
Database Concepts

PROGRAMME	:	DIPLOMA IN INFORMATION TECHNOLOGY
COURSE CODE	:	TMD255/ TTS2083
COURSE NAME	:	Database Concepts
CREDIT HOURS/WEEKS	:	3.0
SEMESTER	:	Semester 5
PREREQUISITE	:	TMD274/ TSE 3024
STATUS	:	CORE
CONTACT HOUR	:	4 HOURS
INSTRUCTOR	:	MRS. MAIZATUL AKMA BT. NAPIAH 09-5366701 ext 208

1.0 SYNOPSIS

Students will be taught on the theory and concept of Database management. At the same time they will practice the theory by using a particular database management tools. Therefore, they have better understanding in Database environment and application

2.0 OBJECTIVES

Upon completion of the subject, student are expected to:

1. Understand the basic concept of Database
2. The architecture of Database
3. Understand the 3 model of Database which are ER Model, Relational Model and FD Diagram.
4. Normalization concept.
5. Discuss and understand the issues and problems arise in Database Management System.
6. Design table, query, create forms and reports, develop the relational database using Microsoft Access.
7. Acquire skills to solve problems in query formulation, application data requirement, data modeling and normalization

3.0 METHODS OF INSTRUCTION

The teaching techniques used for this subject include lectures and lab exercises.

4.0 SYLLABUS CONTENT

4.1 INTRODUCTION TO DATABASE

- 4.1.1 Basic concept of data organization
- 4.1.2 Traditional Approach vs. Database Approach
- 4.1.3 Database System : Purpose, Advantage & Disadvantage
- 4.1.4 Database system components
- 4.1.5 Database software
- 4.1.6 Database structure

4.2 AN ARCHITECTURE FOR A DATABASE SYSTEM

- 4.2.1 What is DBMS
- 4.2.2 Purpose of DBMS
- 4.2.3 DBMS facilities
- 4.2.4 DBMS functions
- 4.2.5 Database Administrator (DBA)
- 4.2.6 Three data abstraction levels
- 4.2.7 Mapping
- 4.2.8 Instances & Schemes
- 4.2.9 Back end vs. Front end

4.3 ENTITY RELATIONSHIP MODEL (E-R) DIAGRAM

- 4.3.1 Introduction to ER Model
- 4.3.2 Basic objects of ER Model
- 4.3.3 Entity
- 4.3.4 Attributes – Single-valued vs. Multi-valued
- 4.3.5 Domain
- 4.3.6 Relationship
- 4.3.7 Comparing ER Modeling Symbols
- 4.3.8 Developing ER Diagram

4.4 RELATIONAL DATABASE

- 4.4.1 Introduction to relational database
- 4.4.2 Basic objects of relational model
- 4.4.3 Properties of relation
- 4.4.4 Representation of ER model to relation
- 4.4.5 Keys
- 4.4.6 Relational Integrity Rules
- 4.4.7 Functional Dependencies
- 4.4.8 Transitive Dependency

4.5 NORMALIZATION

- 4.5.1 The need for normalization
- 4.5.2 The normalization process
- 4.5.3 Conversion Process

4.6 STRUCTURED QUERY LANGUAGE (SQL)

- 4.6.1 Introduction to SQL
- 4.6.2 What is a query
- 4.6.3 The function of query
- 4.6.4 SQL as DDL
- 4.6.5 SQL as DML
- 4.6.6 Using aggregate function in SQL
- 4.6.7 Sorting and Grouping with SQL

4.7 DATABASE ISSUE

- 4.7.1 Database Life Cycle
- 4.7.2 Security
- 4.7.3 Transaction management

5.0 EVALUATION

5.1 Class Assessment

5.1.1	Quiz	:	10%
5.1.2	Assignment/Lab	:	15%
5.1.3	Project	:	20%
5.1.4	Mid Exam	:	15%

5.2 Final examination accounts for the balance of evaluation 40%

100%

6.0 TEXT BOOK / MODULE

6.1 Recommended main textbooks

6.1.1 Peter Rob, Carlos Coronel, **Database System: Design, Implementation and Management**, 7th Edition, Thomson Course Technology, 2007

6.2 Recommended textbooks

6.2.1 Kroenke D.M., **Database Processing, Design and Implementation**, 7th Edition, Prentice Hall, Upper Saddle River, New Jersey, USA, 2006

6.2.2 Introduction To Database Systems, 7th Edition, Addison Wesley Publishing Company, 2000.

6.2.3 Hoffer, J.A., Prescott, M.B. and McFadden, F.R (2000), *Modern Database Management*, 6th Edition. Prentice Hall.