| CLOs | Assessment Tools (Total 100%) | | | | | |
|------|-----|-----|-----|-----|-----|-----|
| | 20% | | | | 70% | 10% |
| | Class Test 1 | Class Test 2 | Assignment | Presentation | Final Written | Attendance |
| CLO1 | √ | | | | √ | √ |
| CLO2 | √ | | √ | √ | √ | √ |
| CLO3 | | √ | √ | √ | √ | √ |
| CLO4 | | √ | √ | √ | √` | |
| CLO5 | | √ | √ | √ | √ | |
| CLO6 | | | √ | | √ | |

**Course Contents:**

Multimedia systems: introduction; Coding and compression standards; Architecture issues in multimedia.

Operating systems issues in multimedia: real-time OS issues, synchronization, interrupt handling.

Database issues in multimedia: indexing and storing multimedia data, disk placement, disk scheduling, searching for a multimedia document.

Networking issues in multimedia: Quality-of-service guarantees, resource reservation, traffic specification, hoping and monitoring, admission control; Multicasting issues; Session directories; Protocols for controlling sessions;

Security issues in multimedia: digital water-marking, partial encryption schemes for video streams.

Multimedia applications: audio and video conferencing, video on demand, voice over IP.

**Text Book:**
1.  Ze-Nian Li and Mark S. Drew : **Fundamentals of Multimedia**, *Pearson*

**Reference Books:**
1.  John Villamil-Casanova and Louis Molina : **Fundamentals of Multimedia**, *Pearson*
2.  Tay Vaughan : **Multimedia: An Introduction**, Prentice Hall India.
3.  Ranjan Parekh : **Multimedia: Making It Work**, *McGraw-Hill*
4.  Jose Lozano, Louis Molina and John Willif : **Principles of Multimedia**,*Tata McGraw-Hill, 2007.*

## CSE4252: Multimedia System Lab
25 Marks [60% Practical, 30% Quizzes/Viva-voce, 10% Attendance]
1 Credit, 26 Contact hours

Laboratory works based on CSE4251

## CSE4261: Distributed Database Management System
**Credits:** 3 **Contact Hours:** 39
**Year:** Four **Semester:** Odd

**Prerequisite:** CSE3151: Computer Networks,CSE3121   Database Management Systems
**Motivation** To accrue adequate knowledge about the distributed environment, distributed file-system and database management system.
**Course Objective:**
Gigantic amount of data is generated in our daily life. And the volume is increasing day by day. Conventional DBMS are not sufficient to manage and process these enormous amounts of data. Distributed database management systems are different from conventional DBMS. To be able to manage and process these huge amounts of data CS graduates must have a clear understanding of DDBMS.

| CLO (Course Learning Outcome): | | |
|------|------|------|
| CLOs | After successfully completing this course, students will be able | PLO mapping |
| CLO1 | To **explain** the different terminologies and techniques related to distributed database management system (DDBMS). | P1 | |
| CLO2 | To **demonstrate** different architectures of DDBMS. | P1 | |
| CLO3 | To **design** efficient query for DDBMS. | P2 | P3 |
| CLO4 | To **design**, **deploy**and maintainDBMS. | P2 | P3 |

**Evaluation/ Assessment System:** Students are evaluated out of total **75 Marks**. There are different types of assessment tools. In **the final written** examination, total time **is 3 hours** where students should answer Six questions from two sections out of Eight taking not more than Three from each section. The detail with **COs-Assessment Mapping** is given below.

| CLOs | Assessment Tools (Total 100%) | | | | | |
|------|---------------|---------------|------------|--------------|---------------|------------|
| | 20% | | | | 70% | 10% |
| | Class Test 1 | Class Test 2 | Assignment | Presentation | Final Written | Attendance |
| CLO1 | √ | | | √ | √ | √ |
| CLO2 | √ | | √ | √ | √ | √ |
| CLO3 | | √ | √ | √ | √ | |
| CLO4 | | √ | √ | | √` | |

**Course Contents:**

Introduction: Distributed Data processing, Distributed database system (DDBMSS), Promises of DDBMSs, Complicating factors and Problem areas in DDBMSs, Overview Of Relational DBMS Relational Database concepts, Normalization, Integrity rules, Relational Data Languages, Relational DBMS

Distributed DBMS Architecture: DBMS Standardization, Architectural models for Distributed DBMS, Distributed DBMS Architecture Distributed Database Design: Alternative design Strategies, Distribution design issues, Fragmentation, Allocation. Semantic Data Control: View Management, Data security, Semantic Integrity Control

Overview of Query Processing: Query processing problem, Objectives of Query Processing, Complexity of Relational Algebra operations, characterization of Query processors, Layers of Query Processing Introduction To Transaction Management: Definition of Transaction, Properties of transaction, types of transaction

Distributed Concurrency Control:Serializability theory, Taxonomy of concurrency control mechanisms, locking bases concurrency control algorithms. Parallel Database Systems: Database servers, Parallel architecture, Parallel DBMS techniques, Parallel execution problems, Parallel execution for hierarchical architecture.

Distributed Object Database Management systems: Fundamental Object concepts and Object models, Object distribution design. Architectural issues, Object management, Distributed object storage, Object query processing. Transaction management. Database Interoperability: Database Integration, Query processing.

**Text book**
1. M.T. Ozsu and P. Valduriez : **Principles of Distributed Database Systems**,*Pearson.*
2. S. Ceri and G. Pelagatti : **Distributed Databases principles and systems**,*Tata McGraw Hill*
3. Andrew S. Tanenbaum : **Distributed Database**,*Pearson.*

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## CSE4262: Distributed Database Management System Lab
25 Marks [60% Practical, 30% Quizzes/Viva-voce, 10% Attendance]
1 Credit, 26 Contact hours

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## CSE4280: Board Viva-Voce
50 Marks [100% Viva-voce]
2 Credits

The Board viva-voce will be conducted by the Examination Committee.