



Course Specifications

Course Title:	Database Management Systems
Course Code:	MIS- 301
Program:	Management Information Systems
Department:	Management Information Systems
College:	College of Business Administration, Al Kharj
Institution:	Prince Sattam Bin Abdulaziz University

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A. Course Identification

1. Credit hours: 5
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 9th level/ Third Year
4. Pre-requisites for this course (if any): MIS 211 – Introduction to Programming
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	48
2	Laboratory/Studio	12
3	Tutorial	
4	Others (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the fundamentals of database systems. Students will gain an understanding of the importance of databases and their key concepts and characteristics. Also, they will gain the required knowledge to model, design, and manipulate databases.

2. Course Main Objective

To study the essential concepts of database systems, database modeling, and the implementation of databases using the database management systems (DBMSs).

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Define the fundamental concepts of database systems, and state their	PLO1.1

CLOs		Aligned PLOs
	advantages and disadvantages.	
1.2	List the roles of people who are involved in the design, use, and maintenance of databases.	PLO1.1
1.3	Describe the phases of the database design process.	PLO1.2
1.4	Describe the concepts of the Entity-Relationship (ER) model and the Relational Model, and the mapping process of ER schema to tables.	PLO1.2 & PLO1.4
2	Skills :	
2.1	Write appropriate queries using the Structured Query Language (SQL).	PLO 2.2 & PLO2.3
2.2	Solve problems within the context of database systems and information system.	PLO2.3
2.3	Create the database schema using the conceptual data models.	PLO2.3
2.4	Using the DBMS to create and manipulate the databases	PLO2.2 & PLO2.4
3	Values:	
3.1	Demonstrate the ability to collaborate with others to conduct certain tasks	PLO3.1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Databases Basic database Concepts, database implicit properties, DBMSs, Characteristics of the Database Approach, Advantages of Using the DBMS Approach, overhead costs of using a DBMS.	6
2	Database Users and Administrators Actors on the Scene (Database Administrators, Database Designers, End Users, System Analysts and Application Programmers), Workers behind the Scene (DBMS system designers and implementers, Tool developers, Operators and maintenance personnel).	3
3	Database System Concepts Data abstraction levels, Categories of Data Models (conceptual data models, physical data models, implementation data models), Schemas, Instances, Database State, and DBMS Languages and interfaces	6
4	The Database System Environment & Architecture DBMS Component Modules, Database System Utilities, Tools and Application Environments, Centralized and Client/Server Architectures for DBMSs	6
5	Database Design Process Requirements collection and analysis, conceptual design, logical design, physical design	6
6	Using the Entity-Relationship Model for the Database Design A Sample Database Application, Entities, Attributes (Composite, Simple, Single-Valued, Multivalued, Stored, and Derived Attributes), NULL Values, Entity Types, Key Attributes of an Entity Type, Relationships, Entity-Relationship Schema Diagram.	9
7	The Relational Data Model Relational Model Concepts (Domains, Attributes, Tuples, and Relations),	8

	relation schema, Characteristics of Relations, Relational Model Notation, Relational Model constraints, Relational Databases and Relational Database Schemas	
8	ER-to-Relational Mapping Algorithm Mapping of Regular Entity Types, Mapping of Weak Entity Types, Mapping of Relationship Types, Mapping of Multivalued Attributes	4
9	Normalization Update anomalies, Functional Dependency, Normal Forms	5
10	The SQL language (data Definition, data manipulation, and retrieving data) SQL Data Definition and Data Types, Specifying Constraints in SQL, Retrieval Queries in SQL, INSERT, DELETE, and UPDATE Statements in SQL	7
Total		60

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Define the fundamental concepts of database systems, and state their advantages and disadvantages.	<ul style="list-style-type: none"> • Lectures • Discussion-Based Teaching 	<ul style="list-style-type: none"> • Homework assignments • In class short MCQs quizzes • Two Midterm exams • Final Exam
1.2	List the roles of people who are involved in the design, use, and maintenance of databases.	<ul style="list-style-type: none"> • Lectures • Discussion-Based Teaching 	<ul style="list-style-type: none"> • In class short MCQs quizzes • Two Midterm exams • Final Exam
1.3	Describe the phases of the database design process.	<ul style="list-style-type: none"> • Lectures • Practical sessions 	<ul style="list-style-type: none"> • Homework assignments • In class short MCQs quizzes • Presentation by students • Two Midterm exams • Final Exam
1.4	Describe the concepts of the Entity-Relationship (ER) model and the Relational Model, and the mapping process of ER schema to tables.	<ul style="list-style-type: none"> • Lectures • Problem solving cases 	<ul style="list-style-type: none"> • Homework assignments • In class short MCQs quizzes • Presentation by students • Two Midterm

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			exams • Final Exam
2.0	Skills		
2.1	Write appropriate queries using the Structured Query Language (SQL).	<ul style="list-style-type: none"> • Lectures • Practical sessions 	<ul style="list-style-type: none"> • Practical Examination • Final Exam
2.2	Solve Problems within the context of database systems and information system.	<ul style="list-style-type: none"> • Lectures • Problem solving cases • Class discussions • Independent study (project) 	<ul style="list-style-type: none"> • Presentation by students • Projects evaluation • Assignment • Exams
2.3	Create the database schema using the conceptual data models.	<ul style="list-style-type: none"> • Lectures • Problem solving cases • Independent study (project) 	<ul style="list-style-type: none"> • Assignments • Presentation by students • Projects evaluation • Exams
2.4	Using the DBMS to create and manipulate the databases	<ul style="list-style-type: none"> • Lectures • Practical sessions • Problem solving cases • Independent study (project) 	<ul style="list-style-type: none"> • Exams • Projects evaluation • Presentations
3.0	Values		
3.1	Demonstrate the ability to collaborate with others to conduct certain tasks	<ul style="list-style-type: none"> • Problem solving cases • Group work • Writing reports 	<ul style="list-style-type: none"> • Projects evaluation • Presentations evaluation

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm exam 1	5 th	15%
2	Midterm exam 2	10 th	15%
3	Quizzes	4 th , 8 th , and 10 th	10%
4	Assignments	4 th , 7 th , and 9 th	10%
5	Mini Projects	11 th	10%
6	Final Examination		40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student

consultations and academic advice :

Office hours , 6 hours/ week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Ramez Elmasri and Shamkant B. Navathe, Fundamentals of Database Systems, 7th Edition, Pearson, 2016
Essential References Materials	Abraham Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concepts, 7th edition, McGraw-Hill, 2019
Electronic Materials	http://catalogue.pearsoned.co.uk/educator/product/PowerPoint-Slides-for-Fundamentals-of-Database-Systems-Global-Edition-7E/9781292097671.page
Other Learning Materials	Multimedia files associated with the topics of the text book

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	_ Lecture room that can accommodate at least 30 students for lectures and discussions
Technology Resources (AV, data show, Smart Board, software, etc.)	- data show - Smart Board - Computer with internet connection
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	_ PC for each student for implementing the practical part

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Direct through a survey
Extent of achievement of course learning outcomes	Faculty member/Program Supervisor	Indirect through evaluating student marks
Quality of learning resources	Students	Direct through a survey
Self-Assessment	Faculty member	Direct through investigating the contents of the course report

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Council
Reference No.	2
Date	SEP 2022