studio
- Project -2D animation portfolio

### **Unit 5**

- Web weaver
- Web designing

**Digital Art**  
**(FMC-363)**

**Credit Hr.3(2+0+2)**

**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

## **Concept Visualization**

**(FMC-364)**

**Credit Hr.3(2+1+0)**

**Unit 1 :** Concept of Visual Communication, Need & importance of visual Communication, Meaning of Concept Visualization.

**Unit 2 :** Theoretical Aspects of Visual Communication

Visual Literary, Visual Vs Verbal Communication, Psychology of Perception & Psychology, Cognition & Information Processing, Art & Aesthetics, Ideation Symbol & Signs.

**Unit 3 :** Communication & the Visual, The “Seeing Subject, Seeing & Sense, Visual Saturation, Images as Signs, Images & Meaning, The pictorial turn, Communicating & Cultural fields, Visuality & Reality, Reading the Real, The Reality function, Story board.

**Unit 4 :** Reading the Visual - The activities of Seeing, Seeing as Reading, The tabitus & cultural literacies, Seeing in context, Techniques of Seeing as reading, Seeing in time & motion, Text & Interest, Text & genres, Color Psychology & Theory.

**Unit 5 :** Semiotics & Visualization - Semiotics, Perception, Cogination & Convention, Representational Communication, Visual Interpretation, Fundamentals of Design, Elements of Design : Line, Shape, Space, Color, Texture.

**Business Communication**  
**(BAM – 327)**

**Credit 3(2+1+0)**

\*Concepts of Communication

\*Communication Process

\*Barriers to Communication

\*Written Communication – Formal Reports, Technical Reports, Business

\*Correspondence, Notices, Research Paper.

\* Oral Communication – Dyadic Communication, Meetings, Seminars & Conferences, G. D.,  
Audio Visual Aids.

\*Non Verbal Communication – Personal Appearance Postures,

\*Gestures, Facial Expressions, Eye Contact

**Text Book Recommended:**

Business Communication – Lesikar & Pettit

## **Foundation Art- II**

**(FMC-365)**

**Credit Hours 4(2+0+4)**

### **Unit 1:-**

The Creative Impulse. Art in society. Indian art concept of art and classification of art.

### **Unit 2:-**

Aesthetic - Introduction, A short history of Aesthetics, The field and scope of Aesthetics, Problems of Aesthetics.

### **Unit 3:-**

Art Evaluation and Criticism. Meaning of symbol, Art and symbolism.

### **Unit 4:-**

(Philosophy of art)- Principle of ras, Suggestiveness of work of art, richness of ambivalence and association.

### **Unit 5:**

Computer Graphics- technology and techniques

Introduction to Adobe PageMaker

Introduction to Adobe Photoshop

Introduction to Coral Draw

Introduction to Adobe Illustrator

## **Classical Animation-II**

**(FMC-366)**

**Credits Hr: 3(2+0+2)**

### **Unit- 1:**

- Concept of 2d movie
- Story boarding
- Matrix representations
- Tabular data

### **Unit -2:**

- Animation with flash,illustrations
- Overview of graphics systems
- Formating and editing text
- Anotomy study

### **Unit- 3:**

- Flash scripting
- Type of animation
- Layer style

### **Unit -4:**

- Creat motion tween
- Shape animation
- Key frame animation

### **Unit- 5:**

- Movie clip
- Concept of 2d filters
- 2 d game with flash

## 3D DESIGN & MODELING

(FMC-363)

Credit Hours: 4(1+0+6)

### Unit -1:

The Maya user interface

Introduction -The Maya interface

Creating, manipulating, and viewing objects-

Creating a new scene, Primitive objects, Transformation tools. The Channel Box

### Unit -2:

Viewing the Maya 3D scene

Workflow overview, viewing objects in shaded mode, Grouping objects, The Hypergraph

Selection modes and masks, Pivot points Components and attributes Template display

Components The Attribute Editor Surface materials

### Unit -3:

Polygonal Modeling

Modeling a polygonal mesh -Using 2D reference images Creating a polygon primitive Model symmetry Selecting edge loops,Editing components in the orthographic views,Editing components in the,perspective view ,Drawing a polygon,Extruding polygon components,Bridging between edges Adding polygons to a mesh,Splitting polygon faces ,Terminating edge loops

### Unit -4:

NURBS Modeling

Revolving a curve to create a surface Creating a profile curve ,Creating a revolve surface Editing a revolve surface Sculpting a NURBS surface Preparing a surface for sculpting,Basic sculpting techniques,Additional sculpting techniques. Sculpting a nose ,Sculpting eye sockets ,Sculpting eyebrows,Sculpting a mouth Sculpting other facial features

### Unit -5:

Subdivision Surfaces

Modeling a subdivision surface Splitting a surface in polygon proxy mode ,Extruding polygon faces ,Deleting polygon faces Subdivision surface levels Refining surface components Creating a crease in a subdivision surface

# **Animation Techniques**

**(FMC-368)**

**Credit Hours: 3(2+0+2)**

## **UNIT-I:**

What is mean by Animation – Why we need Animation – History of Animation– Uses of Animation – Types of Animation – Principles of Animation – Some Techniques of Animation – Animation on the WEB – 3D Animation – Special Effects -Creating Animation.

## **UNIT-II:**

Creating Animation in Flash: Introduction to Flash Animation – Introduction to Flash – Working with the Timeline and Frame-based Animation - Working with the Timeline and Tween-based Animation – Understanding Layers - Actionscript.

## **UNIT-III:**

3D Animation & its Concepts – Types of 3D Animation – Skeleton & Kinetic 3D Animation – Texturing & Lighting of 3D Animation – 3D Camera Tracking – Applications & Software of 3D Animation.

## **UNIT-IV:**

Motion Capture – Formats – Methods – Usages – Expression – Motion Capture Software's – Script Animation Usage – Different Language of Script Animation Among the Software.

## **UNIT-V:**

Concept Development – Story Developing – Audio & Video – Color Model – Device Independent Color Model – Gamma and Gamma Correction - Production Budgets- 3D Animated Movies.

## **Introduction to Multimedia Comm.**

**(ECE – 306)**

**Credit 3(2-1-0)**

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



**Internet & WebTechnology**  
**(comp-561)**

**Credits Hr.-3(2+0+2)**

**UNIT-1:**

**NEW MEDIA IN MASS COMMUNICATION**

- 1.1: 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.
- 1.3: Credibility issue and research on Internet.
- 1.4: Laws and Ethics of Cyber Communication.

**UNIT-2:**

**WEBSITE PLANNING AND DESIGNING**

- 2.1: Topic, Target visitors and domain name.
- 2.2: Choosing a web server/hosting service.
- 2.3: Creating a layout and Navigation architecture plan.
- 2.4: 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**

- 4.1: Content planning, management and retiring of content; Exclusive versus generic content.
- 4.2: Writing for web: Basic Principles.
- 4.3: Information, news and entertainment on web; Impact of web journalism.
- 4.4: Web copy-editing; presentation of content on the web.

**UNIT-5:**

**CASE STUDIES**

- 5.1: Study of a newspaper and TV channel on the basis of same or modified content in their web sites.
- 5.2: Comparative study of major news portals on the basis of region, language and nationality.
- 5.3: Study of a Business/ Industry website.
- 5.4: Study of an Educational Institution's website Business/Industry website

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- Unit – V** Internet and its application in multimedia communication.

## **3D Animation-I**

**FMC-369**

**Credit Hours: 4(2+0+4)**

### **Unit -1:**

Keyframes and the Graph Editor

Introduction, Setting the playback range Setting keyframes , Using the Graph Editor

Changing the timing of an attribute , Fine tuning an animation

Deleting extra keyframes and static channels , Using Playblast 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 keyframe 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-5:**

Smooth skinning

Smooth binding a skeleton ,Skin weighting and deformations Modifying skin weights ,Influence objects

Cluster and blend shape deformer .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

### **Unit-5 :**

Polygon Texturing

UV texture mapping Creating a cracker box model Applying a texture map to a polygon mesh . .

Viewing UVs in the UV Texture Editor , Mapping UV texture coordinates

Working with UVs in the UV Texture Editor

## **Pre-Production**

**(FMC-370)**

**Credit Hr.: 3(2+0+2)**

### **Unit-1**

Character Design, Character Development, Understand and design the different character styles and character types, Develop the specifics and attributes of a character; that is, names, words, design and behaviour

### **Unit -2**

Visual Direction, Background Design, Understand visual direction elements, Create visual direction style, Design background and props

### **Unit-3**

Storyboarding, Screen Format, Floor Plans Visualisation, Using Arrows to Show, Character and Camera Movement, Storyboard Workflow, Production Planning

### **Unit-4**

Understand the different screen aspect ratio formats, Use floor plans to show set location  
Plan for an animation production using charts and time schedule Develop a storyboard proposal based on ideas/concepts generated

### **Unit -5**

Types of Framing Shot, Camera Position, Camera View, Camera Motion  
Understand the different types of framing shot, Use camera position and angles to create dynamic scenes,  
Use camera view to create scenes, Use camera motion to create dynamic scenes

## **Visual Effects (VFX)Design**

**(FMC-371)**

**Credit Hr.: 3(1+0+4)**

### **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.

## **Film Analysis**

**(FMC-332)**

**Credits Hr.-3(1+0+4)**

### **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

**Media & Cyber Law**  
**(FMC-373)**

**Credits Hr.: 3(3+0+0)**

**UNIT-1:**

Nature and Principle of Constitution Of India

(a) Fundamental Rights (b) Right to Information (c) Freedom of Expression (d) and Freedom of Press in various political Setup

**UNIT-2:**

Constitutional Restrictions on Media

Privileges of Media Personnel, The Indian Penal Code, Indian Evidence Act , Libel , Slander , Defamation ,Contempt of Court.

**UNIT-3:**

Acts

The Press Registration of Books Act 1867, Copy Right Act – Periodical Changes, Post and Telegraphy Act , Official Secrets Act of 1923.

press Council – Working Journalists Act – MRTPC (Monopolies and Restrictive Trade Practice Commission) – Industrial Dispute Act – Indecent Representation of Women Act of 1986.

**UNIT-4:**

Rights & Liabilities

Rights and Liabilities of the Editor, Printer and Publisher – Editorial autonomy and Independence – Govt. Information Services and their controls – PIB.

**UNIT-5 :**

THE INFORMATION TECHNOLOGY ACT, 2000 (No. 21 OF 2000)

PRELIMINARY .

DIGITAL SIGNATURE

ELECTRONIC GOVERNANCE

ATTRIBUTION, ACKNOWLEDGMENT AND DESPATCH OF ELECTRONIC RECORDS

REGULATION OF CERTIFYING AUTHORITIES

**Video & Sound Editing  
(FMC-374)**

**Credits Hr.: 3(1+0+4)**

**Unit-1**

Introduction to digital editing, Principles of editing., Liner & Nonlinear Editing, On line & Off line Editing  
Analysis of film sequences from editing point of view

**Unit -2**

Introduction to Editing Software (Premier 6.5 & Pro.), Introduction of Tools, Capturing Raw Data., Editing - Action Sequence/ match cut / continuity match

**Unit-3**

The Nature of Sound, Human Voice and Speech, The Microphone and its creative use

The loudspeaker and monitoring of sound, The Sound Mixer, Dialogue recording ,Dubbing of recorded sequences, Practices and procedures for dialogue recording with reference to the visuals, continuity of sound quality and perspective, Handling voice in multi-track recording and mixing

**Unit -4**

Music recordings, Familiarization with acoustic and electronic musical instruments, Types of microphones and their placement in recording music, Sound mixing and processing in multi-track recording of music.

**Unit -5**

Critical listening in music recording, Outdoor sequence involving action, Dialogue, based short story, Song with musical composition, Scoring background music, Effect sounds, Techniques of recording spoken words and music for radio broadcasting and the Internet.

Editing of sound Computer hardware and software's used in sound recording work

Voice over and sound bytes, dubbing and mixing of sound

**(Practical Work)**

Script based Editing, Soft Story Editing & Hard Story Editing, News Editing & Ad Editing (10 sec. 15sec. 20sec)

## **Principles of Management**

**(BAM – 213)**

**Credit 3(2+1+0)**

- \*Nature and Functions of Management
- \*Development of Management Thought
- \* Co-ordination
- \*Planning
- \* Decision Making
- \* Organizing
- \* Delegation of Authority
- \* Staffing, Training & Development
- \* Direction
- \* Communication
- \* Leadership
- \* Controlling

### **Text Book Recommended:**

Essentials of Management – Koontz & Weirich  
Principles and Practices of Management – L. M. Prasad  
Management – Stoner, Gilbert & Freeman

## **3D Animation -II**

**(FMC-375)**

**Credits Hr.-3(1+0+4)**

### **Unit -1:**

#### **Rendering**

Rendering a scene Introduction Open the scene for the lesson Creating shading materials for objects Refining shading materials for objects Maya renderers Rendering a single frame using IPR Rendering using the Maya software renderer Batch rendering a sequence of animation frames Viewing a sequence of rendered frames

### **Unit-2 :**

#### **Shading surfaces**

Assigning a shading material Modifying surface specularity Material types Assigning textures Using the Hypershade editor Creating a texture within the Hypershade editor Modifying a bump texture Lights, shadows, and cameras Directional lights Spotlights Editing light attributes Shadows Creating additional cameras in a scene Animating camera moves Global Illumination Caustics Dynamics ,Particles, emitters, and fields Creating an emitter Creating volume axis fields. Adjusting the velocity of moving particles Setting the particle render type Adding dynamic attributes Adding per particle attributes Adding color to particles with a color ramp

### **Unit -3:**

#### **Rigid bodies and constraints**

Creating hinge constraints Running a dynamics simulation Changing an active rigid body to passive Painting in 2D using Paint Effects Painting strokes Modifying the default brush settings Blending brushes Smearing, blurring, and erasing paint . Painting in 3D using Paint Effects. . Rendering Paint Effects strokes

### **Unit -4 Expressions**

Creating a simple expression Creating expressions to control a single attribute Editing expressions Using expressions to control multiple attributes Linking multiple attributes on the same object Controlling attributes in two

### **Unit-5:**

Conditional expressions

Creating a conditional expression Other conditional statement options Fixing a problem in an expression Using else statements Simplifying expressions Editing expressions to refine an animation

## **Special Effect(SFX)**

**(FMC-376)**

**Credits Hr.-3(2+0+2)**

### **UNIT – 1 :**

Single integrated application – vector paint – motion graphics design – animation – compositing – Full 3D compositing 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.

## **Post Production**

**(FMC-377)**

**Credits Hr.-3(2+0+2)**

### **Unit-1:**

#### Shooting and Editing Video

how videos are produced (shot, captured, edited, and output). In the lecture you'll learn the basics of how directors set up and frame shots, exploring the impact of framing and camera angle, height, and distance on the viewer's perception of the sequence. You'll learn key terms that video editors use as well as creative concepts for your projects.

### **Unit-2:**

#### Editing Techniques

video modification, exploring techniques that can make or break the continuity between one shot and the next. You'll explore classic techniques for connecting shots such as graphic match, rhythm, movement, and spatial relation. A secondary focus will be on different ways in which editors compress time.

### **Unit-3:**

#### Rhythm, Motion, and Effects

Different techniques manipulating time, through rhythm, motion, and effects. You'll explore how overrunning and underrunning time—or slowing or speeding up motion—can influence the viewer's perception of time. You'll learn how editing programs alter the frame rate through interpolation and how transition effects and other visual effects can be used to communicate the passage of time and other changes from shot to shot.

### **Unit-4:**

#### Editing Sound

all-important aspect of the moving image: the soundtrack that accompanies it. The lesson explores the four elements that comprise any video soundtrack: the human voice, ambient sound (room tones), sound effects (foley), and music, defining their impact on the viewer. The qualitative aspects of sound are discussed—volume, loudness, pitch, and timbre

### **Unit-5:**

#### Titles, Output, and Compression

Ready for Cannes or Sundance? Lesson Six provides pointers on polishing and publishing your work. You'll explore such final touches as adding the introductory title and/or text graphics to your video.

## **Management Information System**

**(BAM – 545)**

**Credit 3(2+1+0)**

Concepts of Management Information System

Information Systems and System Organizations.

Functions of Computer

Computer and information Processing

Information Systems Software

Enterprise – Wide computing and Networking

Alternate System Building methods

Information and Knowledge work system

Artificial Intelligence

Controlling Information System

Office Automation

### **Practical**

MS word

MS Excel MS PowerPoint

MS Access

Fundamentals of Internet

**Introduction to T.V. and Satellite Comm.**

**(ECE – 307)**

**Credit: 3(2-1-0)**

**Unit – 1** Fundamental of Monochrome and Colour Television System, composite video and audio signal.

**Unit – II Television Broadcasting and Receivers**

Monochrome TV Transmitter and Receiver. Colour TV Transmitter and Receiver.

**Unit – III Introduction to Modern TV System**

Cable TV ; Satellite TV, HD TV, LCD TV.

**Unit – IV** Introduction to satellite communication, Geostationary and Synchronous satellite.

**Unit – V** Satellite and it's orbit, Attitude and orbital control system, Telemetry, Tracking and command.

**Production Process**  
**(FMC-378)**

**Credit Hr. 3(2+0+2)**

**UNIT-1**

Directing and Analyzing a film, Animation film techniques, Film language in action, Adaptation of film language into animation, Student project- Character Designs, Overview, Working with a script/ screenplay,

**UNIT-2**

Camera angles, Movements of the camera- Pans, Tilts Truck in and Truck outs, Shots and Scenes, Dramatic effects, Visual language and readability, Visual continuity, Timing the storyboard, Analyze storyboard of a film,

**UNIT -3**

story boarding, Layout and design, Focus on the design of the film, background design and composition as well as camera aspects and film language, Working with storyboard, Field size, Design and rendering the scenes layout and composition, Pans, Trucks and Multiple Pans,

**UNIT -4**

Scene planning, Realistic touches; character interaction with the scene and the backgrounds, Analyze film layouts, Design and layouts, clean of up of BGs and BG painting, Sound concepts and effects for the film,

**UNIT -5**

The sound track, Sound equipment and theory, Dialogue and Voice-over, Exposure-sheet doping, Break down, reading the sound track. editing- Image and voice, sound FX and Music.

**Elective Paper-I**  
**Modeling & Texturing**  
**FMC-379**

**Credit Hours 3(1+0+4)**

**UNIT -1**

Modeling & Texturing a Simple Character with Polygons ,Modeling with Polygon Tools  
Working with Symmetry ,Using Image Planes ,Block Modeling ,Sculpting the Character  
UV Texturing

**UNIT-2**

Modeling and Texturing a Simple Character with Subdivision Surfaces ,Concepts of Modeling with  
Subdivision Surfaces ,Subdivision Surfaces Levels  
Refining Surface Components ,Techniques for Texturing Subdivision Surfaces  
Designing and Modeling a Character with Subdivision Surfaces ,Testing Geometry Deformation

**UNIT -3**

Modeling and Texturing a Character with NURBS ,NURBS Topology  
Modeling with Profile Curves ,Tools and Methods ,Designing and Modeling a Character with NURBS

**UNIT -4**

Designing a Humanoid and Modeling the Head ,Human Anatomy for Modelers  
Using Distortions for Artistic Purposes ,Methods and Tools

**UNIT-5 –**

Modeling the Humanoid Torso and Limbs ,Blocking the Torso and Limbs  
Shaping and Refining the Torso and Limbs ,Testing Geometry Deformation UV Mapping the Humanoid  
,UV Mapping ,Facial Expression ,The Anatomy of the Face (Physiognomy) ,Universal Human Emotions  
and Their Physical

**Elective Paper-I**  
**Lighting & shading**  
**FMC-380**

**Credit Hours 3(1+0+4)**

**Unit -1**

**Rendering**

Rendering a scene Introduction Open the scene for the lesson Creating shading materials for objects Refining shading materials for objects Maya renderers Rendering a single frame using IPR Rendering using the Maya software renderer Batch rendering a sequence of animation frames Viewing a sequence of rendered frames

**Unit-2**

**Shading surfaces**

Assigning a shading material Modifying surface specularity Material types Assigning textures Using the Hypershade editor Creating a texture within the Hypershade editor Modifying a bump texture Lights, shadows, and cameras Directional lights Spotlights Editing light attributes Shadows Creating additional cameras in a scene Animating camera moves Global Illumination Caustics Dynamics

**Unit 3**

Particles, emitters, and fields Creating an emitter Creating volume axis fields. Adjusting the velocity of moving particles Setting the particle render type Adding dynamic attributes Adding per particle attributes Adding color to particles with a color ramp

**Unit -3**

**Rigid bodies and constraints**

Creating hinge constraints Running a dynamics simulation Changing an active rigid body to passive Painting in 2D using Paint Effects Painting strokes Modifying the default brush settings Blending brushes Smearing, blurring, and erasing paint . Painting in 3D using Paint Effects. . Rendering Paint Effects strokes

**Unit -4**

**Expressions**

Creating a simple expression Creating expressions to control a single attribute Editing expressions Using expressions to control multiple attributes Linking multiple attributes on the same object Controlling attributes in two Lesson 5 Conditional expressions , Creating a conditional expression Other conditional statement options Fixing a problem in an expression Using else statements Simplifying expressions Editing expressions to refine an animation

**Elective Paper-II**  
**3D Animation**  
**FMC-382**

**Credit Hours 3(1+0+4)**

**Unit -1**

Reflecting on human movement, Gaining an insight into creating believable action Practicing the mechanics of biped walks, runs, head turns, gestures, Methods of lip-syncing to sound breakdowns ,Posing characters in scenes

**Unit -2**

Reflecting on animal movement Gaining an insight into creating believable action Practicing the mechanics of quad raped- walks, runs, gallops; bird movement and flight

**Unit -3**

Lighting & Rendering- 3D Animation Principles -Non Linear Animation -Skelton & Skinning Character Animation -Intro to Staging -MAYA Dynamics -Fluid Effects -2D & 3D Container - MAYA Hair & Fur Effects -MAYA Cloth & Fur Effects -MAYA Paint Effects –

**Unit -4**

Introduction to Skelegons, Bones, Joints and Inverse Kinematics, Animate an inanimate object with bones to give it personality; for example, dancing crayons, desk lamp, etc

**Unit -5**

Sculpting, mould making, armature construction and casting techniques. Methods to fabricate a stop-motion animation puppet techniques for construction. doping, animating, lighting and shooting •

## **Industrial Training**

**Credit Hours 3(0+0+6)**

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

## **Introduction of Image Processing**

**(ECE – 305)**

**Credit 3(2-1-0)**

### **Unit – 1 (Digital Image Fundamentals)**

Image sampling and quantization, Basic relationship between pixels and Basic geometrical transformation.

### **Unit – II (Image Enhancement Techniques)**

Spatial Domain methods :- Basic grey Level transformation, Image resolution, Camera angles, Image Subtraction, filters.

### **Unit – III (Image Restoration)**

Model of Image Degradation/ Restoration Process, Noise models, Least mean square filtering.

### **Unit – IV (Image Compression)**

Types of Image compression, Lossless compression(variable length coding, bit plane coding, predictable coding), Long compression (Transform coding, wavelet coding), Image compression standards (JPEG, MPEG)

### **Unit – V (Image segmentation and representation)**

Edge detection, Boundary representation, Image Sensor, aspect ratio, codes and their Comparison

# **Digital Film Production**

**BSMA-361**

**Credit Hours 12(0+0+24)**

## **Unit -1:**

Writing concept, story &script for the digital film

## **Unit-2:**

Conceptualizing different Visual Effect (VFX) and Special Effects (SFX) according to the requirement of the film

## **Unit-3:**

Making story board for shot selection and division,

## **Unit-4:**

Scheduling process and production process,

## **Unit-5:**

05 to 15 minute fiction film production

# **Visual Perception**

**(FMC-385)**

**Credits Hr.-3(2+1+0)**

## **Unit-1:**

Need for and the Importance of Human and Visual Perception, Communication as expression, skill and process, Understanding Communication

## **Unit-2:**

Communication as a process. Message, Meaning, Connotation, Denotation  
Culture/Codes etc Levels of communication: Technical, Semantic, and Pragmatic.  
The semiotic landscape: language and visual communication, narrative  
representation

## **Unit-3:**

Fundamentals of Design: Definition. Approaches to Design, Centrality of Design,  
Elements of Design: Line, Shape, Space, Color, Texture. Form Etc. Principles of  
Design: Symmetry. Rhythm, Contrast, Balance Mass/Scale etc Design and Designers

## **Unit-4:**

Principles of Visual and other Sensory Perceptions. Color psychology and theory  
Definition, Optical / Visual Illusions etc various stages of design process- problem  
identification, search for solution refinement, analysis, decision making,  
implementation.

## **Unit-5:**

Basics of Graphic Design. Definition, Elements of GD, Design process-research, a  
source of concept, the process of developing ideas-verbal, visual, combination &  
thematic, visual thinking, associative techniques, materials, tools, design execution,  
and presentation