AIT 516   **DATA BASE MANAGEMENT SYSTEM**   **3(2+1)**

Objective:
Database systems are backbone of any information system, enterprise resource planning, research activities and other activity that require permanence of data storage. This course provides the basic introduction to database system technologies; design, concurrency, security and backup/recovery issues of database management systems. The major focus in this course is the Relational database model.

Theory:
UNIT I
Database system - Operational Data, Characteristics of database approach, architecture

UNIT II
Overview of DBMS; Data associations - Entities, Attributes and Associations, Relationship among Entities, Representation of Associations and Relationship, Data Model classification.

UNIT III
Entity Relationship model; Relational Data Structure- Relations, Domains and Attributes, Relational Algebra and Operations, Retrieval Operations.

UNIT IV
Relational Database Design - Anomalies in a Database, Normalization Theory and Normal forms; Query processing and optimization; Security, backup and recovery.

UNIT V
Distributed Databases- concepts, architecture, design; Object Oriented databases; Structured Query Language (SQL) - Data Definition Language (DDL), Data Manipulation Language (DML), Query by example.PL/SQL - Stored procedure, Database triggers; Relational Data Base Management Package.

Practical:
1. E-R diagram construction; SQL - Command Syntax, Data types, DDL Statements, DML
2. Statements, integrity constraints; Triggers, creating stored procedures/ functions;
3. Normalization of database and case study on a database design and implementation.

Reference books:
1. Date, C.J. 2000. Introduction to Database System. Addison Wesley.
2. Desai, B. C. 2000. Introduction to Database Systems. Galgotia Publications, New Delhi.
3. Elmasri and Navathe. 2006. Fundamentals of Database Systems. Addison Wesley.
4. Garcia-Molina, H., Ullman, J.D. and Widom J. 2002. Database Systems: The Complete Book. Prentice Hall.
5. Rob, P. and Coronel, C. 2006. Database Systems: Design, Implementation and Management. Thomson Learning.
6. Silberschartz, A., Korth, H. F. and Sudarshan, S. 1997. Database Systems Concepts. Tata McGraw Hill, India.