Learning Outcome-based Curriculum Framework (LOCF)

for

M.Sc. (Graphic Animation & Multimedia)

A Two Year Master Degree Programme

under

Choice Based Credit System (CBCS)/Learning Outcome-based Curriculum Framework(LOCF)

w.e.f. Academic Session 2022-23.

Institute of Mass Communication & Media Technology
Kurukshetra University, Kurukshetra

SCHEME OF EXAMINATION FOR MASTER OF SCIENCE (Graphic Animation & Multimedia)
w. e. f. Academic Session 2022-23 (CHOICE BASED CREDIT SYSTEM (CBCS))

Semester-I

Course Code	Course Title	Credits	Marks				Duration of Exam
			T	P	IA	Total	
M-GAM-101	Visual Arts and Creativity	4	50	25	25	100	3 Hours
M-GAM-102	Graphic Designing and Publishing	4	50	25	25	100	3 Hours
M-GAM-103	Multimedia and Technologies	4	75	-	25	100	3 Hours
M-GAM-104	Story, Script and Storyboarding	4	75	-	25	100	3Hours
M-GAM-105	Techniques of 2D Animation	4	50	25	25	100	3hours
Total		20	-			500	

Semester-II

Course Code	Course Title	Credits	Marks				Duration of Exam
			T	P	IA	Total	
M-GAM-201	Film Appreciation and Cinematography	4	75	-	25	100	3Hours
M-GAM-202	Digital Video Production and VFX	4	50	25	25	100	3 Hours
M-GAM-203	Multimedia Programming	4	50	25	25	100	3 Hours
M-GAM-204	3D Modeling and Texturing	4	50	25	25	100	3Hours
M-GAM-205	Cyber Laws and Intellectual Property Rights	4	75	-	25	100	3 Hours
OE/MOOC*	OPEN ELECTIVE (Students has to select a paper from other department(s) of Faculty of commerce and management of KUK)	2	-	50	-	-	
Total		20	-			500	

* The students will have to study open elective paper to be offered within the faculty only in 2nd semester. However, student will have also a choice of opting one MOOC course offered on the SWAYAM portal of Ministry of Human Resources Development in 2nd semester in lieu of open elective paper.

Note:- Summer Training / Internship will be held immediately after 2nd Semester Examination and will be having a minimum duration of one month. Students have to submit the Summer Training / Internship Report latest by 30th August. Evaluation of the Report and Viva-Voce shall be held during 3rd Semester. The Viva-Voce will be conducted by a panel of three faculty members appointed by Director.

M-GAM-101: Visual Arts and Creativity

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 50
Practical:25
Internal Assessment: 25

Course Objectives: This course is designed for theoretical understanding of aesthetics of arts and creating sense of creativity, colors, and design for making artistic content for multimedia composition.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-101.1: Understand art aesthetics including Indian concept of aesthetics.
M-GAM-101.2: Acquire skills to create interesting and interactive components for multimedia
M-GAM-101.3: Develop the capacities to design, assess, enact with creative projects
M-GAM-101.4: Develop the ability to link art theory with using creative practices.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

UNIT-I

Development of Art & Ideas

Origin of Art**:** Study of Prehistoric Indian Art, Visual Arts & Its Forms & Creative Pedagogies
Drawing Concepts
Perception of Color
Pictorial Composition

UNIT-II

Drawing & 3D Design

Perspectives on the Creative Process
Living & Non-Living objects
Basic Elements & Principles of 3D Design
Calligraphy & Typography

UNIT-III

Six limbs of art
Aesthestics of Indian Art
Introduction to different kind of clay
Natural clay & Synthetic clay

UNIT-IV

Development of Character Design

Anatomy & Proportions
Body Types, Poses, Facial Expression
Model sheet of Character
Character Line-up

List of Practical Exercises:

Drawing anatomy
Pencil shading techniques
Analogous Colors and Color Wheel
Composition in Art
Landscape drawing
Cartoon character sketch
Patterns and 2D design
Textures and 3D design
Calligraphy
living and non living objects.
Poster making
Stone art
Mandala art

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

References:

1. Drawing Human Anatomy: Giovanni Civardi
2. Keys to Drawing (Paperback) byBert Dodson
3. Fundamentals of Drawing: A Complete Professional Course for Artists, Barrington Barber, Paperback

M-GAM-102: Graphic Designing and Publishing

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 50
Practical:25
Internal Assessment: 25

Course Objectives: This course is designed for the understanding of an important element of multimedia i.e. graphics/image; and to learn the image manipulation techniques with its publishing platforms.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-102.1: understanding the basic principles of graphic design
M-GAM-102.2: learn the major tools of graphic designing
M-GAM-102.3: To know about the color theory and color scheme
M-GAM-102.4: Understand different kind of layouts in graphic designing

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

UNIT-I

Introduction to graphics

- Introduction to graphics, tools of graphics, uses & types of graphics
- Meaning and definition of graphics design
- Elements and principles of graphic design
- Graphics Overview: Raster graphics, Vector graphics

UNIT-II

Corel draw

- Tools and menus, Effects and masking
- social advertising
- Cartoon character design, Product design

Photoshop

- Introduction to Photoshop, workspace and photo editing tools
- Filters and Adjustments
- Digital matte painting

Unit-III

Illustrator

- Introduction to Illustrator, Applications and features, Illustrator interface
- Aligning objects, working with groups, arrange object, distributing objects. Templates
- Transforming objects: Scaling, Reflection, Distorting and Shearing objects
- Coloring and painting
- Using effects, appearance attributes and graphics styles

Unit – IV

Publishing

- Authoring and process of publishing
- Publishing types, newspaper and magazine publishing
- Research papers and publications
- Packaging and its types, Functions of Packaging

List of Practical Exercises:

Image Retouching and Enhancement
Image Manipulation
Visiting card lay-outing and designing
Letter Head Design
Poster Design (Social / Productive)
Magazine Cover / Book Cover
Typography Designs
Social Media Designs
Google Banners
Broacher Design
News Letter Design

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

M-GAM-103: Multimedia Technologies

Time: 3 Hrs. Total marks:100
Credits: 4 Theory: 75
Internal Assessment: 25

Course Objectives: This course is designed for the learning of several multimedia and web technologies in the real world environment.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-103.1: understand the file organization of different multimedia elements
M-GAM-103.2: learn the knowledge of various multimedia equipments and kiosks
M-GAM-103.3: create the linking inputs of interconnected multimedia systems
M-GAM-103.4: learn to secure the created multimedia content

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

Unit I

Multimedia Elements, Multimedia Applications, Multimedia System Architecture, Evolving Technologies for Multimedia Systems, Multimedia Databases; Types of Compression, Binary Image Compression Schemes, Color, gray scale, still-video image compression, video Image compression, audio compression; Data and File format standards- RTF, TIFF, RIFF, MIDI, JPEG, AVI, JPEG

Unit II

Key Technology Issues, Pen Input, Video and Image Display Systems, Print Output Technologies, Image Scanners, Digital Voice and Audio, Video Images and Animation, Full Motion Video; Magnetic Media Technology, Optical Media, WORM optical drives, Hierarchical Storage Management, Cache Management for storage systems.

Unit III

Types of Multimedia systems, Virtual Reality Design, Components of Multimedia system, Distributed Application Design Issues, Multimedia Authoring and User Interface, Hypermedia Messaging, Distributed Multimedia Systems

Unit IV

Secured Multimedia, Digital Rights Management Systems, Technical Trends, Multimedia encryption, Digital Watermarking, Security Attacks; Multimedia Authentication, Pattern, Speaker and Behavior Recognition, Speaker Recognition, Face Recognition

References:

- Weixel, Fulton, Barksdale.Morse, “Multimedia Basics”, Easwar Press 2004.
- Andleigh PK and Thakrar K, “Multimedia Systems”, Addison Wesley Longman, 1999.
- Fred Halsall, “Multimedia Communications”, Addison Wesley, 2000.
- Ralf Steinmetz, KlaraNahrstedt, “Multimedia, computing, communications and applications”, Prentice Hall, 1995.
- Tay Vaughan, “Multimedia making It work”, TMH 5th Edition 2001.

M-GAM-104: Story, Script and Storyboarding

Time: 3 Hrs. Total marks:100
Credits: 4 Theory: 75
Internal Assessment: 25

Course Objectives: This course is designed for the understanding the theory of content writing and idea generation using the primary multimedia element i.e. text.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-104.1: learn the idea creation for writing a story
M-GAM-104.2: understand the grammar fundamentals for writing content
M-GAM-104.3: understand the language, dialect and script
M-GAM-104.4: convert the written content into the multimedia formats

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

Unit I

Story

Elements of story, Resources and ideas from life, Story Genres, Characters and the story, character driven stories, Event driven stories.

Story structures and styles

Narrative, non-narrative, abstract, absurd with reference to stories for animated film Basic writing for Animation, Story Structure, Plot, Dramatic structure, Conflict, Setting mood, Rising action, Falling Action, Dénouement, Resolution

Unit II

Script

Anatomy of a Script, Script Elements and Scene Heading, Action, Characters, Dialogue, Parenthetical, Extension, Transition, Shots, Page Breaking, Finer Points, Dual Dialogue, and Adlibs, Abbreviations and Montages, A Series of Shots and Short Lines/Poetry/Lyrics, transitions, continuity etc.

Titles or Opening Credits, and Superimpose or Title, Title Page, Production Drafts, Top Continued and Bottom Continued, Locking Script Pages and Locking Scenes, Header, Do's and Don'ts, Other Script Formats, radio scripts, TV scripts, animation film scripts.

Unit III

Storyboarding

Introduction to Storyboard, Importance of StoryBoard, difference between storyboard and Graphic Comic, Difference between Story, Script and Storyboard.Advantages of Storyboard in Animation and Anatomy of a Storyboard.

Unit IV

Shots

Introduction to various shots, Camera angles and Camera Movements used in Storyboard panels.continuity and Timing, Building a sequence of shots. Use of Perspective, Composition, Light & Shadow in Storyboarding.

Script to Storyboard

Designing a storyboard based on a short script, Use of Thumbnails and Quick story sketches, Creating visual narrative using Animatics.

*References**:***

- Animation history and production by aparna vats; new delhi publishers; First edition 2017
- Story: Substance, Structure, Style and the Principles of Screenwriting by Robert McKee
- The Way of the Storyteller by Ruth Sawyer
- Comic Book Design: The Essential Guide to Creating Great Comics and Graphic Novels Gary Spencer Millidge
- Facial Expressions: A Visual Reference for Artists, Mark Simon, Publisher: Watson-Guptill,
- The Animation Book: A Complete Guide to Animated Filmmaking--From Flip-Books to Sound Cartoons to 3- D Animation, Three Rivers Press
- The Illusion of Life: Disney Animation, Ollie Johnston and Frank Thomas, Publisher: Disney Editions;
- Making Comics: Storytelling Secrets of Comics, M... by Scott McCloud
- The Art of story board by John Hart
- 'How to Write for Animation' by Jeffrey Scott's book
- Animation Art: From Pencil to Pixel, the world of Cartoon Anime and CGI- Jerry Beck
- The Animation Bible: A Practical Guide to the Art of Animating from Flipbooks to Flash [Paperback], Maureen Furnis

M-GAM-105: Techniques of 2D Animation

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 50
Practical:25
Internal Assessment: 25

Course Objectives: This course is designed for the understanding the Theoretical Concept of 2d Digital Animation and Digital Tools and Principal of Animation.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-105.1: Understand the 2d Digital Animation Techniques
M-GAM-105.2: Learn the Concept of Animation Principal
M-GAM-105.3: To gain knowledge about tools of animation
M-GAM-105.4: Understand the Concept of Facial and Action Movements

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

Unit I

- Interface of Adobe Flash/ Animator
- Flash workspace , Timeline, Using Tools to create character for animation
- Shape tween and motion tween,Symbols and Keyframes
- Character Model Sheet, Character Line Up in Software such as Photoshop and Flash.

Unit II

- Introduction to Layout and importance of layout in Animation.
- Cinematic Camera Angles, Aspect Ratio, Preparing/Posing Layouts, Camera Movements – tracking, zoom, panorama, Camera movement calculation to animation – matching speeds.
- Principles of animation; Creating object animation (Different weighted ball with different properties, Book fall from book self, moving object interaction with other moving objects, pendulum and Tail animation) using all principles of animation.

Unit III

- Character Animation; Creating walk cycle for male and female characters, creating run and jump for biped and quartered characters

- Acting for Animation
    - Basics of Facial Expressions with different Emotions, Understanding the Gestures and Postures. Understanding the importance of acting in animation, Body Language, Pulling , pushing and lifting objects.

Unit IV

- Facial Animation
    - Adding life to characters using expressions. Classical approaches to depict various expressions and emotions. The mechanics of eye movements, blinking, talking, and making various gestures, Lip sync with dialog
- Rendering and Output
    - Fundamentals of rendering and exporting, Exporting still images and sequences. Learning output formats, terminologies related to rendering.

List of Practical Exercises:

Square to Circle Shape Transformation
Trace and Create cartoon Digitally
Weight and Mass in Ball Animation
Vehicle Animation
Anticipation in Jump
Arc and Slow in Slow out in Leaf Animation
Character Walk cycle
Facial animation
Liquid Animation
60 Sec Video of animation

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

Reference Material:

- Animator's Survival kit – Richard Williams, Pub.-Focal Press.
- Timing for Animation – Harold Whitaker, Pub.-Focal Press.
- Cartoon Animation – Preston Blair, Pub.-Walter Foster.
- The Animator's Survival Kit - Richard Williams
- Basics Animation: Digital Animation - Andrew Chong

M-GAM-201: Film Appreciation and Cinematography

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 75
Internal Assessment: 25

Course Objectives: This course is designed to gain a working of the diverse artistic and practical elements that go in to the making of a film.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-201.1: Introduce to the narrative and stylistic techniques used in film making.
M-GAM-201.2: Understand the way that content, form and contexts to create meaning in film.
M-GAM-201.3: Identify the key concepts, model and tools in film criticism.
M-GAM-201.4: Emphasis on the analyze of the visual and aural aspects of selected motion pictures.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

UNIT I

Introduction to Indian Cinema

- History of Indian Cinema: Realism, Neo-realism
- Other arts and cinema - theater, painting
- Cinema and Literature, Language in Indian Cinema
- Foreign Cinema

UNIT II

Film Genres

- What are Movie Genres
- Westerns and Gangster Films, Mysteries and Film Noir, Horror, Fantasy and Science Fiction(Scifi), Thrillers
- Romantic Comedy Musicals and Documentaries, Drama

UNIT III

Cinematography

- What is Cinematography?
- Lighting Color Saturation and Desaturation
- The Camera, Lens and Their Uses Framing Special Effects
- Cinematography Editing - Time and Space, Narrative, Shot, Set and Design, Lighting, Sound/Music

UNIT IV

Hollywood, Short Films and Animation

- Criticism and Analysis
- Famous Animated Movies
- Best Movie Oscar Winners
- Award winning short films and Web Series

*Reference Material**:***

- Allen, Robert & Douglas Gomery. Film History: Theory and Practice. New York: McGraw- Hill, Inc., 1987.
- Carroll, Noel. Mystifying Movies: Fads and Fallacies in Contemporary Film Theory. New York: Columbia University Press, 1988.
- Gledhill, Christine & Linda Williams. Eds. Reinventing Film Studies. London: Arnold, 2000.
- Stam, Robert & Toby Miller. Eds. Film and Theory: An Anthology. London: Blackwell Publishers, 2000.

  Stam, Robert & Toby Miller. Eds. A Companion to Film Theory. London: Blackwell Publishers

M-GAM-202: Digital Video Production and VFX

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 50
Practical:25
Internal Assessment: 25

Course Objectives: This course is designed to inculcate, shape and enhance their skills for short film making and video production.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-202.1:Learn the Process of video production
M-GAM-202.2: To gain the skill of different video editing techniques
M-GAM-202.3: Understand the concept of visual effect
M-GAM-202.4: To know the different techniques of VFX

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

Unit I

Video Editing

Introduction and history of evolution of the specialized stream called Editing. Deciding an edit. Develop an understanding of the digital video production process: pre-production, shooting, editing, and post-production. Understanding importance of editing in the flow of a narrative.Pace and Rhythm in editing. Linear and Non Linear Film Editing.

Editing Tool

Working with interface. Importing supported files and saving project. Understanding tools and palettes, timeline and project panel.Previewing footages.Managing footages.

Unit II

Working with footages

Setting up project, removing frames, naming, finding and deleting footages, learning file size limitations, Using markers, In-out points, Scaling clips, adding transitions. Changing and replacing transitions. Adding Key, Time remapping, video formats and resolutions.Editing mode, changing Frame size, Exporting, Aspect Ratio, Pixel Aspect Ratio, Audio sample rate, Color Correction and Grading.

Unit III

Introduction to AfterEffects

Working with interface. Importing supported files and saving project. Understanding tools and palettes, timeline and project panel.Previewing footages. Managing footages, Introduction to Layers System(2D, 3D layers), Working with different types of Tools, Key Frame Animation

Working with footages

Rotoscope Techniques(Overview on Roto paint, Animating Roto Shape, Paint Techniques), Wire Removal Techniques, Green/Blue screen, Understanding of Pre-composing/Nesting, 3D Render Pass Comping, Color Correction & Grading.

Unit IV

Creating Masks

Key, Matte, Alpha, and Mask, Creating a Luma-Key, Creating a Chroma-Key, Creating a Mask(The Difference Mask, The Color Difference Mask, Geometric Primitives, Drawing Shapes, Painting a Mask, Combo Masks).

Compositing

Introduction to Compositing, Compositing CGI(Multipass Compositing, Depth Compositing, Multiplane Compositing, Working with Premultiplied CGI), Blue Screen Compositing (The Blue Screen Composite, About Keyers, Compositing Outside the Keyer, Shooting Blue Screens and Green Screens).

List of Practical Exercises:

Different Camera angles and Shots
Apply Video Editing techniques by using own footage
Transformation, Speed and Time
Rendering in different format
Different Key-framing Techniques in after effect
Masking in video footage
Composting, 2d and 3d
Video Advertisment
Motion Graphics advertisement

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

References:

- Editing Digital Video : The Complete Creative and Technical Guide by Robert Goodman (McGraw-Hill), Pub.- McGraw-Hill/TAB Electronics.
- Adobe premiere pro Bible by Adele Droblas, Pub.-Wiley.
- The Art and Science of Digital Compositing: Techniques for Visual Effects, Animation and Motion Graphics (The Morgan Kaufmann Series in Computer Graphics) by Ron Brinkmann
- Video editing: a post-production by S.E. Browne
- The technique of film editing by Reisz and Miller
- Grammar of editing by Roy. Thompson
- Rotoscoping: Techniques and Tools for the Aspiring Artist

M-GAM-203: Multimedia Programming

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 50
Practical:25
Internal Assessment: 25

Course Objectives: This course is designed to introduce the basic concepts of programming for multimedia. Students will learn the principles of programming and how to create scripts for the manipulation of graphics ,audio and text to construct a web based multimedia presentation.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-203.1:learn about programming basics and fundamentals of c
M-GAM-203.2: Knowledge about webpage and static website .
M-GAM-203.3: Develop familiarity with the javascript language.
M-GAM-203.4: understand ing of database concepts and DBMS softwares.

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

UNIT-I

Fundamental Of Computer Programming

- Programming Environment, Basic Syntax, Data Types, Variables, Keywords, Basic Operators, Decision Making, Control Statements, Numbers, Characters, Arrays, Strings Functions

UNIT-II

Web Essentials, HTML, CSS

- Basic Structure of a Web Page
- Basic Tags: Links, Images, Fonts, Colour and Character entities
- Images, Forms, Lists, Tables
- Block and Text level Elements

UNIT-III

JavaScript & PHP

- JavaScript Introduction, Variables and Data types, Control Structures, JavaScript Objects.
- PHP, PHP language Basics , Files and directories, Data Retrieval

UNIT-IV

SQL and Database Management

- Introduction to Sql: Creating Databases and Tables
- Sql Queries: Inserting, Deleting, Updating Data, Joins
- Sorting and Filtering Data
- Querying Sql Database in PHP

List of Practical Exercises:

1.Develop various C program.
2.Create a static webpage using HTML.
3.Design CSS and link with HTML document.
4.Develop and run javascript program.
5.Develop and run PHP program.
6. SQL and database management

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

*Reference Material**:***

- Paul Wilton and Jeremy McPeak, "Beginning JavaScript, 3rd Edition", Wrox Press Inc., 2007.
- Mercer, Kent, Nowicki, Squier and Choi, "Beginning PHP5", John Wiley & Sons, Inc., 2004.
- Jeffrey C. Jackson, "Web Technologies: A Computer Science Perspective", Pearson Education, 2006.
- Chris Bates, "Web Programming – Building Intranet applications", Wiley Publications, 3rd Edition, 2009.

Deitel, Deitel& Nieto, "Internet and World Wide Web - How to Program", ***References:***

M-GAM-204: 3D Modeling and Texturing

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 50
Practical:25
Internal Assessment: 25

Course Objectives: This course is designed to give an introduction to create, edit and analyze 3D models.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-204.1: Understand the concept of 3d production process
M-GAM-204.2: understand the different techniques of 3d modeling
M-GAM-204.3: gain knowledge about texturing and mapping in 3d
M-GAM-204.4: know about scrupling in 3d

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

UNIT-I

Introduction to 3D Modeling

- 3D Production process
- Introduction to 3d software (workspace and tools)
- Modelling types
- Polygon Modelling Elements
- Tools of polygon modeling
- NURBS/Surface Modeling
- Elements and tools of NURBS Modelling

UNIT-II

3D Modeling Techniques

- Sculpting Tools
- Objecting modeling by using polygon modeling techniques
- Game Assets modeling
- Hard Surface Modeling: Interiors and Exteriors.
- Organic Modeling: Hand and foot

- Eyes, lips, nose and ear modeling

UNIT-III

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-IV

Introduction to Z brush

- Z brush Interface, ZTools: Primitives, Subtools, Geometry, Deformations
- Basic Brush: Type, Size, Intensity, Color, Alpha, Stroke
- Symmetry, Masking, Slicing, Clipping
- Working with DynaMesh
- Transpose: Move, Scale, Rotate
- Retopology Workflow for Animation (Zbrush to Maya)

List of Practical Exercises:

Workspace of 3d software
Object modeling by using polygon Modeling techniques
Game asset modeling
Interiors Modeling
Exteriors Modeling
Hand and Foot Modeling
Texturing by using bitmaps
Texturing by UVW Wrapping
3D Sculpting techniques

Note:- The students will do practical assignments assigned by the concerned teacher throughout the whole semester and will submit them in the form of hardcopy/softcopy to the teacher. External Examiner will evaluate the work done by the student, will conduct the practical and viva voce.

*Reference Material**:***

- Prof. Sham, PixologicZBrush 2018: A Comprehensive Guide, CADCIM Technologies, 2019, ISBN: 978-1640570481
- Beginner's Guide to ZBrush, 3DTotal Publishing, 2017, ISBN: 978-1909414501
- Kurt Papstein, ZBrush Characters and Creatures, 3DTotal Publishing, 2015, ISBN: 978-1909414136
- Chris Legaspi, Anatomy for 3D Artists: The Essential Guide for CG Professionals, 3dtotal Publishing, 2015, ISBN: 978-1909414242
- Lee Lanier, Advanced Maya Texturing and Lighting, Sybex, 2015, ISBN: 978-1118983522

M-GAM-205: Cyber Laws and Intellectual Property Rights

Time:3 Hrs. Total marks:100
Credits: 4 Theory: 75
Internal Assessment: 25

Course Objectives: this course is designed to prevent cyber crime and keep people safe from criminals and other cyber crime committing entities.

Course Learning Outcomes:
After completing the Course, the student will be able to:
M-GAM-205.1 learn about various cyber threats.
M-GAM-205.2: describe the legal issues related to use of communication technology.
M-GAM-205.3: learn about IPR and patent laws.
M-GAM-205.4: apply IPR law principles to real problems and analyse the social impact of IPR

Note:- The question paper will be divided into five Units containing nine questions. Students are required to attempt five questions in all. There will be two questions in each unit from I to IV and students are required to attempt one question from each unit. Unit V will have only one Compulsory question containing six short notes covering the entire syllabus and students are required to attempt any four. All questions will carry equal marks.

UNIT-I

Cyber Threats

Cyber Crimes, vulnerabilities, risks, theft, Hacking, Virus/Worm attacks, DOS attack, Trojan , Spoofing, Spamming, E-commerce/ Investment Frauds, Defamations, Privacy, Confidentiality, Cyber Stacking

UNIT-II

Cyber Law & Information Technology Act 2000

Cyber Jurisprudence, Cyber Ethics, Cyber- Jurisdiction, Hierarchy of Courts, Civil and Criminal Jurisdictions, Overview of IT Act, 2000, Section 66a of IT Act, Amendments and Limitations of IT Act, Digital Signatures, Cryptography.

UNIT-III

Patent Law

Patents – International Law, Patents Law- Emerging Trends, Social Implication of Patents, Infringement of Patents.
Introduction to Copyrights as forms of Intellectual Property, Copyright Law in India (Copyright Act of 1957), Copyright infringement.
Right conferred by Registration and use of Trademarks, Infringement of Trademarks and passing off, Offences, remedies and enforcement, Trademarks, International Law.

UNIT-IV

Intellectual Property Rights

Introduction to Intellectual Property Rights, Evolution of Intellectual Property Laws Standards and Concepts in Intellectual Property, IPRs and Information Technology IPRs, Management of Intellectual Property Rights, Law of Intellectual Property and Ethical Issues, Intellectual Property Rights in India and abroad.

*Reference Material**:***

- Law and practice of intellectual property in India by VikasVashishth
- Intellectual property by A.Kalank
- Intellectual property- patents, copyrights ,trademarks and allied rights by Cornish W R
- Patents, copyrights, trademarks and design by B L Wadhera
- Intellectual property law by P Narayana
- Patents, copyrights, trademarks and design by Rajeev Jain