

## Multimedia Technology & Applications

Code: IT 605

**Credits: 4**

### Introduction

Multimedia today, Impact of Multimedia, Multimedia Systems, Components and Its Applications

### Text and Audio

Text: Types of Text, Ways to Present Text, Aspects of Text Design, Character, Character Set, Codes, Unicode, Encryption;

Audio: Basic Sound Concepts, Types of Sound, Digitizing Sound, Computer Representation of Sound (Sampling Rate, Sampling Size, Quantization), Audio Formats, Audio tools, MIDI

### Image and Video

Image: Formats, Image Color Scheme, Image Enhancement; Video: Analogue and Digital Video, Recording Formats and Standards (JPEG, MPEG, H.261) Transmission of Video Signals, Video Capture, and Computer based Animation.

### Synchronization

Temporal relationships, synchronization accuracy specification factors, quality of service

### Storage models and Access Techniques

Magnetic media, optical media, file systems (traditional, multimedia)

Multimedia devices – Output devices, CD-ROM, DVD, Scanner, CCD

### Image and Video Database

Image representation, segmentation, similarity based retrieval, image retrieval by color, shape and texture; indexing- k-d trees, R-trees, quad trees; Case studies- QBIC, Virage. Video Content, querying, video segmentation, indexing

### Document Architecture and Content Management

Content Design and Development, General Design Principles

Hypertext: Concept, Open Document Architecture (ODA), Multimedia and Hypermedia Coding Expert Group (MHEG), Standard Generalized Markup Language (SGML), Document Type Definition (DTD), Hypertext Markup Language (HTML) in Web Publishing. Case study of Applications

### Multimedia Applications

Interactive television, Video-on-demand, Video Conferencing, Educational Applications, Industrial Applications, Multimedia archives and digital libraries, media editors.