CMPE 354 Database Management Systems

Department: Computer Engineering

Instructor Information
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Assistant Information
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Meeting times and places
Monday: 10.30-12.20, Room CMPE128
Wednesday 14:30-16.20, Room CMPE 137 (lab)
Friday: 10.30-12.20, Room CMPE128

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

Course Code	**Credits**	**Year/Semester**
CMPE 354	4	2018-2019 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/cmpe354

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	Relational database Design
	Object Based databases (Time Permitting)
Weeks 15-16-17	Final Exams

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

Lab #	Date	Description
1	13 March 2019	Introduction to Oracle and SQL Developer
2	20 March 2019	Table Design and Population with Data
3	27 March 2019	Simple SQL queries
4	3 April 2019	Nested queries with aggregates
5	8 May 2019	Update Queries
6	15 May 2019	Oracle Stored Procedures

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	40%
	Final Examination	1	45%
	Labs	6	15%

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.

Policy on makeups: For eligibility to take a makeup exam, the student should bring a doctor's report 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 40% for the missed midterm or 45% 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. If you cannot attend a lab for some reason, you should write a formal petition and document your leave of absence and give it to the lab assistant no later than 3 working days to seek for a possible solution. The final decision is made by the course lecturer

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: Assoc. Prof. Dr. Ekrem Varoğlu	**Date Prepared:** 30 January 2019