Multimedia Computing

Course Title: Multimedia Computing
Course No: CSC319
Nature of the Course: Theory + Lab
Semester: V

Full Marks: 60 + 20 + 20
Pass Marks: 24 + 8 + 8
Credit Hrs: 3

Course Description: This course familiarizes students with the concepts of multimedia computing including sound, image, video, animations, data compression, and multimedia applications.

Course Objectives: The main objective of this course is to provide knowledge of different concepts of multimedia computing and their applications.

Course Contents:

Unit 1: Introduction (5 Hrs.)
Global Structure of Multimedia; Multimedia Application; Medium; Multimedia System and Properties; Characteristics of a Multimedia System; Challenges for Multimedia Systems; Components of a Multimedia System

Unit 2: Sound /Audio System (6 Hrs.)
Concepts of Sound System; Music and Speech; Speech Generation; Speech Analysis; Speech Transmission

Unit 3: Images and Graphics (5 Hrs.)
Digital Image Representation; Image and graphics Format; Image Synthesis, analysis and Transmission

Unit 4: Video and Animation (6 Hrs.)
Video Signal Representation; Computer Video Format; Computer-Based animation; Animation Language; Methods of Controlling Animation; Display of Animation; Transmission of Animation

Unit 5: Data Compression (8 Hrs.)
Storage Space; Coding Requirements; Source, Entropy and Hybrid Coding; Lossy Sequential DCT-based Mode; Expanded Lossy DCT-based Mode; JPEG and MPEG

Unit 7: User Interfaces (5 Hrs.)
Basic Design Issues; Video and Audio at the User Interface; User- friendliness as the Primary Goal

Unit 8: Abstractions for programming (5 Hrs.)
Abstractions Levels; Libraries; System Software Toolkits; Higher Programming Languages; Object –Oriented Approaches

Unit 9: Multimedia Application (5 Hrs.)
Media Preparation and Composition; Media Integration and Communication; Media Entertainment; Telemedicine; E-learning; Digital Video Editing and Production Systems; Video Conferencing; Video-on-demand

Laboratory Work: The laboratory work includes writing programs of different concepts of multimedia computing.

Recommended Books:

1. Multimedia: Computing, Communications and Applications, Ralf Steinmetz and Klara Nahrstedt, Pearson Education Asia
2. Multimedia Communications, Applications, Networks, Protocols and Standards, Fred Halsall, Pearson Education Asia
3. Multimedia Systems, John F. Koegel Buford, Pearson Education Asia