

Course Code	Course Title	L	T	P	C
BITE314L	Multimedia Systems	3	0	0	3
Pre-requisite	NIL	Syllabus version			
		1.0			
<b>Course Objectives:</b>					
<ol style="list-style-type: none"> <li>1. To comprehend the fundamental concepts of multimedia</li> <li>2. To learn the basics of multimedia technologies and protocols.</li> <li>3. To realize the importance of multimedia applications towards developing real-world problems.</li> </ol>					
<b>Course Outcomes:</b>					
<ol style="list-style-type: none"> <li>1. Demonstrate knowledge of the fundamental elements and concepts related to multimedia systems.</li> <li>2. Understand the basic ideas of compression algorithms related to multimedia components.</li> <li>3. Demonstrate the principles, standards and their applications with an emphasis on underlying technologies and performance.</li> <li>4. Acquire the knowledge in the implementation of inter-process communication in multimedia operating systems.</li> <li>5. Deploy the right multimedia communication models.</li> </ol>					
<b>Module:1</b>	<b>Introduction to Multimedia</b>	<b>4 hours</b>			
Branch overlapping aspects of Multimedia – Content - Global Structure – Medium - Main Properties of Multimedia System - Traditional Data Stream Characteristics - Information Units – Multimedia Architecture.					
<b>Module:2</b>	<b>Sound and Audio</b>	<b>6 hours</b>			
Basic Sound Concepts - Computer Representation of Sound - Audio Formats – MIDI - Speech Analysis - Speech Generation - Speech Transmission.					
<b>Module:3</b>	<b>Image and Graphics</b>	<b>6 hours</b>			
Digital Image Representation - Image Format - Graphics Format - Image Processing Operations: Image Enhancement, Image Segmentation, Image Synthesis, Image Analysis, Image Transmission.					
<b>Module:4</b>	<b>Video and Animation</b>	<b>6 hours</b>			
Video Signal Representation - Computer Video Format – Television - Computer Based Animation - Animation Languages - Methods of Controlling Animation - Display Animation - Transmission of Animation.					
<b>Module:5</b>	<b>Multimedia Compression</b>	<b>7 hours</b>			
Coding requirements – Source - Entropy and Hybrid Coding - JPEG Compression - MPEG 1, 2, 4 Compression - H.264 Compression Video Coding					
<b>Module:6</b>	<b>Multimedia Operating Systems</b>	<b>7 hours</b>			
Introduction - Real time and Multimedia - Resource Management - Process Management - Earliest Deadline First Scheduling - Rate Monotonic Algorithm - Traditional File Systems - Multimedia File Systems					

<b>Module:7</b>	<b>Multimedia Communication Systems</b>	<b>7 hours</b>
Application Subsystem - Collaborative Computing - Session Management - Transport Subsystem – Requirements - Transport Layer-Network Layer - QoS and Resource Management – Multimedia Communication Protocols: RTP, RTCP, RTSP, SIP – Multimedia Database systems: Characteristics of MDBMS - Data Analysis - Data Structure - Operations on Data - Relational and Object-Oriented Database Models		
<b>Module 8</b>	<b>Contemporary Issues</b>	<b>2 hours</b>
<b>Total Lecture hours:</b>		<b>45 hours</b>
<b>Text Book</b>		
1	Multimedia and Applications, Hemant Kapila, Evergreen Publications India Ltd., 2016.	
<b>Reference Books</b>		
1	Fundamentals of Multimedia, Dr. Ze-Nian Li and Dr. Mark S. Drew, Dr. Jiangchuan Liu, 2 <sup>nd</sup> Edition, Springer, 2015.	
2	Henry F Korth, Abraham Silberschatz, S. Sudharshan, "Database System Concepts", Sixth Edition, McGraw Hill, 2011.	
3	Mario Marques da Silva, "Multimedia Communications and Networking", CRC Press, 2012.	
4	Multimedia: Computing Communications & Application, Ralf Steinmetz and Klara Nahrstedt, Pearson Education, 2009.	
Mode of Evaluation: Continuous Assessment Tests, Assignment, Quiz, Final Assessment Test		
Recommended by Board of Studies		12-10-2022
Approved by Academic Council		No. 68      Date      19-12-2022