
DATABASE MANAGEMENT SYSTEM

Paper Code **CEN-504**

Course Credits **4**

Lectures / week **3**

Tutorial / week **1**

Course Description **UNIT – I**

Database – Characteristics, advantages, disadvantages and applications. Data models, schemas and instances. Difference between Hierarchical, Network and relational model. Three schema architecture and data independence. Client server architecture for DBMS. Classification of DBMS.

UNIT- II

Data modeling using E-R diagram, Entity type, entity sets, attribute and keys. Weak entity. Relational model concepts, Relational database schemas, Constraint violations. Relational Algebra and Relational calculus. Introduction to Tuple relational calculus and Domain relational calculus. Codd's Rule for Relational Database. Indexes and Hash Indexes.

UNIT- III

Design guidelines for Relational schemas, Functional dependency, normal forms based on primary keys. Definition of First Normal form, Second normal form, Third normal form and BCNF.

UNIT- IV

Multi-valued Dependency and Fourth Normal form, Join dependency and fifth Normal form. Inclusion dependency, Other dependencies and Normal form. Transaction processing concepts, Locks, Serializability and concurrency control, Database Security.

UNIT – V

SQL: Data Manipulation, Data Definition, Commercial RDMS: Oracle / MySql / Sql Server , PL/SQL . PL/SQL programming, views, cursors and Trigger, Introductions to Distributed database, Object oriented database, Mobile database, Multimedia database,

Geographic Information system, data warehousing and data mining.

References / Text

Books:

- Fundamentals of Database Systems, Elmasri, Navathe, Pearson Education, IVth Edition. Pearson Education.
- Database system concepts, Henry F Korth, Abraham Silberschatz, S. Sudurshan, McGraw-Hill.
- An Introduction to Database Systems, C.J.Date, Pearson. Education
- Data Base System, Michael kifer and et all, Pearson Education
- Database Management Systems ,Ramakrishnan, Gehrke;Mcgraw-Hill
- The Database Book –Principle and Practice" By Narain Gehani, University Press
- A first course in Database Systems, Jeffrey D. Ullman, Jennifer Windon, Pearson Education.

**Computer Usage /
Software Requires:**

e.g. Mac / Linux / Windows Operating System, Bash Shell, MYSQL
