

East West University
Dept. of Computer Science and Engineering

Course Outline

Semester	: Summer 2016
Course Code	: CSE 301
Course Title	: Database Systems
Pre-requisite	: CSE 205 (Discrete Mathematics)
Credits	: 3+1
Class Time	: MW 03:10-04:40 (Theory) W 04:50 – 06:50 (Lab)
Room #	: Theory: 338, Lab: 630
Instructor	: Abu Ahmed Ferdaus, Associate Professor
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Cell	: 01552392551
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Part 1: Theory

Topic	Content
Introduction	Definition, purpose and application; View of data: Data abstraction, Schema and instances, Data models, Database language SQL: DDL+DML; Database users and administrator; Database storage and querying; Transaction management; Database architecture
Introduction to Relational Model	Structure and Schema, Keys, Schema Diagram, Relational Query Languages
Structured Query Language (SQL)	Parts of SQL; Data types and schema definition; Basic structure of SQL queries: select, from, where, order by, group by, having; Rename, string and set operations; Aggregate functions; Nested sub-queries; Complex queries; Views; Modification of the database: insert, update, delete
Relational Algebra	Fundamental, additional and extended relational algebra operations; Outer joins; Null values; Modification of the database
Relational Database Design	Features of good relational design; Functional dependency theory: FD, closure, Canonical Cover; Different Normal Forms
File Organization	Fixed and variable length records; File organization: heap, sequential, hash
Access Methods: Indexing and Hashing	Basic concept; Primary and secondary indices, Dense and sparse indices; Multilevel indices; Advantages & disadvantages; Static and dynamic hashing; Hash function and it's quality; Overflow handling, Comparison of indexing and hashing
Transaction and Concurrency Control	Basic Concepts of Transaction and Concurrency Control

Text Book:

Book Title: Database System Concepts
Authors: Abraham Silberschatz, Henry F. Korth, S. Sudarshan
Edition: 6
Publication Year: 2011
Publisher: McGraw-Hill
ISBN:978-0-07-352332-3
Web: <http://www.db-book.com>

Exam Dates:

1st Mid-Term Exam – 08 June 2016
2nd Mid-Term Exam – 13 July, 2016
Final Exam – 10 August, 2016

Marks Distribution:

Class Participation	5%
Quiz	10%
1 st Mid-Term Exam	20%
2 nd Mid-Term Exam	20%
Final Exam	25%
Lab Exam/Project	20%

Part 2: Lab (Lab Classes + 1 Lab Exam)

Task : Implementation of ‘Bank’ and ‘University’ Databases of text book.

Platform : Oracle 10g Express Edition

Language : SQL(Structured Query Language)

DDL: Creating, Modifying and Deleting Objects: Table, Index, View; Creating users and Assigning Roles and Authorities, Creating Integrity Constraints: Data Types and Lengths, Keys (Primary key, Unique key, Foreign key/Referential Integrity Constraint), Check, Null and Not Null etc.

DML: Insert (direct, text or excel file upload, through query); Query: Basic structure of SQL queries: select, from, where, order by, group by, having; Rename, string and set operations; Aggregate functions; Nested sub-queries; Complex queries; Views; Modification of the database: update, delete

Grading Scheme: According to University guideline as mentioned in the catalog.

Special Instructions:

- ❖ Class Lectures are believed to be the most effective and reliable source of knowledge for this course. Therefore, students are strongly encouraged to participate in all the classes attentively. Moreover, You **MUST** have at least 70% class attendance to sit for the final exam.

- ❖ There is zero tolerance for cheating at EWU. Students caught with cheat sheets in their possession, whether used or not used, &/or copying from cheat sheets, writing on the palm of hand, back of calculators, chairs or nearby walls, etc. would be treated as cheating in the exam hall. The only penalty for cheating is expulsion from EWU. For plagiarism, the grade will be automatically become zero for that exam/assignment.
- ❖ There will be **NO make-up** for missed quiz(s) or exam(s). In case of extreme emergency, you **MUST** inform me before/after 24 hours of the exam time. Failure to do so will mean that you are trying to take UNFAIR advantage and you will be automatically disqualified.