**Title of Subject : Multimedia Communication (SW-416)**

**Discipline :** Software Engineering (7th Semester)

**Effective :** F16 Batch & onwards

**Pre-requisite :** Discrete Structures

**Assessment :** Theory**:** 20% Sessional, 80% Written Semester Examination

## (20% Mid, 60% Final)

Practical: 40% Sessional, 60% Final Examination

**Credit Hours :** 03 + 01 **Marks:** 100 + 50

**Minimum Contact Hours:** 45 + 45

# Specific Objectives of course:

* To have an understanding of multimedia Systems which incorporate images, digital audio, video and animations
* To have an understanding of data compression, transmission, integration of media, multimedia authoring, and delivery of multimedia.

**COURSE LEARNING OUTCOMES:**

Upon successful completion of the course, the student will be able to:

|  |  |  |  |
| --- | --- | --- | --- |
| **CLOs** | **Description** | **Taxonomy level** | **PLO** |
| 1 | Understand multimedia systems which incorporate digital audio, graphics and video, pictures, integration of media, multimedia authoring, and delivery of multimedia. | C2 | 1 |
| 2 | Discover techniques for data compression and transmission, audio and video compression, 3D modeling, and animation in multimedia. | C3 | 2 |
| 3 | Practice the skills in planning, designing, implementing and evaluating multimedia projects. Manage problem solving skills in assigned project related to interactive multimedia application. | P4 | 3,9 |

**PROGRAM LEARNING OUTCOMES (PLOs):**

The course is designed so that students will achieve the following PLOs:

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| --- | --- | --- | --- | --- | --- |
| 1 | Engineering Knowledge: | ☑ | 7 | Environment and Sustainability: | ☐ |
| 2 | Problem Analysis: | ☑ | 8 | Ethics: | ☐ |
| 3 | Design/Development of Solutions: | ☑ | 9 | Individual and Team Work: | ☑ |
| 4 | Investigation: | ☐ | 10 | Communication: | ☐ |
| 5 | Modern Tool Usage: | ☐ | 11 | Project Management: | ☐ |
| 6 | The Engineer and Society: | ☐ | 12 | Lifelong Learning: | ☐ |

**Course outline:**

# INTRODUCTION TO MULTIMEDIA

Multimedia applications and requirements, overview of multimedia systems, Characteristics, Challenges and components of multimedia system, Overview of MM software tools, MM authoring tools, their types and features, Organizing MM team.

# DEVICES FOR MM AND TEXT

Input and output devices, Connecting devices (SCSI, MCI, IDE), Compact Disc Technology (CAV and CLV) and Formats, Optical and CD storage media, Font editing and design tools, Hypertext and Hyperlinks, Integrating Text with Graphics and Videos.

# IMAGES

# Bitmap and Vector graphics, Image file formats, Digitizing Real world Images, Image Processing software, Color models, Using Light sources and perspective.

# AUDIO

# Sound, Computer manipulation of Sound, Digital Audio and Analogue Audio, MIDI, Audio file formats and Sampling, Digital audio and MIDI.

# VIDEO

# Analogue Video and its standards (PAL, SECAM, NTSC), Digital Video and its standards (AVI, MPEG, QUICKTIME, MOV)

* **VIDEO AND AUDIO COMPRESSION**

Audio and video compression (e.g., JPEG, MPEG, H.26X, etc.), scalable coding, perceptual audio encoders. Performance comparison of coding algorithms, Algorithms for image and video processing.

* **ANIMATION**

Animation techniques, file formats and animation process, 3D drawing, modeling and surface rendering and its methods.

# Practical Work to be carried out:

|  |  |
| --- | --- |
| 1 | Introduction to Adobe Photoshop and learn to edit images in Photoshop. |
| 2 | Applying different layer styles to design glossy candy text effect using Adobe Photoshop. |
| 3 | Learn to design an awesome television icon from scratch using Adobe Photoshop. |
| 4 | Learn to design academic posters using Adobe Photoshop |
| 5 | Working with Animations in Adobe Photoshop |
| 6 | Introduction to Audacity and learn to apply editing operations and special effects on sounds. |
| 7 | Working with Text to speech converters |
| 8 | Working with Hit films Express |
| 9 | To become familiar with special effects in Hit films Express |
| 10 | To work with Google Sketch up |
| 11 | To work with frame by frame and tweening animation in flash. |
| 12 | To work with special effects in flash. |
| 13 | To work with scripting in Flash. |
| 14 | T work with character animation in Flash. |
| 15 | Details about your project consisting of software and tools used with comprehensive procedure. |

# Recommended Books:

1. Jeff Burger, “The Desktop Multimedia Bible”, Addison Wesley Publishing Company, Latest Edition.
2. Vaughan, “Multimedia Making It work”, Osborne Mc Graw Hill, Latest Edition.
3. Fred Halsall, "Multimedia Communications: Applications, Networks, Protocols, and Standards", Latest Edition.

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| **Approval:** |  | |
| **Board of Studies:** | **Resolution No. 02** | **Dated: 29-08-2019** |
| **Board of Faculty:** | **Resolution No. 01** | **Dated: 07-10-2019** |
| **Academic Council:** | **Resolution No. 96.10** | **Dated: 07-10-2019** |