MC5103 DATABASE MANAGEMENT SYSTEMS

DETAILED SYLLABUS

OBJECTIVES:

- To understand the fundamentals of data models and conceptualize and depict a database system using ER diagram.
- To make a study of SQL and relational database design.
- To know about data storage techniques an query processing.
- To impart knowledge in transaction processing, concurrency control techniques and
- recovery procedures.

UNIT I INTRODUCTION

File systems versus Database systems – Data Models – DBMS Architecture – Data Independence – Data Modeling using Entity – Relationship Model – Enhanced E-R Modeling.

UNIT II RELATIONAL MODEL AND QUERY EVALUATION

Relational Model Concepts – Relational Algebra – SQL – Basic Queries – Complex SQL Queries – Views – Constraints – Relational Calculus – Tuple Relational Calculus – Domain Relational Calculus – Functional Dependencies – Normal Forms – 1NF – 2NF-3NF-BCNF – 4NF-5NF.

UNIT III TRANSACTION PROCESSING

Transaction Processing – Properties of Transactions - Serializability – Transaction support in SQL - Locking Techniques – Time Stamp ordering – Validation Techniques – Granularity of Data Items – Recovery concepts – Shadow paging – Log Based Recovery.

UNIT IV FILES AND INDEXING

File operations – Hashing Techniques – Indexing – Single level and Multi-level Indexes – B+ tree – Static Hashing - Indexes on Multiple Keys.

UNIT V SPECIAL PURPOSE DATABASES

OODBMS- - Object-Based Databases - OO Data Model - OO Languages – Persistence – Object Relational Databases - XML – Structure of XML –– Cloud based systems – NOSQL introduction - NOSQL key features – Hbase data model – Hbase data operations – Database Tuning -Case Study for Design and Manage the Database for any Project.

REFERENCES:

1. Abraham Silberschatz, Henry F. Korth and S. Sundarshan “Database System Concepts”, Sixth Edition, McGraw Hill, 2010.

2. C.J. Date, “An Introduction to Database Systems”, Eight Edition, Pearson Education Delhi, 2003.

3. Frank. P. Coyle, “XML, Web Services and The Data Revolution”, Pearson Education, 2012.

4. Lee Chao, “Database Development and Management”, Auerbach Publications, 2010

5. Peter Rob, Carlos coronel, “Database System Concepts”, Ceange Learning 2008

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