

IT 704 Elective –I (IT- 710- Advanced Concepts In Database Systems)

Unit I: An overview of database, The Extended Entity Relationship Model and Object Model: The ER model revisited, Motivation for complex data types, User defined abstract data types and structured types, Subclasses, Super classes, Inheritance, Specialization and Generalization, Constraints and characteristics of specialization and Generalization, Relationship types of degree higher than two.

Unit II: Query Processing, Optimization & Database Tuning: Algorithms For Executing Query Operations. Heuristics For Query Optimizations, Estimations of Query Processing Cost, Join Strategies for Parallel Processors, Database Workloads, Tuning Decisions, DBMS Benchmarks, Clustering & Indexing, Multiple Attribute Search Keys, Query Evaluation Plans, Pipelined Evaluations, System Catalogue in RDBMS.

Unit III: Distributed Database System: Structure of Distributed Database, Data Fragmentation, Data Model, Query Processing, Semi Join, Parallel & Pipeline Join, Distributed Query Processing In R * System, Concurrency Control In Distributed Database System, Recovery In Distributed Database System, Distributed Deadlock Detection and Resolution, Commit Protocols.

Unit IV: Enhanced Data Model For Advanced Applications: Database Operating System, Introduction to Temporal Database Concepts, Spatial And Multimedia Databases, Data Mining, Active Database System, Deductive Databases, Database Machines, Web Databases, Advanced Transaction Models, Issues in Real Time Database Design.

Unit V: Accessing databases from Web, JavaScript, JDBC, Java Servlets , database technology to Web related areas such as semi-structured databases and data integration, XML, XQuery, XPath, XML Schemas, distributed database design, distributed database transactions, and distributed query processing

References:-

- Majumdar & Bhattacharya, “Database Management System”, TMH.
- Elmasri, Navathe, “Fundamentals of Database Systems”, Addison Wesley.
- Korth, Silbertz, Sudarshan, “ Database Concepts”, McGraw Hill.
- David M. Croenke and David J. Auer “Database Processing” Eleventh Edition, PHI
- Ramakrishnan, Gehrke, “Database Management System”, McGraw Hill.
- Peter Rob and Coronel, “Database Systems, Design, Implementation and Management”, Cengage Learning
- Data C J,” An Introduction To Database System”, Addison Wesley.
- Bernstein, Hadzilacous, Goodman, “Concurrency Control & Recovery”, Addison Wesley.