INT306:DATABASE MANAGEMENT SYSTEMS

L:0   T:0   P:5   Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: develop skills and understanding in the database design and make use of database management systems for applications

CO2 :: develop understanding about relational algebra, relational model and SQL for implementing and maintaining databases

CO3 :: develop understanding about the different issues involved in the design and implementation of a database system

CO4 :: develop skills and understanding about the real time transaction management systems and the concurrency control techniques

CO5 :: compose programming constructs such as functions, stored procedures and triggers that can be shared by multiple forms, reports and data management applications

List of Practicals / Experiments:

Introduction to Databases
- purpose of database systems, components of dbms, applications of dbms
- three tier dbms architecture
- data independence, database schema, instance
- data modeling, entity relationship model, relational model

Relational Query Languages
- relational algebra
- introduction to data definition language, data manipulation
- data control and transaction control language
- integrity constraints
- database keys
- sql basic operations
- aggregate functions
- sql joins
- set operators, views
- subqueries

Relational Database Design
- data integrity rules, functional dependency
- need of normalization, first normal form, second normal form
- third normal form, boyce codd normal form
- multivalued dependencies, fourth normal form
- join dependencies, fifth normal form and pitfalls in relational database design

Database Transaction Processing
- transaction system concepts, desirable properties of transactions
- schedules, serializability of schedules
- concurrency control
- recoverability

Programming Constructs in Databases
- flow control statements
- functions, stored procedures

- cursors
- triggers
- exception handling

File Organization and Trends in Databases
- file organizations and its types
- indexing, types of indexing
- hashing, hashing techniques
- introduction to big data, nosql systems

Text Books:

1. DATABASE SYSTEM CONCEPTS by HENRY F. KORTH, ABRAHAM SILBERSCHATZ, S. SUDARSHAN, MCGRAW HILL EDUCATION

References:

1. DATABASE SYSTEMS: MODELS, LANGUAGES, DESIGN AND APPLICATION PROGRAMMING by RAMEZ ELMASRI, SHAMKANT B. NAVATHE, PEARSON

2. AN INTRODUCTION TO DATABASE SYSTEMS by C. J. DATE, S. SWAMYNATHAN, A. KANNAN, PEARSON

3. SQL, PL/SQL: THE PROGRAMMING LANGUAGE OF ORACLE by IVAN BAYROSS, BPB PUBLICATIONS

4. SIMPLIFIED APPROACH TO DBMS by PRATEEK BHATIA AND GURVINDER SINGH, KALYANI PUBLISHERS