



Prince Sultan University
College of Computer and Info Sciences / Department of Computer Science
Term 252

2nd Semester 2025-2026

COURSE SYLLABUS

Mission Statement of the Bachelor of Computer Science Program(s): Provide high-quality, computer science education to prepare top graduates through an environment that promotes innovative thinking, ethical behavior, lifelong learning, research, and service to the community.

1. **Course number and name:** CS340: Introduction to Database Systems
2. **Credits and contact hours:** 3 (3,1,0)
3. **Course Coordinator's name:** Dr. Maram Alajlan
 - a. **Scheduled Office Hours:** Sun (8-9), Mon (12-1 pm), Tue. & Wed. from 1-2 PM, Thurs (10-11)
 - b. **Office Location:** W357
 - c. **Email:** majlan@psu.edu.sa
3. **Textbook, title, author, and year**
 - a. **Primary Text:** Fundamentals of Database Systems, 7/E, R. Elmasri, and S. B. Navathe, Addison-Wesley. ISBN-10: 0133970779, ISBN-13: 9780133970777.
 - b. **Other References:**

An Introduction to Database Systems (8th Edition) by C.J. Date.
Database Management Systems by Rama Krishnan
 - c. **Electronic Materials**
 - www.UML.org
 - www.Creately.com, draw.io
 - <https://university.mongodb.com/>
 - d. **Laboratory:** Oracle 11g for SQL <https://apex.oracle.com/en/> or MySQL <https://www.mysql.com/>
 - e. **Learning Management System:** Moodle available at <https://lms.psu.edu.sa>
4. **Specific course information**
 - a. **Brief description of the content of the course (catalog description):**

This course offers an in-depth introduction to database systems and modeling, aiming to equip students with the essential skills to engage with databases in real-world scenarios. The course begins with a comprehensive overview of database systems, including their definitions, historical evolution, architecture, and diverse applications. As the course advances, students will explore different data models, giving particular attention to entity-relationship, relational, and other pertinent models. A significant emphasis will be placed on database query languages and standards, providing a practical understanding of how to interact with databases effectively. The course also covers database design, incorporating theoretical foundations and methodological

approaches. Throughout the course, the goal is to introduce the fundamentals of database systems and prepare students for practical engagement with database technologies in professional contexts.

- b. [Prerequisites or co-requisites](#): CS210 Data Structures
- c. [Indicate whether a required, elective or selected elective \(as per Table 5-1\) course in the program](#): Required (R) as a Core course in BSCS and BSSE program.

5. Specific goals for the course

a. [Specific outcomes of instruction. The student will be able to:](#)

CLO1: Describe basic database concepts, architecture, and DBMS principles. Demonstrate knowledge of emerging topics in databases. **(Knowledge & Understanding)**

CLO 2: Develop conceptual modeling concepts and notations using Entity-Relationship or UML diagrams to analyze and design complex database applications. **(Cognitive Skill)**

CLO 3: Create a logical database design based on the conceptual ER model. **(Cognitive Skill)**

CLO 4: Apply normalization forms (1st, 2nd, 3rd, BCNF forms) and functional dependencies to optimize relational models. **(Cognitive Skill)**

CLO 5: Create a relational database schema that incorporates key, entity integrity, and referential integrity constraints and use declarative query languages (Relational Algebra and SQL) to elicit information from a database. **(Cognitive Skill)**

CLO 6: Appraise teamwork by utilizing effective group techniques to design, implement and demonstrate a database project using any DBMS tools. **(Values)**

b. [Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.](#)

The course addresses ABET CS-SOs 1,2 5and 6, and SE-SOs1,2,5, and 7

Course LOs #	Student Outcomes	
	Computer Science	Software Engineering
1	SO1	SO 1
2	SO 2	SO 1
3	SO 2	SO 2
4	SO 2	SO 2
5	SO 6	SO 7
6	SO 5	SO 5

Refer to the [CS Program Student Outcomes](#). Refer to the [SE Program Student Outcomes](#)

Brief list of topics to be covered

Week No.	Topics	CLO(s) Alignment	Assessments
1	Chapter 1 & 2. Introduction to Databases Management Systems, Characteristics and advantages of a Database approach and Database Users. Database Systems Concepts and Architecture - data models, schemas, and, database languages	CLO 1	
2, 3	Chapter 3 & 4. Data Modelling using the Entity-Relationship (ER & EER) Model	CLO 2	
4	Chapter 5. The Relational Data Model and Relational Database Constraints	CLO 3	
5, 6	Chapter 9. Relational Database Design by ER-to - Relational Mapping	CLO 3	Quiz 1(5%) Week 5 - Mon, Jan 19th, 2026 from 12 to 1PM
7	Chapter 8: Relational Algebra	CLO 5	Major Exam 1 (15%) Week 7-Thursday, Feb 5th, 2026 from 12-1PM
8,9	Chapter 6. Basic SQL: Data Definition, Constraints, and Basic Queries	CLO 5	
Ramadan and Eid Al-Fitr Holiday			
10,11	Chapter 7. SQL: More SQL: Complex Queries and Views	CLO 5	Quiz 2 (5%) Week 10 - Mond, March 30th, 2026 from 12 to 1PM
12,13	Chapter 14 and 15. Basics of Functional Dependencies and Normalization for Relational Databases	CLO 4	
14	Final Project presentation	CLO 7	Major Exam 2 (10%) Week 14 - Sun, April 26th, 2026 from 12-1PM Project Submission and Presentation (15%) Thurs. April 23rd, 2026
14, 15	Emergent Topic in Databases 1. Introduction to Object-oriented databases 2. Introduction to NoSQL Database Theory 3. MongoDB Lab CRUD operations	CLO 1	



8. Weight of Assessments

- 1 Class Assignment 5%
- 2 Quizzes 10%
- 2 Major Exams 25%
- Project 15%
- Attendance 5%
- Final Exam 40%

9. Additional Information

Plagiarism and Academic Dishonesty: “Plagiarism can be defined as unintentionally or deliberately using another person’s writing or ideas as though they are one’s own. Plagiarism includes, but is not limited to, copying another individual’s work and taking credit for it, paraphrasing information from a source without proper documentation, and mixing one’s own words with those of another author without attribution. In addition, buying a paper or project, downloading a paper from the Internet, and submitting them as your own is also plagiarism. The penalty for academic dishonesty will bring course expulsion, failure, or even suspension” (Academic Integrity and Syllabus Acknowledgement Form).

Attendance Policies: The University attendance policy will be strictly followed. Students are expected to attend all class sessions and be in class on time. Attendance is taken during the first 5 minutes of the class. Missing a class session is a student’s responsibility. It is the sole responsibility of a student to keep satisfying level of attendance. Otherwise, “DN” grade will be granted automatically during any time in the semester, without any notice.

Missed classes will not be repeated. A total of 16 or more absences (i.e., 26% of absences) may lead to denial grade DN. The student must periodically use Moodle for course content, projects assignments, updates, and notifications.

Contact Hours	No deduction	1-mark deduction	2 marks deduction	3 marks deduction	4 marks deduction	5 marks deduction	DN
Four Time weekly	Total of or less than 3 absences	Total of 4 absences	Total of 7 absences	Total of 10 absences	Total of 13 absences	Total of 15 absences	Total of 16 absences

Exam Policies: It is not possible to reschedule a major exam. If any student misses an assessment, the makeup will be at the end of the semester, and all the materials are included (comprehensive assessment). The makeup exam will only be approved in limited cases as stipulated in the university bylaws. Generally, the final exam includes all material covered during the semester (comprehensive).

Assignment/Project Policies: Students must actively participate in class discussions, activities, and online Forums. Students must complete the class assignment and submit the answers during the tutorial session. Late assignments are not accepted.