SEMESTER 1st
MAJOR / MINOR COURSE
ACP122N: APPLIED COMPUTING (INTERNET BASICS & MULTIMEDIA COMPUTING)

CREDITS: 4+2

Course Objectives: *To provide the knowledge of different concepts of multimedia that encompasses all multimedia components including text, images, audio, video etc.*

Course Outcomes: *To familiarize the students with the concepts of multimedia computing and applications.*

THEORY (4 CREDITS)

UNIT I:

Introduction to WWW, internet and hypertext. Basics of HTML and designing a simple webpage using HTML.
Introduction to multimedia: History and components of multimedia, hypermedia. Elements of multimedia: text, audio, images, video, animation. Multimedia authoring: authoring metaphors, production, presentation and automatic authoring.

UNIT II:

Image data representation: 1-bit images, 8-bit gray-level images, dithering, 24-bit colour images, 8-bit colour images, and colour lookup tables.
File formats: GIF, JPEG, PNG, TIFF, EXIF, BMP.

UNIT III:

Multimedia compression: lossless compression, basic information theory, run-length coding, variable-length coding. Lossy compression: introduction, distortion measure, rate-distortion theory

UNIT IV:

Image compression standards: JPEG, JPEG2000, JPEG-LS, bit-level compression. Video compression: introduction, motion vectors, MPEG-I, MPEG-II

TEXTBOOKS:

1. Fundamentals of Multimedia, Ze-Nian Li and Mark S. Drew, Pearson, Prentice Hall
2. Multimedia Learning, Richard E. Mayer, Cambridge University Press
3. Multimedia Systems, Klara Nahrstedt and Ralf Steinmetz, Springer
4. Principles of Multimedia, Ranjan Parekh, McGraw Hill

LAB. COURSE (2 CREDITS)

1. Write a basic HTML program.
2. Create a banner for an event in illustrator/photoshop.
3. Adding/Importing an Image in Adobe Photoshop/illustrator.
4. Editing an image using layers in Adobe Photoshop/illustrator.
5. Create a poster with images and text in photoshop/illustrator.
6. Remove background from an image in photoshop/illustrator.
7. Clone the face of a person in the same image in photoshop/illustrator.
8. Reduce the colour depth of an image and compare the file sizes with the original image.
9. Create a transparent logo in illustrator and save it in raster and vector formats. Compare the images for quality and size.
10. Make use of a magnetic lasso to detach the body of a person from the image.