CMPE 353/CMSE 354 Database Management Systems

Department: Computer Engineering

Instructor Information
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Meeting times and places
CMPE353(Gr.1)-CMSE354(Gr.1)
Tuesday 12:30-14.20 (Lecture), MS Teams CMPE353 - CMSE354 (Gr 1) Joined Group (Spring 2021) (online)
Friday: 12.30-14.20, (Lecture) MS Teams CMPE353 - CMSE354 (Gr 1) Joined Group (Spring 2021) (online)
Thursday 16.30-18.20, (Lab) MS Teams CMPE353 - CMSE354 (Gr 1) Joined Group (Spring 2021) Lab Group (online)

CMPE353(Gr.1)-CMSE354(Gr.1)
Wednesday 14.30-16.20, (Lecture) MS Teams CMSE354 (Gr.2) (Spring 2021) (online)
Thursday 16.30-18.20, (Lecture) MS Teams CMSE354 (Gr.2) (Spring 2021) (online)
Thursday 8.30-10.20 (Lab) MS Teams CMSE354 (Gr.2) (Spring 2021) Lab Group (online)

Program Name: Computer Engineering	**ProgramCode:**25

Course Code	**Credits**	**Year/Semester**
CMPE 353 / CMSE354	4	2020-2021 Spring

☒ Required Course ☐ Elective Course (click on and check the appropriate box)

Prerequisite(s):
CMPE231Data Structures

Catalog Description
This course introduces the student to the fundamentals of database management. Topics covered include: the Entity-Relationship model, the Relational model and its mathematical foundations; most important features of Structured Query Language (including basic structure, aggregate functions, nested queries, index definition, stored procedures and functions, views, database modification, domain constraints, assertions, triggers, transaction definition, data definition language, granting privileges, security), query languages Datalog and QBE; Object-Oriented and Object-Relational databases; design principles of Relational databases (normal forms, functional dependencies, decomposition).

Course Web Page
https://staff.emu.edu.tr/ekremvaroglu/en/teaching/cmpe353

Textbook(s)
Database System Concepts, by: Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw Hill,6th edition, 2010

Indicative Basic Reading List
None.

Topics Covered and Class Schedule
(4 hours of lectures per week)

Week 1	Introduction to DBMS
Week 2	Relational Model
Weeks 3-4	Formal Relational Query Languages
Weeks 5-7-8	SQL
Weeks 9-10	Midterm Exams
Weeks 11-12	Entity Relationship (E-R) Model
Week 13-14-15	Relational database Design
	Object Based databases (Time Permitting)
Weeks 16-17-18	Final Exams

Tentative Lab Schedule (subject to change-please check every week)

Lab #	Date	Description
1	01/04/2021	Task description and Introduction to Oracle Live SQL (in lab)
2	08/04/2020	Table design and construction (as preliminary lab work and in lab)
3	15/04/2020	Population of tables with data (as preliminary lab work and in lab)
4	22/04/2020	Answering SQL queries (as preliminary lab work and in lab)
5	20/05/2020	Triggers (as preliminary lab work and in lab)
6	10/06/2021	Finalization and show of all work (in lab)

Course Learning Outcomes

Upon successful completion of the course, students are expected to have the following competencies:

1. Design a relational database using the concept of the entity-relational and relational models
2. Write SQL queries using the most important features of Structured Query Language (including basic structure, aggregate functions, nested queries, index definition, stored procedures and functions, views, database modification, domain constraints, assertions, triggers, transaction definition, data definition language, granting privileges, security)
3. Use Datalog and QBE for simple queries specification; realize differences between Relational and Object-based database systems.
4. Get BCNF and 3NF decomposition of a database given a set of functional dependencies
5. Use SQL in Oracle
6. Design database systems with Oracle

	Method	**No**	**Percentage**
Assessment	Midterm Exam(s)	1	30%
	Final Examination	1	50%
	Labs	6	20%

Computation of the attendance grade. Attendance will be taken at the beginning of each lecture after the add-drop period has ended. However, no points are awarded for classroom attendance.

Computation of Lab grade: Lab grade is computed as preliminary work, attendance in lab sessions, participation in lab sessions (15%) and completion of the final lab task at the end of semester (5%).

Policy on makeups: For eligibility to take a makeup exam, the student should send a doctor's report by email within 3 working days of the missed exam. The makeup exam will be comprehensive and will be held after the final exams week. The percentage of the exam will be 30% for the missed midterm or 50% for the missed final exam. Students who miss both exams are not eligible to take a makeup exam.

Policy on the NG grade: If you miss BOTH exams with no valid excuse or if you don't attend any of the lab sessions, you will be given the NG grade.

Policy on missed labs: There will be no makeup for missed labs.

Policy on cheating and plagiarism: Any student caught cheating at the exams or assignments will automatically fail the course and will be sent to the disciplinary committee at the discretion of the instructor.

Contribution of Course to ABET Criterion 5
Credit Hours for:

Mathematics & Basic Science : 0
Engineering Sciences and Design : 4
General Education : 0

Relationship of the course to Program Outcomes

The course supports achievement of the following program objectives

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

6 . an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

Prepared by: Prof. Dr. Ekrem Varoğlu	**Date Prepared:** 1 March 2021