DEPARTMENT OF COMPUTER SCIENCE & DESIGN

Faculty Name/s: **Mrs. Divya N**				Academic Year: **2025-26(EVEN)**				
Department: **Computer Science & Design**								

Course Code	Course Title	Core/Elective	Prerequisite	Teaching Hours/Week				Total Hrs/ Sessions
				L	T	P	S	
BCG613A	**Multimedia Systems Design**	**Elective**	**Computer Fundamentals**	3	-	-	-	40

Course objectives: This course (BCG613A) will enable students to
- Learn characteristics of Multimedia contents
- Understand and compare different text and image standards.
- Understand audio digitization, processing, and storage.
- Gain knowledge of multimedia architecture.

Topics Covered as per Syllabus

MODULE-I

Introduction, Multimedia Presentation and Production, Characteristics of a Multimedia Presentation, Uses of Multimedia, Analog and Digital Representations, Digitization, Nyquist's Sampling Theorem, Quantization Error Textbook: (**Textbook 1:** Chapter 1 – 1.1-1.3, 1.5-1.9))

MODULE-2

Text - Introduction, Types of Text, Unicode Standard, Font, Text Compression, Text File Formats. Image - Introduction, Image Data Representation, Image Processing, Image File Formats, Image Processing Software.
 (**Textbook 1: Chapter –2 (2.2-2.4,2.6-2.7), 3 (3.2,3.4,3.10– 3.11))**

MODULE - 3

Introduction, Acoustics, Sound Waves, Types and Properties of Sounds, Psycho-Acoustics, Digital Audio, Synthesizers, Musical Instrument Digital Interface (MIDI), Digital Audio Processing, Speech, Audio File Formats, Audio Processing Software.
 (**Textbook 1: Chapter – 5(5.5,5.7 – 5.10), (5.11,5.14 , 5.17))**

MODULE-4

 Introduction, Motion Video, Analog Video Signal Representation, Television Systems, Video Color Spaces , Digital Video, Digital Video Processing, Video File Formats, Video Editing Concepts, Video Processing Software.
(Textbook 1: Chapter – 6(6.2,6.4-6.6,6.7(6.7.1,6.7.4,6.7.5)   (6.8(6.8.1),6.10 , 6.11,6.12))

MODULE-5

Introduction, User Interfaces, OS Multimedia Support, Multimedia Extensions, Distributed Multimedia Applications, Real-time Protocols, Synchronization.

 (**Textbook 1: Chapter – 10(10.2-10.4,10.6,10.7,10.9)**

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

● For the Assignment component of the CIE, there are 25 marks and for the Internal Assessment Test component, there are 25 marks.
● The first test will be administered after 40-50% of the syllabus has been covered, and the second test will be administered after 85-90% of the syllabus has been covered
● Any two assignment methods mentioned in the 22OB2.4, if an assignment is project-based then only one assignment for the course shall be planned. The teacher should not conduct two assignments at the end of the semester if two assignments are planned.
● For the course, CIE marks will be based on a scaled-down sum of two tests and other methods of assessment. Internal Assessment Test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester-End Examination:
Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the course (duration 03 hours).
1. The question paper will have ten questions. Each question is set for 20 marks.
 2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module.
3. The students have to answer 5 full questions, selecting one full question from each module.
4. Marks scored shall be proportionally reduced to 50 marks.

List of Text Books

Textbook: 1. Ranjan Parekh, Principles of Multimedia – 2nd edition, McGraw Hill publication, 2017.
Reference Books:
1. Prabhat K Andleigh and Kiran Thakrar, Multimedia systems Design, Pearson, 2023.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: Explain the fundamentals of digitization and multimedia presentation. Demonstrate video digitization, processing, and storage.

CO2: Compare different text and image standards.

CO3: Illustrate the need of audio digitization, processing, and storage.

CO4: Demonstrate video digitization, processing, and storage .

CO5: Compare the protocols and multimedia support provided by processors, OS and programming platforms

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	BCG613A		Multimedia Systems Design			Faculty Name:	Mrs.Divya N					
List of Course Outcomes	**Program Outcomes**												Total
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO-1	3	2	1	-	2	-	-	1	-	-	-	2	**11**
CO-2	2	3	2	-	1	-	-	-	-	-	-	1	**9**
CO-3	3	2	1	-	2	-	-	1	-	-	-	2	**11**
CO-4	3	2	2	-	3	-	-	1	-	-	-	2	**13**
CO-5	2	3	2	-	3	-	-	1	-	-	1	2	**14**
Total	**13**	**12**	**8**	**0**	**11**	**0**	**0**	**4**	**0**	**0**	**1**	**9**	**58**

Note: 3 = Strong Contribution 2 = Average Contribution   1 = Weak Contribution   - = No Contribution