



CSET 122-Database Applications
Second Semester 2008/2009 (082)

Catalog Description: (2 4 4): This course is an introduction to database management. Using appropriate database software, students will learn how to design, create manipulate, and maintain data in an organized, accessible, and accurate manner. Emphasis is placed on the use of PC-based relational database management software for common business applications. *Prerequisites: CSET 104*

Text Book: Fundamentals of Database Systems, 5th Edition, Elmasri and Navathe Addison Wesley (TB)
Laboratory Manuals: HBCC, Database Application, CSET 122 Lab. Manuals. (LM)
Handouts: HBCC, Database Application, Handouts. (HO)
Coordinator: Dr. Lawan Ahmed Mohammed
Instructor: Dr. Lawan Ahmed Mohammed

Objectives: After completing this course, student will be able to:

- Discuss appropriate use of Modeling and Relational Database Management System tools to assist in the definition of a problem.
- Analyzing a given Business Narrative as the first step in developing a database solution.
- Design, create and use Entity Relationship Models, Relational Data Models and Functional Dependency Diagrams to produce logical database designs
- Demonstrate a practical understanding of SQL to implement and maintain a relational database.

Topics: (Weekly Schedule is attached)

1.	Database Concepts and Database Users	2
2.	Database System Concepts and Architecture	2
3.	Data Modeling Using the Entity-Relational Model	4
4.	The Relational Data Model, Relational Constraints	2
5.	ER – Relational Data Model Mapping	4
6.	Functional Dependencies	2
7.	Database Design (Normalization)	4
8.	Database Languages	8

Assessment Policy	Weighting (100%)	Letter Grading Scale
Practical	05 %	00 - < 60% F
Homework	05 %	60 - < 65% D
Class & Lab. Quizzes	10 %	65 - < 70% D+
Lab Exams (I & II)	20 %	70 - < 75% C
Major Exams (I & II).	20 %	75 - < 80% C+
Project	10 %	80 - < 85% B
Final examination	30 %	85 - < 90% B+
TOTAL	100 %	90 - < 95% A
		95 - 100% A+.

NOTE: Some clustering and adjustment of threshold values may be applied depending on final result's statistics of discrete groups.

All HBCC/KFUPM rules and regulations apply:

Prepared by: Dr. Lawan Ahmed Mohammed Signature _____ Date: 28/02/2009

Approved by: Dr. Hamza Maghrabi Signature _____ Date: _____

WEEK	CONTENTS	HANDOUT & TEXT REFERENCE	PRACTICAL & SUPPORT ACTIVITIES	ASSESSMENT
1	Course Overview Database Concepts and Database Users <ul style="list-style-type: none"> • Introduction • An Example • Characteristics of the DB Approach • Actors on the Scene • Workers Behind the Scene • Advantages of Using a DBMS • Implication of the DB Approach • When Not to Use a DBMS • Summary 	Chapter-1	Project Group Formation	
2	Database System Concepts and Architecture <ul style="list-style-type: none"> • Data Models, Schemas, and Instances • DBMS Architecture • Data Independence • Database Languages and Interfaces • The Database Systems Environment • Classification of DBMS • Summary 	Chapter-2	Practical-1 MS ACCESS Introduction	Project P-1 Assignment 1 (GIVEN) Quiz 1
3	Data Modeling Using the Entity-Relational Model <ul style="list-style-type: none"> • Using High-Level Conceptual Data Model for Database Design • An Example of Database Application • Relationships, Relationship Types 	Chapter-3	Practical-2 MS VISIO	Assignment 1 (DUE)
4	Data Modeling Using the Entity-Relational Model (Cont'd) <ul style="list-style-type: none"> • Roles, and Structural Constraints • Weak Entity Types • Refining the ER Design • ER Diagrams, Naming Conventions, and Design Issues • Summary 	Chapter-3	Practical-3 Creating, Editing and Printing Tables	Project P-2 Assignment 2 (GIVEN) Quiz 2
5	The Relational Data Model, Relational Constraints <ul style="list-style-type: none"> • Relational Model Concepts • Relational Constraints and Relational Database Schemas • Update Operations and Dealing with Constraint Violations • Summary 	Chapter-7	Practical-4 Creating and Using Customized Forms	Assignment 2 (DUE)
Major I (In Week 6)				
6	ER – Relational Model Mapping <ul style="list-style-type: none"> • Regular Entity Type Mapping • Weak Entity Type Mapping • Multi-valued Mapping 	Chapter-9	Practical-5 Creating Queries (QBE) Creating Relationships Between Tables	Quiz 3
7	ER – Relational Model Mapping (Cont'd) <ul style="list-style-type: none"> • Binary 1:1 Mapping • Binary 1:M Mapping • Binary M:N Mapping • N-ary Relationship Mapping 	Chapter-9	Practical-6 Searching for Values using Filters Sorting Records Creating a Form that contains a Subform	Project P-3 Assignment 3 (GIVEN)

Weekly Schedule (Cont'd):

8	Functional Dependencies <ul style="list-style-type: none"> • INSERT Anomalies • DELETE Anomalies • UPDATE Anomalies • Basic Concepts • Closure of Attribute 	Chapter-12	Midterm Lab Exam	Assignment 3 (DUE) Quiz 4
9	Database Design (Normalization) <ul style="list-style-type: none"> • 1 NF • 2 NF 	Chapter-12	Practice Previous	Project P-4 Assignment 4 (GIVEN)
10	Database Design (Normalization) Cont'd <ul style="list-style-type: none"> • 3 NF • BCNF 	Chapter-12	Practical-7 Creating, Previewing and Printing Customized Reports	Quiz 5
Major II (In Week 11)				
11	Database Languages (Cont'd) <ul style="list-style-type: none"> • Basics of the SELECT Statement • Conditional Selection • Logical Operators • Compound Conditions • IN & BETWEEN • Using LIKE 	HO-DBL-1	Practical-8 Practice SQL Language	Assignment 4 (DUE)
12	Database Languages (Cont'd) Aggregate Function <ul style="list-style-type: none"> • SUM • MAX • MIN • AVERAGE • COUNT • GROUP BY & HAVING 	HO-DBL-2	Practical-9 Practice SQL Language Continue	Assignment 5 (GIVEN) Quiz 6
13	Database Languages (Cont'd) <ul style="list-style-type: none"> • Views • Creating New Tables • Altering Tables • Adding Data • Deleting Data • Updating Data 	HO-DBL-3	Creating Oracle forms and sub-forms	Assignment 5 (DUE)
14	Database Languages (Cont'd) <ul style="list-style-type: none"> • Sections of the PL/SQL Block • Functions • Triggers 	HO-DBL-4	Time For Project Completion	Complete Project (DUE) Quiz 7
15	Revision of Identified Topics		Final Lab Exam	
16	Final Examination (3.00 hours duration)			

EXAMINATION SUMMARY

Examination	Major I	Mid-Term Lab Ex	Major II	Final Lab Ex	Final Exam
Week No.	6	8	11	15	16

Laboratory Software: MS Access 2003, MS VISIO 2002, Oracle 9i/ Express Edition