NATIONAL UNIVERSITY
of Computer & Emerging Sciences, Lahore

F A S T S c h o o l o f C o m p u t i n g

CL219 – Database Systems Lab

Spring 2023

Instructor Name: Rizwan Nawaz / Faiqa Rizwan

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Office Location/Number: TBD

Office Hours: TBD

Course Information

Program: BCS **Credit Hours:** 1 **Type:** Core

Pre-requisites (if any): CS218 - Data Structures

Class Venue: TBD

Course Description/Objectives/Goals

This course is an introduction to relational databases management Systems. The course will cover fundamental concepts of databases with an emphasis on modeling, designing and implementation of database systems. The theory will be augmented with hands-on exercises on database system. A project will be conducted in the database system lab that runs in parallel with the course. In project, the students will develop a data-centric application with complete set of business transactions and appropriate user interface using a popular programming language and a popular database management system.

Tentative Weekly Schedule

Lab #	Topics to be Covered	Topic Details	Project	Lab Practice

1	Introduction to SQL Server, Asp.net, HTML, CSS and JavaScript	- Overview of the Outline - Introduction to SQL ServerManagement studio 2014 along with Installation Guide - Introduction to ASP/ HTML tags & Practice using Visual Studio Website project - JavaScript Tutorials - CSS Functionality Tutorials	Project Proposal Announcement	In lab + Post lab
2	SQL DDL/DML	- Table creation/Insertion /Deletion / Updating Query -Selection Query - Applying Foreign Key/Null/Auto increment constraintThrough designer and Query - In Lab Exercise	-Project Proposal Submission	In lab
3	SQL Data Retrieval Queries	- Select-From-Where - Ordering, Arithmetic Operations,Substring Comparison - Set Operations	-Deliverable 1 (Schema design) Announcement	In lab
4	SQL Joins	-Joining, Full, outer, inner, Cross -Aggregation, group by	-Deliverble-1 (Schema Design) Submission -Deliverable-2 Announcement (GUI)	In lab
5	SQL Nested Queries	-Aggregation, group by -Nested queries -Correlated nested queries		In Lab

6	Views and Stored Procedures	-Views (Virtual Tables), - Stored Procedures	-Deliverable-2 Submission (GUI) -Deliverable-3 (Stores Procedures) Announcement	In lab
7	Mid Term	Midterm Includes everything covered in the lab before this lab		
8	Triggers	-Triggers Introduction - Triggers Types -Exercise	Deliverable-3 (Stores Procedures) Submission	In lab

9	Triggers + Master Pages	-Further practice of Triggers -- ASP.NET (cover template and Master pages in this lab) - Implementation of 3- Tier architecture in asp.net - Tables Definition through Design view - Getting to know SQL Server 2014 Import Export - Data population through Query & Design view- Data Import from Files i.e., Flat file, excel		In lab
10	Erwin, DB Connectivity	-Introduction to ERWIN & DB Connectivity - Creating Relational model using ERWIN - Database connectivity in asp.net - Populating Grid in ASP.net. Using SP in ASP.net		In lab
11	Update and Delete from GUI	-DB Connectivity and practice in lab - Grid Using Asp.net, overview of using UDF and Views in ASP.net		In lab
12	Transactions & Advance Concepts in ASP.net	-Introduction to Transactions - Parameter Passing between pages - Session Variables,		In lab
13	Complete Project Evaluation	Complete Project Evaluation during Lab Session		Viva
14	Final Exam	Final Exam		

(Tentative) Grading Criteria

1. In labs + post labs (20%)
2. Project (25%)

i) 5% GUI
ii) 5% Schema
iii) 15% final

3. Midterm (20%)
4. Final (35%)

Course Policies

1. 80% attendance
2. Absolute grading will be followed (minimum marks to pass the lab 50)

Project

Students will design, implement, demonstrate and document a database system. The project is to be done in groups of strictly 3/4 students. Pick your partner as soon as possible. The groups are self-policing (e.g. each group is responsible for its own division of labor, scheduling, etc.). A separate handout will beprovided describing the project requirements in the 2nd Lab of the course.