COURSE PROFILE

Course Name	Code	Semester	Term	Theory+PS+Lab (hour/week)	Local Credits	ECTS
Database Systems	IT201	Fall	3	3 + 1 + 2	4	7

Prerequisites	None

Course Language	English
Course Type	Required
Course Lecturer	Assist. Prof. Dr. Gülay Ünel
Course Assistant	Murat Kaya
Course Objectives	This course aims to introduce entity-relationship models for databases, present the relational data model for databases, describe SQL, a database query language, and provide practical database design methods and normalization.
Course Learning Outcomes	Upon successful completion of the course, students will be able to: • know how to model data using the entity-relationship model • model data using a relational model • manipulate relational data using relational algebra • Understand and use the basic SQL constructs • identify functional dependencies in relational databases • understand several database design algorithms and be able to use them • know how to design a database using normalization
Course Content	Introduction to database systems. Entity-relationship modeling. Relational model. Data description and query languages. Normal forms and database design. Physical design and access strategies. Security, integrity and reliability. Database design and implementation project.

COURSE CONTENT

Week	Subjects	Related
1	Course overview, Introduction	
2	Database System Concepts and Architecture	
3	ER Model	
4	Relational Model	
5	Mapping a Conceptual Design into a Logical Design	
6	Relational Algebra	
7	Relational Algebra (cont.)	
8	Basic SQL	
9	Basic SQL (cont.)	
10	More SQL: complex Queries, Triggers, Views and Schema Modification	
11	More SQL: complex Queries, Triggers, Views and Schema Modification	
12	Functional Dependencies and Normalization for Relational Databases	
13	Functional Dependencies and Normalization for Relational Datab(cont.)	
14	Practical Database Design Methodology and Use of UML Diagrams	
15	Summary, Feedback and Review	

Course Textbook	R. Elmasri, S. B. Navathe, Database Systems: Models, Languages, Design and Application Programming , Pearson, 6th Edition
Recommended References	

Semester Requirements	Number	Percentage of Grade
Attendance/Participation		
Laboratory		
Application		
Special Course Internship (Work Placement)		
Quizzes/Studio Critics	4	10
Homework Assignments		
Presentation		
Project	1	30
Seminar/Workshop		
Midterms/Oral Exams	1	30
Final/Resit Exam	1	30
Total	7	100

PERCENTAGE OF SEMESTER WORK	6	70
PERCENTAGE OF FINAL WORK	1	30
Total	7	100

Course Category	Core Courses	X
	Major Area Courses	
	Supportive Courses	
	Media and Management Skills Courses	
	Transferable Skill Courses	

COURSE'S CONTRIBUTION TO PROGRAM

#	Program Qualifications / Outcomes	* Level of Contribution				
		1	2	3	4	5
1	A foundation in mathematics and basic sciences and ability to apply acquired knowledge as they relate to the study and practice of information technology					X
2	An ability to analyze a problem, identify and define the computing requirements appropriate to its solution, to understand, select and use appropriate technology, tools, standards, protocols, building blocks, and components to solve the problem					X
3	An ability to propose, analyze, design, develop, test and maintain an information technology system including software solutions, security model, computer and network infrastructure, information systems etc. to solve information technology problems			X		
4	An ability to analyze local and global impact of computing on individuals, organizations and society; and the ability to apply information technology techniques, skills, and tools for regular computing practices as well as to improve effectiveness of current methodologies		X			
5	An ability to effectively communicate in oral and written media with all kinds of related audiences; and prepare documentation for this purpose as required	X				
6	An understanding of professional, ethical, legal, and social issues and responsibilities of information technology profession		X			
7	A taste and breadth of knowledge across several social topics outside the immediate requirements of the information technology profession, and the ability to work within heterogeneous teams to accomplish a common goal including people from the information technology area as well as other disciplines		X			
8	An ability to engage in life-long learning and professional development for personal improvement to follow contemporary information technology issues				X	

*1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Number	Duration (Hours)	Total Workload
Course Hours (Including Exams)	14	3	42
Tutorials	14	1	14
Laboratory	14	2	28
Application			
Special Course Internship (Work Placement)			
Field Work			
Study Hours Out of Class	14	4	56
Presentations / Seminar			
Project			
Preparatory reading	14	2	28
Homework Assignments			
Quizzes	4	0.75	3
Midterm Exams	1	2	2
Final / Resit Exam	1	2	2
		Total Workload	175

COURSE CATEGORY

ISCED GENERAL AREA CODES	GENERAL AREAS	ISCED BASIC AREA CODES	BASIC EDUCATIONAL AREAS	
1	Education	14	Teacher Training and Educational Sciences	
2	Humanities and Art	21	Art	
2	Humanities and Art	22	Humanities	
3	Social Sciences, Management and Law	31	Social and Behavioural Sciences	
3	Social Sciences, Management and Law	32	Journalism and Informatics	
3	Social Sciences, Management and Law	38	Law	
4	Science	42	Life Sciences	
4	Science	44	Natural Sciences	
4	Science	46	Mathematics and Statistics	
4	Science	48	Computer	60
5	Engineering, Manufacturing and Civil	52	Engineering	40
5	Engineering, Manufacturing and Civil	54	Manufacturing and Processing	
5	Engineering, Manufacturing and Civil	58	Architecture and Structure	
6	Agriculture	62	Agriculture, Forestry, Livestock, Fishery	
6	Agriculture	64	Veterinary	
7	Medicine and Welfare	72	Medical	
7	Medicine and Welfare	76	Social Services	
8	Service	81	Personal Services	
8	Service	84	Transport Services	
8	Service	85	Environment Protection	
8	Service	86	Security Services	