

MAJOR BASED ELECTIVE I - DATABASE SYSTEMS

Unit I

Introduction: Database-System Applications- Purpose of Database Systems - View of Data --Database Languages - Relational Databases - Database Design -Object-Based and Semi structured Databases - Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

Unit II

Relational Model: Structure of Relational Databases - Fundamental Relational-Algebra Operations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

Unit III

SQL: Data Definition - Basic Structure of SQL Queries - Set Operations -Aggregate Functions - Null Values - Nested Subqueries - Complex Queries - Views -Modification of the Database - Joined Relations - SQL Data Types and Schemas - Integrity Constraints - Authorization - Embedded SQL

Unit IV

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus - Query-by- Example. Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - 3 Constraints - Entity-Relationship Diagrams - Entity-Relationship Design Issues - Weak Entity Sets - Database Design for Banking Enterprise

Unit V

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies- More Normal Forms - Database-Design Process

Text Book:

1. Database System Concepts, Fifth edition, Abraham Silberschatz , Henry F. Korth, S. Sudarshan, McGraw-Hill-2005.

Books for Reference:

“An introduction to database systems”, Bipin C. Desai, Galgotia Publications Pvt Ltd, 1991.

“An Introduction to Database Systems”, C.J.Date, Third Edition Addison Wesley 1983.