Subject Code : CCN2K5

CORE COURSE V – DATABASE SYSTEMS

Unit I

Introduction – Purpose of database systems – Data abstraction – Data models – Instances and schemes – Data Independence – DDL – DML – Database users – ER models – Entity sets – Keys – ER diagram – Relational model – Structure – Relational Algebra – Relational calculus – Views.

Unit II

SQL – QBE – QUEL – Basic structure – Various operations – Relational database design – Problems in Relational database design – Normalization – Normalization using functional , multivalue and join dependencies.

Unit III

File and System structure – Overall system structure – File organization - Data dictionary – Indexing and hashing – Basic concepts – B and B+ tree indices – Static and Dynamic hash functions.

Unit IV

Recovery and atomicity – Failures classification and types – Transaction model and Log based recovery, schedules – Serial and non serial types – Serialization of schedules and views – Testing for serializability – Lock based protocols – Time based protocols – Validation techniques – Multiple granularity – Multiversion schemes – Insert and delete operations.

Unit V

Distributed data bases – Structure of distributed data bases – Trade offs in distributing the database – Transparency and autonomy – Distributed query processing - Recovery in distributed systems - Commit protocols – Security and integrity violations – Authorization and views – security specification – Encryption – Statistical databases.

Book for Study:

1. “Database System Concepts”, Henry F.Korth and Abraham Silberschatz, McGraw Hill 1992. (Chapters 1, 2, 3, 4, 6, 9, 10, 11, 15 and 16).

Books for reference:

1. “An introduction to database systems”, Bipin C, Desai, Galgotia Publicaions Pvt. Ltd., 1991.
2. “An Introduction to Database Systems”, C.J.Date, Third Edition Addison Wesley 1983.