

Module Title:	Fundamental of Database System
Module ID:	CAP 261
Prerequisite:	CSC 212
Level:	4
Credit Hours:	3 (3+0+1)

Module Description:

Characteristics of the database approach. Database concepts and architecture; Data models, schemas and instances; Program data independence, Database languages and interfaces. Data models for database systems; The E-R DM, Relational DM and Relational Algebra. Relational model constraints; Domain, key, and integrity constraints. SQL-relational DB language; Data definition, queries, update statements, and views in SQL. Database design; functional dependencies, Normal forms. Introduction to OO databases.

Module Aims:

- Understand the basics and concepts of database systems.
- Design, implement and evaluate a computer-based DB system to meet desired users' needs.
- Use professionally Structured Query Language (SQL) and understand SQL processing.

Learning Outcomes:

- a) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- b) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- c) An ability to use current techniques, skills, and tools necessary for computing practice.

List of Topics	No. of Weeks	Contact Hours
Databases and Database Users	1	3
Database System Concepts and Architecture	2	6
Data Modeling Using the Entity-Relationship Model	2	6
The Relational Data Model, Relational Constraint	2	6
ER-and-EER-to-Relational Mapping, and Other Relational	3	9
Functional Dependencies and Normalization for Relational Databases	2	6
SQL- The Relational Database Standard	3	9

Textbook:

R. Elmasri, S. Navathe; Fundamentals of Database Systems.; 2010; AddisonWesley