

Course name: CENG 521 - Adv. Database Systems					Department: Computer Engineering			
Semester	Methods of Education							Credit (ECTS)
	Lecture	Recitation	Lab	Project (F. Study)	HomeW	Others	Total	
1	42	40	0	80	40	23	225	7,5
<b>Language</b>	English							
<b>Comp. or Elective</b>								
<b>Prerequisites</b>	Basic Database courses							
<b>Course Contents</b>	<ul style="list-style-type: none"> <li>- Introduction to databases and database systems</li> <li>- Introduction to relational database and SQL</li> <li>- SQL integrity and security</li> <li>- Database design – Functional dependencies and normalization</li> <li>- Relational model of databases and relational algebra</li> <li>- Concurrent control protocols</li> <li>- Decision support systems</li> <li>- Object oriented database programming</li> <li>- Transaction management</li> <li>- Current research trends</li> </ul>							
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>- Understanding how large database systems work from the following perspective: <ul style="list-style-type: none"> <li>o Theory</li> <li>o Design</li> <li>o User access</li> <li>o Maintenance</li> <li>o Integration</li> </ul> </li> </ul>							
<b>Learning Outcomes and Competences</b>	<ul style="list-style-type: none"> <li>- Understand various issues involved in the design and implementation of a database system.</li> <li>- Study the physical and logical database designs, database modeling, relational and hierarchical models</li> <li>- Understand and use data manipulation language to query, update and manage a database</li> <li>- Study important DBMS concepts such as: database security, integrity and concurrency</li> <li>- Design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.</li> </ul>							
<b>Textbook and/or References</b>	<ol style="list-style-type: none"> <li>1. C.J. Date: <i>An Introduction to Database Systems</i>, Addison-Wesley, 2004, 8<sup>th</sup> Ed.</li> <li>2. Elmasri and Navathe: <i>Fundamentals of Database Systems</i>, Addison-Wesley, 2011. 6<sup>th</sup> Ed.</li> </ol>							
<b>Assessment Criteria</b>				<b>If any, mark as (X)</b>	<b>Percentage (%)</b>			
	Midterm Exams			X	20			
	Quizzes			X	10			
	Homeworks			X	10			
	Projects			X	15			
	Term Paper							
	Laboratory work							
	Other( Class Participation)			X	5			
Final Exam			X	40				
<b>Instructors</b>	Assist. Prof. Dr. Ali Tufail							
<b>Week</b>	<b>Subject</b>							
1	Introduction to databases and database systems							
2	Introduction to relational database and SQL							
3	SQL integrity and security							
4	Database design – Functional dependencies and normalization							
5	Relational model of databases							
6	Relational algebra							
7	Midterm							
8	Concurrent control protocols							
9	Decision support systems and Object oriented database programming							
10	Transaction management							
11	Student presentations							
12	Student presentations							
13	Final Exam							



**YILDIRIM BEYAZIT**  
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