



King Fahd University of Petroleum & Minerals
College of Computer Sciences and Engineering
Information and Computer Science Department

ICS 324: Database Systems (3-3-4)

Syllabus: Spring Semester 172

Sec.	Time	Venue	Instructor	Office Hours
01	UTR 8:00-8:50	22-334	Mr. Yahya Garout Office: 22- 320 Phone: 013-860-4296 E-mail: garout@kfupm.edu.sa	UT: 10:00 – 11:50 or by appointment
02	UTR 9:00-9:50			
51	M 14:10-16:50			
51	W 14:10-16:50			

Course Website: blackboard.kfupm.edu.sa

Catalog Course Description:

Basic database concepts; conceptual, logical, and physical database design; relational theory and languages; introduction to query processing and optimization, and introduction to object and object relational databases.

Pre-requisites: ICS 202

Course Objective:

The course objective is to prepare students for effective use of database technology for data management with hands-on-experience in a teamwork environment.

Course Learning Outcomes:

After completion of this course, the student shall be able to:

1-Identify basic types and properties of database systems. [SO: a]

2-Use SQL in query specification. [SO: c]

3-Apply mathematical principles (relational calculus and algebra) in query specification.
[SO: j]

4-Design conceptual, logical and physical models for a real database application. [SO: k]

5-Implement a real-life database application. [SO: k]

Textbook: Fundamentals of Database Systems, by Ramez Elmasri and Shamkant Navathe, Pearson, 7th Edition, 2017.

Course Outline (lectures)

Part#	Topic	Chapter	# Of
1	Databases and Database Users	1	3
	DB System Concepts and Architecture	2	3
			6
2	Data Modeling Using The Entity-Relationship (ER)	3	3
			3
3	The Relational Data Model	5	3
	SQL	6-7	6
	Relational Algebra and Relational Calculus	8	4
	Relational Database Design	9	3
			16
4	Introduction to SQL programming	10	3
			3
6	Basics of Functional Dependencies and Normalization	14	3
			3
7	Disk Storage and Basic File Structures and Hashing	16	3
	Indexing Structures for Files and Physical DB design	17	3
			6
8	Algorithms for Query Processing & Optimization	19	3
			3
Total Number of Lectures			40

Assessment Plan:

Activity	Weight (%)
Attendance	5
Assignments	10
Quizzes	10
SQL Exam	10
Project	15
Midterm Exam	25
Final Exam (7:00 PM, Saturday, May 5, 2018)	25

Course Policies

- **Attendance:** Regular attendance is a university requirement.
- **No makeup of homework assignments, quizzes or exams.**
- **Late assignments:** No late submission of homework is accepted.
- **Office Hours:** Students are encouraged to use the office hours to clarify any part of the material that is not clear.
- **Academic honesty:**
 - Students should abide by all the university regulations on academic honesty.
 - Although collaboration and sharing knowledge are highly encouraged, copying others' work without proper citation, either in part or full, is plagiarism. Whenever in doubt, review the university guidelines or consult the instructor.
- **Courtesy:**
 - Students should be courteous toward the instructor and their classmates.
 - Do not use cell phones in class.

Best of luck