DETAILED SYLLABUS

UNIT - I INTRODUCTION TO MULTIMEDIA 10 Hours

1.1 **Introduction :** Definition of multimedia, Multimedia Basics, Where to use Multimedia, Multimedia Elements –Multimedia Applications, Virtual Reality, Delivering Multimedia.

1.2 Multimedia Systems Architecture: Multimedia Workstation Architecture, High resolution Graphic displays, Multimedia Architecture Based on interface bus, Network architecture for Multimedia systems.

1.3 **Evolving Technologies For Multimedia Systems**: Hypermedia Documents, Hypertext, Hyper Speech, HDTV and UDTV, 3D Technologies and Holography

1.4 **Defining Objects for Multimedia System:**, Text, Images, Audio and Voice, Full-Motion and Live Video, Multimedia Data Interface Standards, File formats for multimedia systems, Video processing standards.

1.5 **Multimedia Software** :Overview of Multimedia Software Tools, Open Source Replacements, Multimedia OS, Multimedia Authoring, Some Useful Editing and Authoring Tools, VRML, OpenGL, Windows and Open Source API

UNIT - II DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS 10 HOURS

2.1 **Text:** About Fonts and Faces, Using Text in Multimedia, Hypermedia and Hypertext, Using Hypertext, Hypermedia Structures, Hypertext Tools.

2.2 **Images**: Making Still Images, Bitmaps, 1 bit images, 8-bit gray level images, 8-bit color images, Dithering, 24 bit color images, Vector Drawing, 3-D Drawing and Rendering, Color, Understanding Natural Light and Color, Computerized Color, Color Palettes, Color Look-up table. Image Processing, Image acquisition, Image enhancement. Color image processing.

2.3 **Sound :** The Power of Sound, Digital Audio, Making Digital Audio Files, MIDI Audio, MIDI vs. Digital Audio, Multimedia System Sounds, Adding Sound to Your Multimedia Project , Audio Recording, Keeping Track of Your Sounds, Audio CDs, Sound for Your Mobile, Sound for the Internet.

2.4 **Animation**, the Power of Motion, Principles of Animation, Animation by Computer, Animation Techniques. animation using OpenGL

2.5 **Video**: Using Video, How Video Works and Is Displayed, Analog Video, Digital Video, Displays, Digital Video Containers, Codec, Video Format Converters, Obtaining Video Clips, Shooting and Editing Video.

UNIT - III MULTIMEDIA DATA AND STANDARDS 16 HOURS

3.1 **Data Compression**: Need for Data compression, General Data compression Scheme, Compression standards, Non-lossy compression for images, Lossy compression for Photographs and video, Hardware Vs Software Compression.

3.2 **Compression Schemes and standards**:(Only Concepts of) Binary image compression, Color, Gray Scale and Still-video image compression, JPEG, video image compression, Multimedia Standards for Video, Requirements for Full-motion Video Compression, MPEG, Audio compression, Fractal compression, advantages / disadvantages.

3.3 **Data and File Format Standards**: Popular File Formats, RTF, RIFF, GIF, PNG, TIFF, MIDI, JPEG, JFIF, AVI, WAV, BMP, WMF, MIX, MPEG standards. TWAIN.

3.4 **Multimedia Databases**, Storage and Retrieval, Database Management systems, Database Organization and Transaction management for multimedia systems.

3.5 **Multimedia Information Sharing and Retrieval** - Social Media Sharing User-Generated Media Content Sharing - Media Propagation in Online Social Networks. Content-Based Retrieval in Digital Libraries

UNIT - IV MULTMEDIA DEVICES AND MAKING MULTIMEDIA 16 HOURS

4.1 **Multimedia input/output Technologies:** Limitations of Traditional input devices, Multimedia input output devices, PEN input, Working of Electronic Pen, Video and image display systems, Video display technology standards, CRT, display terminology, Flat panel display system.
4.2 **Print Output, image, audio and video Technologies:** Comparison of printing technologies, Laser printing, Dye sublimation printer, Color printing technology issues. Image scanners, types, Digital voice and audio, Voice recognition systems, Digital Camera, video frame grabber, video and still image processing, video camera, full-motion video controllers, video capture board.
4.3 Making Multimedia: The Stages of a Multimedia Project, Creativity, Organization, Communication, Hardware, Software, Text Editing and Word Processing Tools, OCR Software, Painting and Drawing Tools, 3-D Modeling and Animation Tools, Image-Editing Tools, Sound-Editing Tools, Animation, Video, and Digital Movie Tools, Authoring Systems, Making Instant Multimedia, Types of Authoring Tools.

4.4 Multimedia Skills: The Team, Project Manager, Multimedia Designer, Interface Designer, Writer, Video Specialist, Audio Specialist, Multimedia Programmer, Producer of Multimedia for the Web.

UNIT - V MULTIMEDIA DESIGN, MULTIMEDIA FOR INTERNET 13 HOURS
5.1 **Designing and Producing**, Designing, Designing the Structure, Designing the User Interface, Producing, Tracking, Copyrights, Virtual reality designing and modeling.
5.2 **The Internet and Multimedia** : The Bandwidth Bottleneck, Internet Services, MIME-Types, Multimedia on the Web, Web Page Makers and Site Builders, Plug-ins and Delivery Vehicles.
5.3 **Designing for the World Wide Web**: Developing for the Web, Small-Device Workspace, text and images for the Web, Clickable Buttons, Client-Side Image Maps, Sound for the Web, Animation for the Web, and Video for the Web, HTML5 Video - Plug-ins and Players.
5.4 Multimedia Communication and applications, Study of Multimedia networking, Quality of data transmission, Media on demand, Multimedia Over Wireless and Mobile Networks - Media Entertainment, web-based applications, e-learning and education-Cloud Computing for Multimedia Services - Cloud-Assisted Media Sharing

Reference Books:

S. No.	Title	Author	Publisher	Year of Publishing / Edition
1	Computer Graphics Multimedia and Animation,	Malay K. Pakhira	PHI	second edition
2	Principles of Multimedia,	RanjanParekh	TMGH, New Delhi	
3	Multimedia Systems	John F. Koegel Buford	Pearson Education	
4	Multimedia Technology & Applications,	David Hillman	Galgotia Publications Pvt Ltd.	