

MAT.O2.R0: - Introduction to Multimedia

Detailed Syllabus

1. Introduction to Multimedia:

08 Hrs.

Definition of Multimedia, Multimedia objects: Text, Graphics, Animation, Audio, images, Video. Definition of HyperText and HyperMedia. Multimedia Applications in Education, Entertainment. Advertising world etc. Components of a Multimedia System, Desirable Features for a Multimedia System, requirements of Multimedia Communication,

2. Representation of Multimedia Objects:

20 Hrs.

2.1 Representation of Analog Signals, A/D: Sampling and quantization

2.2 Text: Font and their representation (bitmap, true type)

2.3 Graphics: Raster & Vector representation, aliasing problems

2.4 Image: (bit depth, resolution, color (RGB, CMYK, HSB), introduction to BMP, GIF, TIFF, PNG and JPEG formats)

2.5 Audio (speech and wideband audio, sampling rate and aliasing, quantisation, introduction to MP3, WMA, WAV, MIDI etc.)

2.6 Video (frame rate and resolution, interlaced and non-interlaced video, colour planes (YCBCR, YUV), Video broadcast standards (PAL, NTSC, SECAM), HD Video, 3D TV, Video representation: AVI, MPEG, Quick Time, real video (.rm)

3. Concepts of Multimedia Editing:

10Hrs.

Digital Audio, Music Sequencing and Notation, Image/Graphics Editing, Video Editing (Linear, Non-linear), Subtitling

4. Introduction to Compression Technology

06 Hrs

Concept of lossy and lossless compression. Concept of rate-distortion characteristics, Basics image compression (JPEG, JPEG 2000), Basics of Audio compression (MP3, MP4), Basics of Video Compression (MPEG, H.264)

5. Multimedia Application Design:

06 Hrs.

Content design, technical design, visual design, design metaphors, example studies, interactivity

6. Multimedia Authoring and Publishing

10 Hrs

Definition of an Authoring System, uses of an authoring system, Definition and function of Authoring Metaphor, Different Metaphors.
Offline Publishing: Flash, Power Point
Online Publishing: HTML5, Dreamweaver

Laboratory Assignments (broad areas):

Capturing & basic processing of media, Media cataloguing, Story boarding, scripting
Basic animation & authoring tools.

MAIN READING

1. Tay Vaughan, "Multimedia making it work", Tata McGraw-Hill, 2008.
2. Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi, 2007.
3. Li & Drew, "Fundamentals of Multimedia", Pearson Education, 2009.

SUPPLEMENTARY READING

1. Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill, 2007
2. Anirban Mukhopadhyay and Arup Chattopadhyay, "Introduction to Computer Graphics and Multimedia", Second Edition, Vikas Publishing House.