



## **ADVANCED DATABASES**

(Elective-III)

### **UNIT-I**

**Object Based Databases:** Overview, Complex data types, Structured types and inheritance in SQL, Table inheritance, Array and multiset Types in SQL, Object –identity and reference Types in SQL, Implementing O-R features, Persistent programming languages, Object-relational mapping, Object-oriented versus object-relational.

### **UNIT-II**

**XML:** Motivation, Structure of XML data, XML document scheme, Querying and transformation, Application program interface to XML, Storage of XML data, XML applications.

### **UNIT-III**

**Query Processing:** Overview, Measures of query cost, Selection Operation, Sorting, Join Operation, Other Operations, Evaluation of Expressions.

**Query Optimization:** Overview, Transformation of relational expressions, Estimating statistics of expression results, Choice of evaluation plans, Materialized Views.

### **UNIT-IV**

**Parallel Databases:** Introduction, I/O parallelism, Interquery Parallelism, Intraquery Parallelism, Intraoperation Parallelism, Interoperation Parallelism, Query Optimization, Design of Parallel Systems.

**Distributed Databases :** Homogeneous and heterogeneous database, Distributed data Storage, Distributed transactions, Commit protocols, Concurrency control in distributed databases, Availability, Distributed query processing, Heterogeneous distributed databases.

### **UNIT-V**

**Advanced Application Development:** Performance tuning, Performance benchmarks, Other issues in application development, Standardization.

**Spatial and Temporal Data and Mobility:** Motivation, Time in databases, Spatial and geographic data, Multimedia databases, Mobility and Personal databases.

***Suggested Reading:***

1. 1.Abraham Silberschatz, Henry F Korth, S Sudarshan, *Database System Concepts*, McGraw Hill International Edition, 6th Edition, 2009.
1. 2.ElmasriNavathe, Somayajulu, Gupta, *Fundamentals of Databases Systems*, Pearson Education, 4th Edition, 2006.
1. 3.CJ Date, A Kannan, S Swamynathan, *An Introduction to Database Systems*, Pearson Education, 8th Edition, 2006.
1. 4.Ramakrishna, Gehrke, *Databases Management Systems*, McGraw-Hill International Edition, 3rd Edition, 2003.