



Subject to be offered to ECE Department

DEPARTMENT: COMPUTER SCIENCE AND ENGINEERING

COURSE CODE: CSPC-212

COURSE TITLE: DATABASE MANAGEMENT SYSTEM

COURSE DESIGNATION: REQUIRED

PRE-REQUISITES: NONE

CONTACT HOURS/CREDIT SCHEME: (L-T-P-C: 2-0-0-2)

COURSE ASSESSMENT METHODS: Two sessional exams and one end-semester exam, along with assignments, presentations and class tests, which may be conducted by the course coordinator in lieu of internal assessment.

COURSE OUTCOMES

After the course completion, the student will be able to:

1. To understand the different issues involved in the design and implementation of a database system. To study the physical and logical database designs, database modeling, relational, hierarchical, and network models
2. To understand and use data manipulation language to query, update, and manage a database
3. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Course Outcomes	Program outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CSPC-212												
CO 1.	M		H		M	L						
CO 2.			H	L	M							
CO 3.		M	H	L	H	L		H	M			M

TOPICS COVERED

Introduction: An overview of database management system, database system Vs file system, Database system concepts and architecture, data models schema and instances, data independence and data base language and interfaces, Data definitions language, DML, Overall Database Structure.

Data Modeling using the Entity Relationship Model:

ER model concepts, notation for ER diagram, mapping constraints, keys, Concepts of Super Key, candidate key, primary key, Generalization, aggregation, reduction of an ER diagrams to tables, extended ER model, relationships of higher degree.

Relational data Model and Language: Relational data model concepts, integrity constraints: entity integrity, referential integrity, Keys constraints, Domain constraints, relational algebra, relational calculus, tuple and domain calculus.

Introduction to SQL: Characteristics of SQL. Advantage of SQL. SQL data types and literals. Types of SQL commands. SQL operators and their procedure. Tables, views and indexes. Queries and sub queries. Aggregate functions. Insert, update and delete operations. Joins, Unions, Intersection, Minus, Cursors in SQL.

Data Base Design & Normalization: Functional dependencies, normal forms, first, second, third normal forms, BCNF, inclusion dependences, loss less join decompositions, normalization using FD, MVD, and JDs, alternative approaches to database design.

Crash Recovery: Failure classification, recovery concepts based on deferred update, recovery concepts based on intermediate update, shadow paging, check points, on-line backup during database updates.

Integrity, Security and Repositories: Needs for database integrity, integrity constraints, non-procedural integrity constraints, integrity constraints specifications in SQL, introduction to database security mechanism, security specification in SQL, system catalogues