

## **CS6005 ADVANCED DATABASE SYSTEMS**

### DETAILED SYLLABUS

#### **OBJECTIVES:**

The student should be made to:

- Learn different types of databases.
- Be exposed to query languages.
- Be familiar with the indexing techniques.

#### **UNIT I PARALLEL AND DISTRIBUTED DATABASES**

Inter and Intra Query Parallelism – Architecture – Query evaluation – Optimization – Distributed Architecture – Storage – Catalog Management – Query Processing - Transactions – Recovery - Large-scale Data Analytics in the Internet Context – Map Reduce Paradigm - run-time system for supporting scalable and fault-tolerant execution - paradigms: Pig Latin and Hive and parallel databases versus Map Reduce.

#### **UNIT II ACTIVE DATABASES**

Syntax and Semantics (Starburst, Oracle, DB2) – Taxonomy – Applications – Integrity Management – Workflow Management – Business Rules – Design Principles – Properties – Rule Modularization – Rule Debugging – IDEA methodology – Open Problems.

#### **UNIT III TEMPORAL AND OBJECT DATABASES**

Overview – Data types – Associating Facts – Temporal Query Language – TSQL2 – Time Ontology – Language Constructs – Architecture – Temporal Support – Object Database and Change Management – Change of Schema – Implementing Database Updates in O2 – Benchmark Database Updates – Performance Evaluation.

#### **UNIT IV COMPLEX QUERIES AND REASONING**

Logic of Query Languages – Relational Calculi – Recursive rules – Syntax and semantics of Data log – Fix point semantics – Implementation Rules and Recursion – Rule rewriting methods – Compilation and Optimization – Recursive Queries in SQL – Open issues.

#### **UNIT V SPATIAL, TEXT AND MULTIMEDIA DATABASES**

Traditional Indexing Methods (Secondary Keys, Spatial Access Methods) – Text Retrieval – Multimedia Indexing – 1D Time Series – 2d Color images – Sub pattern Matching – Open Issues – Uncertainties.

#### **TEXT BOOK:**

1. Raghu Ramakrishnan “Database Management System”, Mc Graw Hill Publications, 2000.

#### **REFERENCES:**

1. Carlo Zaniolo, Stefano Ceri “Advanced Database Systems”, Morgan Kauffmann Publishers. VLDB Journal, 1997

Diploma, Anna Univ UG & PG Courses

*Notes*

*Syllabus*

*Question Papers*

*Results and Many more...*

Available @

[www.AllAbtEngg.com](http://www.AllAbtEngg.com)

2. Abraham Silberschatz, Henry F. Korth and S. Sudharshan, "Database System Concepts", Sixth Edition, Tata McGraw Hill, 2011