

DURGAPUR INSTITUTE OF ADVANCED TECHNOLOGY AND MANAGEMENT
(Affiliated to MAKAUT and recognized by AICTE, New Delhi)

Subject Code: **IT702**

Subject Name: **Multimedia**

Credits: 3L

Semester :7th

Year: 4th

Session :2018 - 2019

Branch Name: **Information Technology**

Subject Teacher:**Subhasis Jana**

HOD & Assistant Professor, IT Dept.

SYLLABUS

Introduction [2L]

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

Text and Audio [6L]

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 (8L)

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 [4L]

Temporal relationships, synchronization accuracy specification factors, quality of service

Storage models and Access Techniques [(4L]

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

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

Image and Video Database [8L]

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

Document Architecture and Content Management [9L]

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 [4L]

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

Text Books / References:

1. Ralf Steinmetz and Klara Nahrstedt, Multimedia: Computing, Communications & Applications, Pearson Ed.
2. Nalin K. Sharda, Multimedia Information System, PHI.
3. Fred Halsall, Multimedia Communications, Pearson Ed.
4. Koegel Buford, Multimedia Systems, Pearson Ed.
5. Fred Hoffstetter, Multimedia Literacy, McGraw Hill.
6. Ralf Steinmetz and Klara Nahrstedt, Multimedia Fundamentals: Vol. 1- Media Coding and Content Processing, PHI.
7. J. Jeffcoate, Multimedia in Practice: Technology and Application, PHI.
8. Prabhat K. Andleigh & Kiran Thakrar, Multimedia Systems Design, PHI.

Course Objectives:

- 1 Develop vocabulary related to multimedia
- 2 Investigate the key principles in internet safety, security, and privacy
- 3 Utilize hardware to manipulate various types of media (e.g., cameras, microphones, graphic tablets)
- 4 Determine appropriate software application for task
- 5 Use organizational skills to plan multimedia products (e.g., storyboarding, outlining, scripting, task delegation)
- 6 Apply design principles used in multimedia productions
- 7 Create text using typography principles
- 8 Evaluate and determine hardware and software required for multimedia use

Course Outcomes:**After successfully completing this course the students will be able to:**

- (1) Get the concepts of Multimedia Systems
- (2) Get the concepts of Text, Audio Text and Audio tools
- (3) Get the concepts of MIDI Image and Video Image , synchronization accuracy specification factors
- (4) Get the concepts of Storage models and Access Techniques of Multimedia devices
- (5) Get the concepts of Image segmentation and video segmentation
- (6) Get the concepts of Document Architecture, Content Management and the application of multimedia

LESSON PLAN

Day	Reference of the Syllabus	Topics covered as per syllabus
1	Introduction	Multimedia today, Impact of Multimedia, Multimedia Systems,
2	Introduction	Components , Its Applications
3	Text	Types of Text, Ways to Present Text,
4	Text	Aspects of Text Design, Character, Character Set, Codes,
5	Text	Unicode, Encryption;
6	Audio	Basic Sound Concepts, Types of Sound, Digitizing Sound,
7	Audio	Computer Representation of Sound (Sampling Rate, Sampling Size, Quantization), Audio Formats, Audio tools,
8	Audio	MIDI
9	Image	Formats,
10	Image	Image Color Scheme, Image Enhancement;
11	Compression	Type of Compression, Lossy and Lossless Compression
12	Compression	Compression Algorithms,
13	Compression	Huffman Coding,
14	Compression	Arithmetic Coding
15	Video	Analogue and Digital Video, Recording Formats and Standards (JPEG, MPEG, H.261)
16	Video	Transmission of VideoSignals, Video Capture
17	Animation	Computer based Animation.

18	Synchronization	Temporal relationships, synchronization accuracy specification factors, quality of service
19	Image and Video Database	Image representation, segmentation, similarity based retrieval, image retrieval by color, shape and texture;
20	Image and Video Database	kdtrees,
21	Image and Video Database	R-trees,
22	Image and Video Database	quad trees; Case studies- QBIC, Virage. Video Content, querying,
23	Image and Video Database	video segmentation, indexing
24	Document Architecture and Content Management	Content Design and Development, General Design Principles
25	Hypertext	Concept, Open Document Architecture (ODA), Multimedia and Hypermedia Coding Expert Group(MHEG),
26	Hypertext	Standard Generalized Markup Language (SGML),
27	Hypertext	Document Type Definition (DTD),
28	Hypertext	Hypertext MarkupLanguage (HTML)
29	Hypertext	Hypertext MarkupLanguage (HTML) in Web Publishing. Case study of Applications
30	Multimedia Applications	Interactive television, Video-on-demand,
31	Multimedia Applications	Video Conferencing, Educational Applications,
32	Multimedia Applications	Industrial Applications,
33	Multimedia Applications	Multimedia archives and digital libraries, media editors
34	Multimedia Applications	Application on Flash,
35	Multimedia Applications	Application on Photoshop