School of Engineering and Natural Sciences / Computer Engineering (English)

2022 - 2023 Academic Year

DATABASES

Syllabus

Course Description					
Name	**Code**	**Semester**	**T+A Hour**	**Credit**	**ECTS**
DATABASES	COE3249650	Spring Semester	3+2	4	8

Prerequisites Courses	VERİ YAPILARI
Recommended Elective Courses	Object Oriented Programming and Algorithm Analysis
Language of Instruction	English
Course Level	First Cycle (Bachelor's Degree)
Course Type	Required
Course Coordinator	Prof.Dr. Reda ALHAJJ
Name of Lecturer(s)	Prof.Dr. Reda ALHAJJ
Assistant(s)	
Aim	Understanding the concepts underlying the design and implementation of database systems. Establishing a solid background in data management, with a focus on relational database management systems and practicing actual database design, implementation, and query formulation through a term project.
Course Content	This course contains; Database Management Systems,Relational Data Model ,Entity/Relationship Model,Relational Algebra,Structured Query Language, SQL ,Database Application Development,Relational Database Design,File Organization ,Tree-Structured Indexing ,Hash-Based Indexing,Query Processing,Query Optimization,Concurrency,Overview of Transaction Management.

Course Learning Outcomes	**Teaching Methods**	**Assessment Methods**
At the end of this course the student would have a solid background on database management systems and their underlying data structures and algorithms	1, 15, 16, 2, 4	A, C, D
At the end of this course the student would be able to design databases using relational database methods and apply this knowledge to the real life applications.	1, 14, 15, 16, 4	A, C, D
At the end of this course the student would learn the data structures underlying the database management systems and the access methods as well as the query processing that use them.	1, 14, 15, 2	A, C
During this course students are going to learn the SQL language for interacting with the database management systems.	1, 14, 15, 2	A, C, D

Teaching Methods	1: Lecture, 14: Self-Study, 15: Problem solving, 16: Project Based Learning, 2: Question - Answer, 4: Exercise, Practice
Assessment Methods	A: Written Exam, C: Homework, D: Project / Design

Lecture Schedule

Sequence	**Topics**	**Preliminary Preparation**
0	Database Management Systems	
1	Relational Data Model	
2	Entity/Relationship Model	
3	Relational Algebra	
4	Structured Query Language, SQL	
5	Database Application Development	
6	Relational Database Design	
7	File Organization	
9	Tree-Structured Indexing	
9	Hash-Based Indexing	
10	Query Processing	
11	Query Optimization	
12	Concurrency	
13	Overview of Transaction Management	

Evaluation Methods	**Weight(%)**
Midterm Exam	30
General Exam	70

Resources
Database Management Systems, 3rd Edition, R. Ramakrishnan, J. Gehrke McGraw- Hill, 2003The notes and the presentations will be delivered during the lectures.