Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
MCAE45 D	Multimedia	4	--	--	4	--	--	4S
		Examination Scheme						
		ISE		MSE		ESE		
		10		30		100 (60% Weightage)		

Pre-requisite Course Codes	Computer Graphics (MCAE35 D)	
Course Outcomes	CO1	Perceive multimedia architecture and its latest applications.
	CO2	Implement compression, decompression techniques and different formats for image, audio and video.
	CO3	Plan and develop multimedia projects

Module No.	Unit No.	Topics	Ref.	Hrs.
1		**Fundamentals of Multimedia Systems Design-**	1,2,3,4	6
	1.1	An Introduction Multimedia Systems, Design Fundamentals		
	1.2	Elements of multimedia		
	1.3	Multimedia system architecture - High resolution graphics display		
	1.4	IMA Architectural Framework,		
	1.5	Network architecture for multimedia systems		
	1.6	Defining objects for Multimedia systems: Text, Images, Audio and video		
2		**Multimedia Input and Output Technologies**	1,2	8
	2.1	Key Technology Issues, Touch screen, Pen Input		
	2.2	Video and Image Display Systems, Print Output Technologies		
	2.3	Image Scanners		
	2.4	Digital Voice and Audio, Video Images and Animation, Full Motion Video.		
3		**Multimedia File format and standards**	3,4	8
	3.1	RTF, TIFF,RIFF, MIDI		
	3.2	JPEG DIB, AVI, MIDI audio		
	3.3	JPEG & MPEG standards		
	3.4	MIDI Vs Digital Audio, Analog display standards		
	3.5	Digital display standards, Digital video		
4		**Image Compression and Decompression Techniques**	1,3,4	9
	4.1	Compression Techniques- Lossy and Lossless , Entropy encoding		
	4.2	Run length encoding, Huffman coding		
	4.3	JPEG compression process, JPEG methodology, JPEG 2000 standard, Performance comparison of JPEG and JPEG2000		

	4.4	Discrete Cosine Transform, CCITT group 3 1D,3 21D and 4 2D compression		
5		**Audio and Video Compression**	**1,3,4**	**7**
	5.1	Audio Compression-Audio/Sound Basic concepts Computer representation of sound		
	5.2	ADPCM in speech coding, MPEG audio		
	5.3	Introduction to digital video: Types – Chromasub sampling, CCIR , HDTV Computer Video format		
	5.4	Motion Compression, Motion Vector Search Technique		
	5.5	Sequential, 2D logarithmic, Hierarchal search		
	5.6	Standards used – H.261,Comparison of MPEG and H.264 , MPEG 1,2,4,7 and File formats – DVI		
6		**Multimedia presentation and Authoring**	**1,2,4**	**4**
	6.1	Multimedia system design & its Issues, Types		
	6.2	Authoring Systems, Design Issues Approaches		
	6.3	User Interface Issues, Architecture		
	6.4	Information characteristics for presentation, Presentation design knowledge		
	6.5	Effective HCI		
			Total	**42**

References:

[1] PrabhatK.Andleigh, KiranThakrar, “Multimedia Systems Design Paperback”, Pearson Education India, 2015

[2] TayVaguhan, “Multimedia: Making it Work”, McGraw Hill Professional, 2008, Seventh Edition

[3] Li and Ze – Nian , Mark Drew, “Fundamentals of Multimedia”, PHI 2005

[4] John F. Koegel Buford, “Multimedia Systems”, Pearson Education