Andhra Pradesh State Council of Higher Education
M.Sc. Computer Science Syllabus

MCS-202 DATABASE MANAGEMENT SYSTEMS

UNIT -I

Introduction: Data Base system applications, Focus of data base systems, view of Data, Data base languages, relational data bases, Data base design, Data storage and query, Transaction management.

Data base design and Entity-Relationship model: Overview of the design process, Entity-Relationship model, constraints, Entity- Relationship diagrams, Entity-Relationship design issues, Weak Entity sets.

Relational Model: Structure of relational databases, Fundamental Relational Algebra operations, Modification of the database, Extended Relational Algebra Operations, Null Values.

UNIT -II

SQL: Background, Data definition, Basic structure of SQL queries, set operations, aggregate Functions, null values, Nested sub queries, views, complex queries, modification of the database, joined relations.

Advanced SQL: SQL data types and schemas, Integrity constraints, Authorization, Embedded SQL, Dynamic SQL

UNIT - III

Storage and File Structure: Overview of physical storage media, Magnetic disks, RAID, Tertiary storage, storage access, file organization, Organization of records in files, data dictionary storage.

Indexing and Hashing: Basic Concepts, ordered indices, B+ tree index files, B-tree index files, static hashing, dynamic hashing, compression of ordered indexing & hashing, index definition in SQL, Multiple key Access.

UNIT – IV

Relational database design: Features of good relational design, 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, Modeling temporal data.

Concurrency Control: Lock-based protocols, Timestamp-based protocols, validation based protocols, multiple granularity, Deadlock handling, Concurrency in Index Structure.

Prescribed Book:

Silberschatz, korth, sudarshan - Database system concepts -
McGrawHill - 5th edition

Reference:

1.Fundamentals Of Database Systems – Elmasri & Navathe.
2.Database management systems - Raghu Rama Krishnan, McGraw-Hill
3.Database Management Systems – C.J.Date
4.Oracle DBA Certification Exam Guide – Jason S. Couceman Tata
McGraw Hill Edition 99.