

0205503 DATABASE SYSTEMS

Normal Education:

Evening Education:

Fall 2018-2019

**Course Format:** face-to-face

**INSTRUCTOR INFORMATION**

**Instructor:**

**Title:**

**Office:**

**Phone:**

**Office Hours:**

**E-mail:**

**COURSE DESCRIPTION**

**Credit hours:** *3 credit (3+0)*

**ECTS**: *6*

**Required or elective:** *Required for Computer Engineering Students*

**Catalog Description:** *This course covers the fundamental concepts of database systems. Topics include data models (ER, relational, and others); query languages (relational algebra, SQL, and others); implementation techniques of database management systems (index structures, concurrency control, recovery, and query processing); management of semistructured and complex data; distributed and noSQL databases.*

**Prerequisites:** 0205305 Data Structures

**Textbook(s) and/or required materials:**

*Edward Sciori, Database Systems and Implementation, John Wiley, 2009*

*Toby Teorey, Sam Lightstone, Tom Nadeau, H.V. Jagadish,"DB Modelling & Design, Logical Design", 5th Edition, Morgan Kaufmann, 2011*

**Course Objectives**

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| --- | --- |
| *1* | *To acquire the ability to design database management systems used for storing and effectively accessing data* |
| *2* | *To gain the ability to manage the database management system.* |

**Haftalık Ders Konuları**

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| --- | --- |
| ***No*** | ***Konu Başlıkları*** |
| *1* | *Course Introduction, Introduction to Database Systems* |
| *2* | *Database Design, Entity Concept, Entity Relationship Model* |
| *3* | *Relational Data Model* |
| *4* | *Normalization* |
| *5* | *Types of Normalization* |
| *6* | *Structured Query Language (SQL)* |
| *7* | *Basic SQL (DML)* |
| *8* | *Midterm* |
| *9* | *Query Optimization* |
| *10* | *Transaction Processing* |
| *11* | *Transaction Mechanisms* |
| *12* | *Database Security* |
| *13* | *Other Database Models* |
| *14* | *Final Exam* |

**Course Learning Outcomes**

*At the end of this course, students will be able to;*

* *Interpret and compare database system architects*
* *Uses relational algebra and relational data model to express database queries*
* *Uses SQL to interact with database management systems*
* *Design appropriate database tables using functional dependencies and regular forms*
* *Understand, compare and implement concurrency control algorithms*

**Evaluation methods**

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| --- | --- |
| *1. Midterm Exam* | *40%* |
| *2. Final Exam* | *60%* |

***Professional component***

|  |  |
| --- | --- |
| *Engineering topics* | *100%* |
| *General education* | *0%* |
| *Mathematics and basic sciences* | *0%* |

**Person(s) who prepared this description and date of preparation**

*Fahrettin Horasan, May 2018*

**Date of last revision**

*May 2018*