

ELECTIVE: I
BEIT704T2

MULTIMEDIA SYSTEMS
(Theory Credit: 05)

Teaching Scheme:

Lecture: 4 Hours/week

Tutorial: 1 Hour/week

Examination Scheme:

Theory: T (U): 80 Marks T (I): 20 Marks

Duration of University Exam. : 03 Hours

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UNIT I:

Introduction :Definition of multimedia, Multimedia Basics, Where to use Multimedia, Multimedia Elements, Multimedia Applications

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

Evolving Technologies For Multimedia Systems: Hyper Speech, HDTV and UDTV, 3D Technologies and Holography, Virtual Reality, Video conferencing.

UNIT II:

Hardware: Macintosh Versus Windows Platform, Connections, Memory and Storage Devices, Input Devices, Output Hardware, Communication Devices

Basic Software Tools : Text Editing, Word Processing, OCR Software, Painting and Drawing Tools, 3D Modeling and Animation Tools, Image Editing, Sound Editing, Animation, Video, Digital Movie tools, Movie Editors, Compressing Movie Files

Making instant Multimedia : Linking Multimedia Object, office suites, word processors , spread sheets, databases, presentation tools, power point

Multimedia authoring tools: Types of authoring tools, card and page based authoring tools, Icon based authoring tools, and Time based authoring tools.

UNIT III:

Text: About Fonts and Faces, Using Text in Multimedia, Designing with Text, Hypermedia and Hypertext, The Power of Hypertext, Using Hypertext, Hypermedia Structures, Hypertext tools.

Images: Making Still Images, Bitmaps, 1 bit images, 8-bit gray level images, 8-bit color images, Dithering, 24 bit color images, Vector Drawing, Vector-Drawn Objects vs. Bitmaps, 3-D Drawing and Rendering, Color, Understanding Natural Light and Color, Computerized Color, Color Palettes, Color Look-up table.

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.

Animation: the Power of Motion, Principles of Animation, Animation by Computer, Animation Techniques.

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 IV:

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.

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

UNIT V:

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

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

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

UNIT VI:

Designing and Producing: Designing, Designing the Structure, and Designing the User Interface, Producing, Tracking, Copyrights, Virtual reality designing and modeling (VRML).

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.

Designing for the World Wide Web: Developing for the Web, The Desktop Workspace and the Small, Device Workspace, Text for the Web, Images for the Web, GIF and PNG Images, JPEG Images, Clickable Buttons, Client-Side Image Maps, Sound for the Web, Animation for the Web, GIF89a - Video for the Web.

Delivering: Testing-Preparing for Delivery, File Archives, Delivering on CD-ROM, Delivering on DVD.

Text Books:

1. Multimedia: Making It Work By Tay Vaughan Eighth Edition, TMH
2. Fundamental of Multimedia - Ze-Nian Li & M. S. Drew ,PHI
3. Multimedia Systems Design - Prabhat k. Andleigh, Kiran Thakra
4. Multimedia Systems - John F. Koegel Buford

Reference Books:

1. Computer Graphics Multimedia and Animation - Malay K. Pakhira PHI, New Delhi - Second edition.
2. Principles of Multimedia by Ranjan Parekh - 2nd Edition TMH.
3. Computer Graphics and Multimedia - Anirban Mukhopadhyay, Aruop Chattopadhyay - Vikas Publishing Ltd - Second Edition
4. Multimedia Technology and Applications- David Hillman Galgotia Publications Pvt Ltd - Second Edition
