



MARMARA UNIVERSITY - FACULTY OF ENGINEERING

2017-2018 Fall

CSE4054 Distributed Databases

COURSE DESCRIPTION FORM

Offering Department	Department of Computer Engineering		Technical Elective					
Course Code	CSE4054							
Course Name	Distributed Databases							
Language of Instruction	English							
ECTS	5							
Contact Hours	Theoretical (T): 3	Practice (P): 0	Laboratory(L): 0					
Pre-requisites	CSE3055 Database Systems							
Instructor	Name							
	E-mail							
Course Materials	Mandatory	Özsu, M.T., Valduriez, P. (2011) Principles of Distributed Database Systems, 3rd. ed., Springer.						
	Recommended							
Course Objectives	This course aims to consolidate students' knowledge of database systems. Database architecture details that are frequently used for distributed databases will be given during the lecture.							
Course Content	Architectural models for distributed database management systems, transparency, alternative design strategies, distribution design issues, semantic data control, security, integrity, query processing and data localization, distributed query optimization, centralized and distributed algorithms, transaction management and distributed concurrency control . Distributed reliability protocols, distributed multi-database systems. Current trends.							
Learning Outcomes	LO1	To gain the ability to develop distributed database						
	LO2	To have experience about the load distribution in distributed databases						
	LO3	To have experience on transactional and query processes in distributed databases and ways to optimize these processes						
	LO4	To gain the ability to question the problems that come with distributed databases and how to solve these problems						
	LO5	To understand the properties of distributed databases and why this architecture is necessary						
Program Outcomes		LO1	LO2	LO3	LO4	LO5		
PO3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way so as to meet the desired result (a); ability to apply modern design methods for this purpose (b).	b	a	b	b	b		
PO5	Ability to design (a) and conduct experiments, gather data (b), analyze and interpret results for investigating engineering problems (c).	b	a	c	c	c		
Subjects (Knowledge, Skills and Behaviours), Contributions of Subjects to Learning Outcomes, Assessment Methods	No	Week	Subjects	LO1	LO2	LO3	LO4	LO5
	S1	1	Introduction and introduction of the course					MF
	S2	2	Introduction to distributed databases					MF
	S3	3	Distributed database design	MF, P				
	S4	4-5	Database integration	MF, P				
	S5	6	Data and access control				MF, P	
	S6	7	Query processing overview and query analysis			MF, P		
	S7	8	Distributed query optimization				MF, P	
	S8	9	Multi-database query processing			MF, P		
	S9	10	Transaction management in distributed databases		MF, P			
	S10	11	Distributed concurrency control		MF, P		MF, P	
	S11	12-13	Distributed database management systems reliability					MF
S12	14	Data replication			P			
Assessment Methods and Weights	No	Type	Weight	Implementation Rule		Make-up Rule		
	MF	Midterm Final	70%	Calculation and communication tools are not allowed during exams. Any lecture notes, books or slides are not allowed during the exam.		Marmara University regulations will be followed for make-up exams.		
	P	Project	30%					
	TOTAL		100%					

Determining Letter Grades	<ul style="list-style-type: none"> The level of knowledge about the subjects of the course is evaluated with at least one question in the midterm and the final exam. In order to determine the letter grade, a curve or catalog based method will be followed based on the total average scores of the students. The final exam score and the total average score of the student must be at least 35 to pass the course. According to Marmara University Undergraduate regulations, the weight of the final exam must be at least 40 out of 100. 									
	<table border="1"> <tr> <td>Assessment</td> <td>Midterm</td> <td>Project</td> <td>Final</td> <td>TOTAL</td> </tr> <tr> <td>Weight</td> <td>30</td> <td>30</td> <td>40</td> <td>100</td> </tr> </table>	Assessment	Midterm	Project	Final	TOTAL	Weight	30	30	40
Assessment	Midterm	Project	Final	TOTAL						
Weight	30	30	40	100						

Teaching Method, Student Work Load	Time Applied by Instructor			
	No	Method	Explanation	Hours
	1	Lectures	Lectures are given in class using the board or via presentations. Example questions are solved to enhance the concepts.	14x3=42
	2	Problem Session/ Practice	Problems related to the course topics are solved on the board.	-
	3	Laboratory	Experiments are done in the laboratory or theoretical concepts covered during the lectures are practiced using computer exercises.	-
	4	Interactive Courses	Questions are asked to students during lectures and they are encouraged to guess the answers (peer learning is also in this category)	-
	5	Field Work	Students attend activities outside the campus.	-
	6	Midterm	Midterm exam is given during the midterm week.	2
	7	Final	Final exam is given during the final exam week.	2
	Estimated Time to be Allocated by a Student			
	8	Project	The students carry out research about the problem given in the project, design and implement their solution and prepare a report.	40
	9	Homeworks	The students solve the problems given as homework.	
	10	Pre-class learning of Course Material	The students study and learn the new subjects from course materials.	10
11	Review of Course Material	Students review the course subjects from course materials to prepare for the exams and homeworks.	35	
12	Office Hour	Students ask questions to the instructor or the assistant during office hours.	2	
TOTAL			133	

Academic Honesty

Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

In case academic dishonesty is observed, the first authority is the instructor of the course. The instructor may decide to give the student zero for the homework(s)/lab(s)/exam(s), give the letter grade FF, or may take disciplinary action.