B.Sc (H) Computer Science
4th Semester
Database management Systems
Course Planner

Topic	Chapters	Month
Introduction to Database: Purpose of database system, Characteristics of database approach, data models, database management system, database system architecture, three-schema architecture, components of DBMS, data independence, and file system approach vs database system approach.	Ch.1, Ch.2	January + February
Practice Test/ assignment/ Quiz		
Entity Relationship (ER) Modeling: conceptual data modeling - motivation, entities, entity types, attributes, relationships, relationship types, constraints on relationship, Entity Relationship diagram notation.	Ch. 3	February
Relational Data Model: Update anomalies, Relational Data Model - Concept of relations, schema-instance distinction, keys, relational integrity constraints, referential integrity and foreign keys, relational algebra operators and queries.	Ch. 5, Ch. 8	February
Practice Test/ assignment/Quiz		
Structured Query Language (SQL): Querying in SQL, DDL to create database and tables, table constraints, update database-update behaviours, DML, aggregation functions group by and having clauses, retrieve data from the database, generate and query views. Access and manipulate databases using ODBC. Basic Database administration SQL commands.	Ch.6, Ch. 7 - Ref. 1 Ch. 2. Ch. 3 – Ref. 2 Ch 11. Ch. 18 – Ref. 3	March
Database Design: Mapping an Entity Relationship (ER) model to relational database, functional dependencies and Normal forms, 1NF, 2NF, 3NF and BCNF decompositions and desirable properties of them.	Ch. 9, Ch. 14, Ch. 15	March & April
Practice Test/ assignment/ Quiz		
File indexing and Transaction Processing: Data Storage and Indexes- Need of file	Ch. 16, Ch. 17, Ch, 20	April

indexes, file organizations, index structures, single- and multi-level indexing, concurrent execution of transactions, ACID properties, need of data recovery and log file.		
Practice Test/ assignment/ Quiz		