



**Kadi Sarva Vishwavidyalaya**  
**Faculty of Engineering & Technology**  
 Electronics and communication Engineering  
 ( Academic Year 2019-20)

<b>Subject Code:</b> EC 501-N	<b>Subject Title:</b> MULTIMEDIA COMMUNICATION
<b>Pre-requisite</b>	

**Course Objective:**

The educational objectives of this course are

- Understand the basic need of multimedia and components of multimedia
- Understand the various multimedia standards
- Understand the compression techniques, transform for compression and analyse various compression standard for Text, Image and Video analyze.
- Understand the different multimedia protocol over IP and ATM.

**Teaching Scheme (Credits and Hours)**

Teaching scheme				Total Credit	Evaluation Scheme					Total Marks
L	T	P	Total		Theory		IE Marks	CIA Marks	Pract. Marks	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks				
03	00	02	05	04	03	70	30	20	30	150

**Outline Of the Course:**

Sr. No	Title of the Unit	Hours
1.	Introduction to multimedia	8
2.	Multimedia Basics	8
3.	Multimedia Data Compression	8
4.	Image and video Compression Standards	8
5.	Multimedia Communications	8
6.	Multimedia Content Management & Retrieval	8
		<b>48</b>

**Total hours (Theory): 48**

**Total hours (Lab): 16\*2=32**

**Total hours: 80**



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**Detailed Syllabus:**

Unit No.	Topics	Lecture Hours	Weight age(%)
1.	<b>Introduction to multimedia :</b> Concept of multimedia, Emerging applications, multimedia system and appliances, multimedia information representation	8	16
2.	<b>Multimedia Basics :</b> Digital Audio: Digitization of Sound , MIDI, Image Graphics and color: Graphics Image Data Type, Popular File Formats GIF JPEG, PNG , TIFF ,EXIF , Graphics Animation Files, PS and PDF , Digital Video: Color Science, Color Models in Images and Video	8	16
3.	<b>Multimedia Data Compression:</b> <b>Lossless compression algorithms:</b> Introduction, Run-Length Coding, Variable Length Coding (VLC), Dictionary based Coding and Arithmetic coding <b>Lossy Compression Algorithms:</b> Introduction, The rate-Distortion theory, Quantization, Transform Coding, Wavelet-Based Coding, Wavelet Packets.	8	17
4.	<b>Image and video Compression Standards:</b> The JPEG Standard, The JPEG2000 Standard, The JPEG-LS Standard, Video Compression Based on Motion Compensation, search for Motion Vector, H.261, H.263, MPEG-1 and 2	8	17
5.	<b>Multimedia Communications:</b> Multimedia Buses: PCI, DVI, HDMI, Firewire Multimedia OS, Network Communication: Multimedia over IP, Multimedia over ATM Networks	8	17
6.	<b>Multimedia Content Management &amp; Retrieval:</b> Stored media access, Media filtering, Content based query, Query based example, CBIR (Content Based Image Retrieval) Video Retrieval	8	17
	<b>Total</b>	<b>48</b>	<b>100</b>

**Instructional Method and Pedagogy:**

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- One internal exam will be conducted as a part of internal theory evaluation.
- Assignments based on the course content will be given to the students for each unit and will be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.



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**Learning Outcomes:**

On successful completion of the course

- learn the fundamental of Multimedia systems and types of media system
- learn and analyse compression techniques,
- understand and evaluate different protocols of multimedia communication
- understand Multimedia Content Management and Retrieval techniques

**TEXT BOOKS:**

Fundamentals of multimedia by Ze-Nian Li and Mark S. Drew Pearson Education international.  
Multimedia Systems concepts standard and Practice by:Ramesh Yerraballi

**REFERENCE BOOKS:**

1. Multimedia communications: Fred Halsall; Pearson Education Asia.
2. Multimedia Systems-Design: K. Thakkar; PHI

**List of Experiments** (Not limited to following. Subject teacher may modify the same):

Sr. No.	Experiment Title
1.	To study the Multimedia Basic Software Tools
2.	Write a Program to view A BMP File using C or C++ Language.
3.	Write a program to produce animation effect of triangle transform into square and then into circle.
4.	Basics of HTML and it's Command.
5.	Write a HTML Program to insert image.
6.	Write a HTML Program to insert table.
7.	Write a HTML Program to insert a drop-down list.
8.	Write a HTML Program to send an e-mail.
9.	Write a HTML Program to insert audio.
10.	Write a HTML Program to insert Video
11.	Basics of Photoshop section tools, Copy, Cut, Paste, move tool and Paste into.