

University of Computer Studies, Yangon
2019-2020 Academic Year
Faculty of Information Science
(Major – Core)
Database I

Subject Code	IS-201	Subject Name	Database I
Hour	37.5 Hours	Course Coordinator	Daw Khaing
Credit point	3	Semester	
period	45 periods (1 period with 50 minutes)		

Course Description

This module provides students with theoretical knowledge and practical skills in the use of databases and database management systems in information technology applications. The logical design, physical design and implementation of relational databases are covered. The course uses a problem-based approach to learning

Course Objectives

- To understand the role of a database management system in an organization
- To understand basic database concepts, including the structure and operation of the relational data model
- To construct simple and moderately advanced database queries using Structured Query Language (SQL)
- To Understand and successfully apply logical database design principles, including E-R diagrams and database normalization.
- To understand the role of the database administrator
- To design and implement a small database project for real world application

Learning Outcomes

At the end of this module, the successful student will:

- Have a broad understanding of database concepts and database management system software
- Have a understanding of major DBMS components and their function
- Be able to model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model.
- Be able to write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.
- Be able to design and implementation a database for a real world application

Prerequisite course

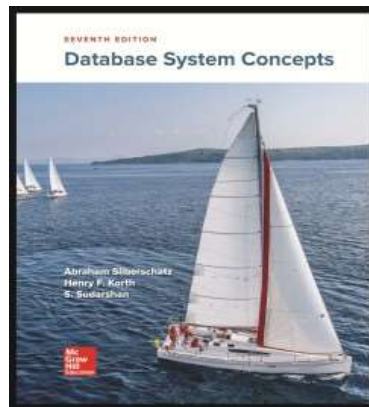
- None

Major topic covered in the course

- Introduction to DBMS
- Introduction to Relational Model
- Introduction to SQL
- Intermediate SQL
- Database Design and ER Model
- Relational Database Design

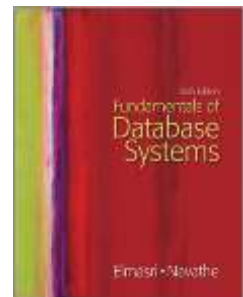
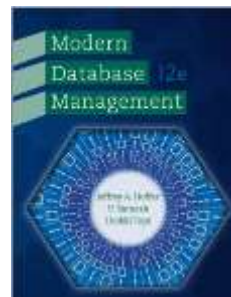
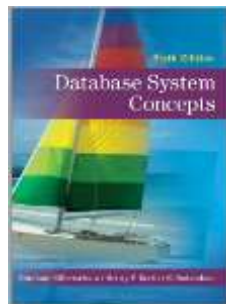
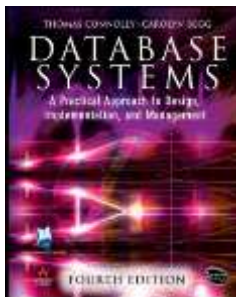
Textbook

- Database System Concepts, AviSilberschatz, HenryF.Korth, and S.Sudarshan. 7th Edition, McGraw-Hill.



References Book

1. Database System, A practical Approach to Design ,4th Edition
2. Database System Concepts, AviSilberschatz, HenryF.Korth, and S.Sudarshan.0-07-295886 3. sixth Edition. McGraw-Hill.
3. Modern Database Management System, Jeffery A. Hoffer, V.Ramesh,Heikki Topi , 12th edition, 2016
4. Fundamantals of Database Systems, Ramez Elmasri and Shamkant B.Navathe, , sixth edition,2008
5. An Introduction to Database Management System, C.J.Date, 7th edition ,2000



Learning Assessment

Paper Exam	:	50%
Project	:	10%
Quiz	:	10%
Assignment	:	10%
Practical Assessment	:	10%
Attendance	:	10%

Lecture Plan

IS-201 : Database I First Semester
 Text Book : Database System Concepts, AviSilberschatz, HenryF.Korth, and S.Sudarshan. 7th Edition, McGraw-Hill
 Period : 45 Periods for 15 Weeks (3 Periods * 15 Weeks)

Chapter	Title	Period	Remark
1	Introduction 1.1 Database-System Applications 1.2 Purpose of Database Systems 1.3 View of Data 1.4 Database Languages 1.5 Relational Databases 1.6 Database Design 1.7 Data Storage and Querying 1.8 Transaction Management 1.9 Database Architecture 1.10 Data Mining and Information Retrieval 1.11 Specialty Databases 1.12 Database Users and Administrators 1.13 History of Database Systems 1.14 Summary Exercises	2	
2	Introduction to the Relational Model 2.1 Structure of Relational Databases 2.2 Database Schema 2.3 Keys 2.4 Schema Diagrams 2.5 Relational Query Languages 2.6 Relational Operations 2.7 Summary Exercises	3	
3	Introduction to SQL 3.1 Overview of the SQL Query Language 3.2 SQL Data Definition 3.3 Basic Structure of SQL Queries 3.4 Additional Basic Operations 3.5 Set Operations 3.6 Null Values 3.7 Aggregate Functions 3.8 Nested Subqueries 3.9 Modification of the Database 3.10 Summary Exercises	6	With Lab
4	Intermediate SQL 4.1 Join Expressions 4.2 Views 4.3 Transactions 4.4 Integrity Constraints 4.5 SQL Data Types and Schemas 4.6 Authorization	6	With Lab

	4.7 Summary Exercises		
7	Database Design and ER model 7.1 Overview of the Design Process 7.2 The Entity-Relationship Model 7.3 Constraints 7.4 Removing Redundant Attributes in Entity Sets 7.5 Entity-Relationship Diagrams 7.6 Reduction to Relational Schemas 7.7 Entity-Relationship Design Issues 7.8 Extended E-R Features 7.9 Alternative Notations for Modeling Data 7.10 Other Aspects of Database Design 7.11 Summary Exercises	5	
8	Relational Database Design 8.1 Features of Good Relational Designs 8.2 Atomic Domains and First Normal Form 8.3 Decomposition Using Functional Dependencies 8.4 Functional-Dependency Theory 8.5 Algorithms for Decomposition 8.6 Decomposition Using Multivalued Dependencies 8.7 More Normal Forms 8.8 Database-Design Process 8.9 Modeling Temporal Data 8.10 Summary Exercises	6	
	Revision	2	
	Total	30	