Course No: MCA – 1T4
Course Title: Advanced Database Management Systems

Unit I

Elementary Database Concepts. Hierarchical, Relational, Network and OO Database Architectures and their comparison. Data Modeling. Relational model – Concept, Algebra and Constraints. Use of SQL as a relational database language in data definition & query formulation.

Unit II

Comparison of DBMS: MySQL, DB2, MS SQL Server, Oracle 8i/9i/10g - their strengths & weaknesses. Summary of Normalization techniques used with RDBMS – relative comparison and applications. Concept and use of indexes; Clustering - Effects on performance.

Unit III

Database backup, recovery and management using Oracle RMAN. DBMS performance tuning; goals, principles & benchmarks. DBMS Storage management. Oracle Enterprise Manager: Console functions, Database Administration tools – DBA Studio. Oracle SQL*Net capability – architecture & operations.

Unit IV

Oracle Enterprise Security Manager - user authentication & privilege management. Integrity Management – Locking techniques; implementation using Latches. Database Replication Management – Multiple master technique; types of propagation & replication; conflict resolution. Programmatic interfaces to Oracle RDBMS; Case Study of SQLJ, JDBC and related Java capabilities in Oracle.

Reference Books:
1. William Page,"Using Oracle 8i – Special Edition", Que/PHI.
2. Ivan Bayross, "SQL & PL/SQL Using Oracle 8i & 9i with SQLJ", BPB.
3. Desai.B , "An introduction to Database Concepts", Galgotia Publications, N.Delhi
4. Elmasiri and Navathe, "Fundamentals of Database System", Addison Wesley, N.Y.
5. Dates.C , " An introduction to Database Systems", Pearson Education, Asia.