

## **18MC305 MULTIMEDIA SYSTEMS**

### **Course Description and Objectives:**

The course enables the student to learn the concepts of multimedia like text, speech, image and video processing in today's international standards. Further, it also adds an essence of multimedia systems design, multimedia networks, multimedia search engines and emerging multimedia value-added services.

### **Course Outcomes:**

The student will be able to:

- Understand about various latest interactive multimedia devices, the basic concepts about images and image formats.
- Analyze data compression techniques, image compression techniques like JPEG, video compression techniques like MPEG, and the basic concepts of multimedia animation.
- Develop an interactive multimedia presentation by using multimedia devices and multimedia applications surrounding the emergence of multimedia technology.

### **Skills:**

- Hands-on multimedia technology and related tools.
- Acquire conceptual utilities of animation within the domain.
- Develop an application using action script programs.

### **Activities:**

- Create effective audiovisual presentation.
- Contribute in a team to prepare a flash game.
- Develop effective web template using various website components.

### **Syllabus**

<b>UNIT – 1</b>	<b>12 Hours</b>
MULTIMEDIA AND DATA: Media & Data streams- Medium, Traditional, Properties of multimedia systems, Data stream characteristics, Data stream characteristics for continuous media, Information units.	
<b>UNIT – 2</b>	<b>12 Hours</b>
SOUND/AUDIO: Basic Sound concepts, Music, Speech.	
<b>UNIT – 3</b>	<b>12 Hours</b>
IMAGES AND GRAPHICS: Basic concepts, Computer image processing.	
<b>UNIT – 4</b>	<b>12 Hours</b>
VIDEO AND ANIMATION: Basic Concepts, Television, Computer-based Animation.	

DATA COMPRESSION: Storage space, Coding requirements, Source-entropy and Hybrid-coding, Some basic compression techniques, JPEG, MPEG.

**List of Experiments:**

1. Animations including motions, shapes, mouse events
  - a. Moving object from one place to another place (motion).
  - b. Extending the object from one shape to another shape (shape).
  - c. Creating an object and working with mouse events.
  - d. Create the shadow of the Text.
2. Create an animation with following features
  - a. To represent the growing moon.
  - b. To indicate a ball bouncing on steps.
  - c. To stimulate movement of cloud.
  - d. To stimulate ball hitting another ball.
3. Text to shapes/number conversion
  - a. Create a text field and convert it to shapes
  - b. Create a text field and display random numbers.
  - c. Create and animated cursor using StartTag.
  - d. Create a text field and display language, version and operating system.
4. Create a text field and make a motion tween as follows
  - a. Jumping of letters.
  - b. Applying alpha to letters.
  - c. Enlarging a text.
  - d. Practice section on motion tween.
5. Create the following by using adobe photoshop.
  - a. Student ID Card
  - b. Test book Cover Page
  - c. Visiting card with atleast one graphic
6. Create the following by using adobe photoshop.
  - a. Adjust brightness and contrast of image
  - b. Make some part of image black and white
  - c. Extract the image
7. Write an action script to display the given array and arrange them according to alphabetic order.
8. Write an action script to display the given array and arrange them on reverse order
9. Write an action script for drawing a rectangle in flash
10. Design a Calculator
11. Design a game/application in flash.
12. Convert BMP file to JPG file using any programming language.
13. Construction of website using pictures, videos, audio etc with proper layout in any language

**Text book:**

Ralf Steinmentz & Klara Nahrstedt, "Multimedia computing, communications & Applications", 6<sup>th</sup> Impression, Pearson Education, 2009.

**Reference Books:**

1. John E. Koegel, Buford, "Multimedia Systems", 1<sup>st</sup> Edition, Addison Wesley, 1994.
2. John Vince, "Virtual Reality Systems", 1<sup>st</sup> Edition, Pearson Education, 2007.