**Department of ECM**                                                                                    **PVP12**

**4/4 B.Tech.  SEVENTH SEMESTER**
**ELECTIVE – II**

**EM7T3C**             **MULTMEDIA PROCESSING**             **Credits: 3**

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|---|---|
| **Lecture: 3 periods/week** | **Internal assessment: 30 marks** |
| **Tutorial: 3 period /week** | **Semester end examination: 70 marks** |

**Course Objectives:**
        The purpose of this course is to introduce the basic concept and methodologies for Multi media processing and compression techniques.

**Learning outcomes:**
The students undergoing this course will be able to know

- The fundamental of text and image.
- Various compression techniques.
- Various multimedia network communications and applications.

UNIT I :
**Fundamental concepts in Text and Image:** Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

UNIT II:
**Fundamental Concepts in Video and Digital Audio:**  Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

UNIT III:
**Action Script I:**  Action Script Features, Object-Oriented Action Script, Datatypes and Type Checking, Classes, Authoring an Action Script Class.

UNIT IV:
**Action Script II :** Inheritance, Authoring an Action Script 2.0 Subclass, Interfaces, Packages, Exceptions.

UNIT IV:
**Application Development:** An OOP Application Frame work, Using Components with Action Script MovieClip Subclasses.

UNIT VI:
**Multimedia Data Compression:**Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zero tree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

UNIT VII:
**Basic Video Compression Techniques:** Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

UNIT VIII:
**Multimedia Networks:** Basics of Multimedia Networks, Multimedia Network Communications and Applications: Quality of Multimedia Data Transmission, Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-on-Demand (MOD).

**TEXT BOOKS:**
1. Fundamentals of Multimedia, Ze-Nian Li , Mark S. Drew, PHI/PEA.
2. Multimedia Systems, Parag Havaldar, Gerard Medioni, cengage, 2009.

**REFERENCE BOOKS:**
1. Essentials Action Script 3.0, Colin Moock, SPD O, Reilly,2007.
2. Multimedia Applications, Steinmetz, Nahrstedt, Springer.
3. Digital Multimedia, Nigel Chapman, Jenny Chapman, Wiley-Dreamtech.
4. Multimedia & Communications Technology, Steve Heath, Elsevier .
5. Multimedia Technology & Applications, David Hilman , Galgotia.
6. Multimedia Technologies, Banerji, Mohan Ghosh, MGH.