T-104
2022

Course Specification

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Course Title: **Database Systems**
Course Code: **2322 CIS**
Program: **Information Systems**
Department: **NA**
College: **Applied College**
Institution: **King Khalid University**
Version: **1**
Last Revision Date: **6 August 2023**

Table of Contents:

A. General information about the course:

Course Identification

1. Credit hours:

2. Course type

a.	University ☐	College ☒	Department☐	Track☐	Others☐
b.	Required ☒	Elective☐			

3. Level/year at which this course is offered:	3rd Level

4. Course general Description:

This is an introductory course to database systems. Students will learn basic concepts of databases, database design skills, and some entry-level database development skills such as SQL. The course consists of three parts. The first part will introduce fundamental concepts of database management systems (DBMS). The second part will teach database design skills, including how to use Entity Relationship (ER) modeling technique to design the database and how to map the model to a relational database. The third part of the course will cover the Structured Query Language (SQL). Emphasize will be placed on the second and the third part.

5. Pre-requirements for this course (if any):

6. Co- requirements for this course (if any):

7. Course Main Objective(s):
- Identify and describe basic concepts of database systems, ERD, the relational modeling.
- Design a database to meet the business requirements for an organization.
- Develop Entity Relationship to represent database requirements and map ERD to relational model
- Know how to evaluate the design quality of a database using the rules of "database normalization".
- Use the structured query language (SQL) to define and manipulate data in a relational database.
- Implementation of database practically.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	64	100
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	32
2.	Laboratory/Studio	32
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	64

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define the basic concepts of database and its applications.	k1	Lectures + Lab	Exams, Assignments, Quizzes
1.2	Recognize the role of database management and the value of information within organizations.	k2	Lectures + Lab	Exams, Assignments, Quizzes
1.3	Identify the basic concepts of database systems, ERD, the relational modeling.	k1, k2	Lectures + Lab	Exams, Assignments, Quizzes
1.4	Describe the ER-to-Relational model mapping algorithms.	k1, k2		
2.0	Skills			
2.1	Analyze the business requirements for an organization and design a database accordingly followed by SDLC steps.	s2 s3	Lectures + Lab	Exams, Assignments, Quizzes
2.2	An ability to identify problem, analyze, design, implement, and evaluate database system to meet desired needs.	s1	Lectures, Lab, group discussion	Exams, Assignments, Quizzes
2.3	Develop Entity Relationship (ER) to represent database requirements and transform it into relational model for implementation.	s2	Lectures, Lab, group discussion	Exams, Lab Assignments, Quizzes
2.4	Evaluate the design quality of a database using the rules/technique of "database normalization".	s1 s2 s4		
2.5	Use the structured query language (SQL) to define, create and manipulate data in relational databases.	s1		
3.0	Values, autonomy, and responsibility			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.1	Practice to use current techniques, skills, and tools necessary for database creation, manipulation and provide control.	v2	Lectures, Lab, Case Study	Exams, Assignments and presentation
3.2	Communicate effectively in oral and written with professional ethics.	v3	Presentations, Lab	Exams, Assignments and presentation
3.3	Demonstrate the ability of developing a working database application using commercial DBMS software through working and communicating effectively in groups to complete the task.	v3	Presentations, Lab, Groupwork	Exams, Assignments and presentation
3.4	Work effectively to accomplish a goal with professional and ethical ways.	v1	Presentations, Lab, Independent Work, Groupwork	Exams, Assignments and presentation

C. Course Content

No	List of Topics	Contact Hours
1	Overview of the Course. Introduction to database.	3
2	The Database Environment and Development Process	3
3	Modeling Data in the Organization, ER Model	6
4	Enhanced-ER Model (EER)	3
5	Logical Database Design and the Relational Model	6
6	Physical Database Design and Performance	3
7	Introduction to SQL	3
8	Advanced SQL	5
Lab Topics		
1	Introduction to oracle, Oracle data types, Basic concepts of SQL, DDL, DML.	8
2	Database Constraints (Primary key, check, not null, foreign key, domain…)	8
3	Queries using select command and SQL operators, GROUP BY Clause and Aggregate Functions	6

4	SQL joins		5
5	Introduction to PL/SQL		5
Total			64

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1	4	5
2.	Midterm Exam 1	7	10
3.	Practical Assessment	1 to 16	30
4.	Midterm Exam 2	12	10
5.	Quiz 2	14	5
6.	Final Exam	After week 16	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Modern Database Management (11th edition), Jeffrey A. Hoffer, Ramesh Venkataraman Heikki Topi, 2012
Supportive References	Fundamentals of Database Systems, 5th edition or Later, Elmasri & Navathe, Addison-Wesley, 2007. ISBN: 0-321-36957-2, Pearson Oracle 11g is used to create Database applications using SQL as structured query language. SQL developer is used as an editor.
Electronic Materials	Database Systems: A practical Approach to Design and Implementation, Thomas Connolly and Carolyn Begg. Thomas Education, Latest Edition.ISBN:0321210255 Database Design Using Entity-Relationship Diagrams, Sikha Bagui& Richard Earp, Auerbach Publications, 2007. ISBN: 0-8493-1548-4 www.w3schools.com/
Other Learning Materials	Database System Concepts: Abraham Silberschatz, Henry F. Korth , S Sudarshan ISBN No:-978-007-128959-7

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• Lecture Room with enough capacity Chairs Projector/Screen. • Laboratories with Computers
Technology equipment (projector, smart board, software)	The gadgets which we have in the lecture rooms and in labs, like projector and computer should be maintained so that they will be always available for the use and needs to be upgraded software's installed on the machines. Oracle 11g should be installed on the machines that are in the lecture rooms.
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of students assessment	Course Teacher	Direct
Quality of learning resources	Program Supervisor, Quality Unit	Direct
The extent to which CLOs have been achieved	Course Teacher	Direct
Other	Course Teacher, Quality Unit	Direct

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	