

Faculty	Faculty of Engineering	
Program	B.Sc. in Civil Engineering	Elective
	B.Sc. in Computer Engineering	Required
	B.Sc. in Electrical-Electronics Engineering	Elective
	B.Sc. in Industrial Engineering	Elective
	B.Sc. in Mechanical Engineering	Elective

Course Code	COMP 305			
Course Title in English	Database Management Systems			
Course Title in Turkish	Veritabanı Yönetim Sistemleri			
Language of Instruction	English			
Type of Course	Lecture / Exercise			
Level of Course	Undergraduate			
Course Category (by % of Content)	Basic Science	Basic Engineering	Engineering Design	General Education
	10	10	70	10
Semester Offered	Fall			
Contact Hours per Week	Lecture: 3 hours	Recitation: -	Lab: -	Other: -
Estimated Student Workload	164 hours			
Number of Credits	6 ECTS			
Grading Mode	Standard Letter Grade			
Pre-requisites	COMP 106			
Expected Prior Knowledge	Object Oriented Programming			
Co-requisites	None			
Registration Restrictions	Only Undergraduate Students			
Overall Educational Objective	To learn the fundamentals of database technology.			
Course Description	<p>The main objective of this course is to present the fundamentals of database technology. The course is mainly designed to teach the use of a database management system (DBMS) by treating it as a black box and by focusing only on its functionality and its interfaces. Within this context, the course will deal with data modeling and design of a database.</p> <p>This course provides a comprehensive introduction to some fundamental aspects of Database Management. The following topics are covered: Database concepts, Relational model, Application development, Database design, normalization, entity-relationship models.</p>			
Course Description in Turkish	<p>Dersin amacı öğrencilerin bir bilgi sisteminin temelini oluşturan veri tabanının mantıksal ve fiziksel olarak nasıl modellendiğini, nasıl yönetildiğini, ve özellikle verinin bilgiye dönüştürülmesi safhalarında yapacakları müdahaleleri öğrenmeleridir. Öğrencilerin bu veri tabanı yönetim sistemini kullanarak veri tabanı yönetimi konusunda da uzmanlaşması beklenmektedir.</p>			
Course Learning Outcomes and Competences	<p>Upon successful completion of the course, the learner is expected to:</p> <ol style="list-style-type: none"> 1. Describe the fundamental elements of relational database management systems; 2. Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL; 3. Design ER-models to represent simple database application scenarios; 4. Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data; 5. As a member of a team, design a new DBMS; 6. Present the DBMS project in front of an audience. 			

Relationship of the Course with the Student Outcomes	Level	Learning Outcome(s)	Assessed by
Student Outcomes	N=None S=Supportive H=High		Exam, Project, HW, Experiment, Presentation , etc.
(1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	S	1,2	Exams, In-class activities
(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	H	3,4	Exams, Term Project, In-class activities
(3) an ability to communicate effectively with a range of audiences	S	5	Term Project
(4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts			
(5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	S	6	Term Project
(6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions			
(7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies			
Prepared by and Date	Assoc. Prof. Dr. İlker Bekmezci/September 2019		
Semester	Fall 2019-2020		
Name of Instructor	Assoc. Prof. Dr. İlker Bekmezci		
Course Contents	Week	Topic	
	1.	Introduction and Fundamental Concepts	
	2.	Conceptual database modeling	
	3.	ER Diagram 1	
	4.	ER Diagram 2	
	5.	Relational Algebra and Calculus	
	6.	Relational Model,	
	7.	Normalization of a Relation	
	8.	SQL Queries - DDL	
	9.	Implementation of DBMS	
	10.	Project Presentations - 1	
	11.	SQL Queries - DML	
	12.	SQL Queries - Advanced DML	
	13.	Database Application Development	
	14.	Stored procedures	
	15.	Final Exam/Project/Presentation Period	
	16.	Final Exam/Project/Presentation Period	
Required/Recommended Readings	Database management systems, by Raghu Ramakrishnan and Johannes Gehrke. 3rd edition, McGraw-Hill.		
Teaching Methods	Flip learning applications and exercises in the classroom with computers		
Homework and Projects	Term project		
Laboratory Work	-		
Computer Use	For Database design, Database querying, and Database Administration		

Other Activities	In-class activities
Assessment Methods	In-class exercises/assignments: %15 Term Project: %35 Midterm (2): % 50
Course Administration	Instructor: Assoc. Prof. Dr. İlker Bekmezci Instructor's office and phone number, office hours, email address: To be announced Rules for attendance: - Missing a quiz: Provided that proper documents of excuse are presented, each missed quiz by the student will be given a grade which is equal to the average of all of the other quizzes. No make-up will be given. Missing a midterm: Provided that proper documents of excuse are presented, each missed midterm by the student will be given the grade of the final exam. No make-up will be given. Missing a final: Faculty regulations. A reminder of proper classroom behavior, code of student conduct: YÖK Regulations Statement on plagiarism: YÖK Regulations

ECTS Student Workload Estimation		No/Weeks per Semester (A)	Preparing for the Activity (B)	Spent in the Activity Itself (C)	Completing the Activity Requirements (D)		
	Lecture/Flipped Classroom	14	1	3	1	70	A*(B+C+D)
Midterm(s)	2	4	2	1	14	A*(B+C+D)	
Assingment, Project, Presentation	8	3	5	2	80	A*(B+C+D)	
Total Workload					164		
Total Workload/25					6,56		
ECTS					6		