

Lectures for the course: Database Management Systems (CS43002)

Week 1

Lecture 1+2 – 02/01/2019

- Introduction to the course
- Evaluation Guidelines
- Grading policy

Week 2

Lecture 3 – 07/01/2019

- Introduction to database systems
- Need for a database management system

Lecture 4+5 – 09/01/2019

- Basic terminologies
- ER model

Week 3

Lecture 6 – 14/01/2019

- ER Diagram notations
- Representing various forms of entities, relationships
- Weak entities
- Representation of cardinality and participation
- Alternative notations

Lectures 7+8 – 16/01/2019

- Generating tables from ER diagram
- ER model design issues
- ER model extensions

Week 4

Lecture 9 – 21/01/2019

- Relational model
- Relational Algebra

Lecture 10+11 – 23/01/2019

- Basic SQL
- DDL
- Basic SQL query structure
- Additional basic operations like join
- Group by

Week 5

Lecture 12 – 28/01/2019

- Intermediate SQL
- Outer joins
- Views
- Constraints
- Check, Not null, Referential integrity
- Data types

Lecture 13+14 – 31/01/2019 (Compensatory)

- Authorization
- Advanced SQL
- Functions and procedures
- Triggers

Week 6

Lecture 15 – 04/02/2019

- Recursive queries
- Relational algebra extensions

Lecture 16+17 – 06/02/2019

- Tuple relational calculus
- Domain relational calculus

Week 7

Lecture 18 – 11/02/2019

- Database design
- Functional dependency

- Decomposition
- BCNF
- Dependency preserving decomposition
- 3NF
- Closure of F
- Closure of attribute

Lecture 19+20 – 13/02/2019

- BCNF decomposition
- 4NF decomposition
- Other topics in normalization

Week 8

Mid Sem Exam held

Week 9

Lecture 21+22 – 27/02/2019

- Introduction to datawarehousing
- Fact table and dimension table
- ECTL
- OLTP vs OLAP
- OLAP cubes
- OLAP operations
- Star schema and other design considerations
- Denormalization

Week 10

Lecture 23+24 – 06/03/2019

- Association rule mining basics
- A priori algorithm for association rule mining
- Analysis

Week 11

Lecture 25+26 – 13/03/2019

- Storage basics
- Disk organization
- Block access from disks

- Basic concepts of file organization
- Fixed length and variable length records
- Storing variable records in blocks

Lecture 27+28 – 14/03/2019 (Compensatory)

- Indexed sequential files
- Retrieval, insert and delete

Week 12

Lecture 29 – 18/03/2019

- B+ Tree
- Structure and search

Lecture 30+31 – 20/03/2019

- B+ Tree insert and delete
- Hash indices
- Dynamic hashing

Week 13

Lecture 32 – 25/03/2019

- Introduction to transaction management
- Properties of transactions
- Responsibilities of various components of DBMS in ensuring ACID properties
- Schedule
- Serializability

Lecture 33+34 – 27/03/2019

- Conflict serializable schedules
- Testing for conflict serializability
- Transaction dependency graph
- Recoverable and cascadeless schedules
- View serializability
- Class test held