Course Specifications

Course Title:	**Fundamentals of Databases**
Course Code:	**340CIS-3**
Program:	**Information Systems**
Department:	**Information Systems**
College:	**Computer Science and Information Systems**
Institution:	**Najran University**

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A. Course Identification

1. Credit hours: 3 (2,2,1)
2. Course type **a.** University [ ] College [ ] Department [√] Others [ ] **b.** Required [√] Elective [ ]
3. Level/year at which this course is offered: Level 5/Year 3
4. Pre-requisites for this course (if any)**:N/A**
5. Co-requisites for this course (if any)**:N/A**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	75	100%
2	**Blended**		
3	**E-learning**		
4	**Correspondence**		
5	**Other**		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	15
4	**Others** (specify)	
	Total	75
Other Learning Hours*		
1	**Study**	25
2	**Assignments**	10
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others** (Presentations)	10
	Total	45

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

Study of fundamentals concepts of Databases, architecture of Database Management Systems (DBMS), and database design and database programming language. Topics include: different database design models such as entity relationship and Object-Oriented data model; relational database theories including normalization, functional dependencies and conversion of E/R data model to relational databases; theoretical database programming language such as relational algebra and calculus; Structured Query Language (SQL) including Data Definition Language (DDL) and Data Manipulation Language (DML).

2. Course Main Objective:

This course introduces the key aspects of databases, database systems, data, DBMS, database design, database programming languages. Students will design the E/R diagram data model and Construct an Object-Oriented data model for simple application. They will create a normalized, well-structured relational data model using theories of normalization. Students will learn how to execute the SQL statements of data definition and data manipulation.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	Explain the general concepts of database, database system, data, DBMS, database design, database programming languages	**K1**
1.2	Create a normalized, well-structured relational data model using theories (normalization, etc.) of relational database	**K3**
2	**Skills :**	
2.1	Design the E/R diagram data model for a realistic application	**S1, S2**
2.2	Construct an Object-Oriented data model for simple application	**S1, S2**
2.3	Execute the SQL statements of data definition and data manipulation	**S2, S4**
3	**Competence:**	
3.1	Accomplish a task assigned in a course group project	**C1**
3.2	Present effectively the project work assigned as a team/member to range of audience	**C2**

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Databases: Databases and Database Users	7
2	Database System Concepts and Architecture	7
3	Structured Query Language Statements (SQL)	7
4	Data Modeling Using Entity Relationship Model (E/R)	7
5	Relational Data Model and Relational Database Constrai	7
6	Functional Dependencies	7

7	Normalization	7
8	Object Oriented Database	7
9	Advanced SQL	7
10	Project	7
11	Review	5
Total		75

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**		
1.1	Explain the general concepts of database, database system, data, DBMS, database design, database programming languages	Lectures, active learning, collaborative and cooperative learning and independent study assignments are used as teaching strategies. - Showing anddelivering PPT presentation in the class. - Using a whiteboard to explain essential points of database systems and DBMS in more detail. - Motivating students to be active during class by asking questions regularly during lecture. - Motivating students to work in the home, to search from the internet, to read related reference books by giving them assignments relatedto database systems, data, DBMS, database design, database programming languages. - Let students creating a normalized relational data model and giving correction on their solution during class. - Motivating students to be active during class by asking questions regularly. - Giving students tutorial related to database design, database programming languages etc.	Quiz Assignments Midterm Examination Final Examination
1.2	Create a normalized, well-structured relational data model using theories (normalization, etc.) of relational database		
2.0	**Skills**		
2.1	Design the E/R diagram data model for a realistic application	- Solving some E/R models on whiteboard for students to make them more familiar with various the E/R diagram data model. - Let students design the E/R diagram data model for different realistic applications and giving correction on their solution during class.	Quiz Assignments Midterm Examination Final Examination, Course project

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		- Motivating students to be active during class by asking questions regularly. - Giving students tutorial related to E/R diagram data model to explain them in more detail. - Motivating students to work in the home, to search the internet, to read related reference books by giving them assignments.	
2.2	Construct an Object-Oriented data model for simple application	- Solving some Object-Oriented data model on whiteboard for students to make them more familiar with various the Object-Oriented data model. - Let students design the Object-Oriented data model for different simple applications and giving correction on their solution during class. - Motivating students to be active during class by asking questions regularly.	Quiz, Assignments Midterm Examination Final Examination
2.3	Execute the SQL statements of data definition and data manipulation	- Interactive Lectures using PPT slides with more examples of SQL statements. - Engaging the students in problem-based learning through Tutorials and Lab Demonstrations - Let students execute some SQL statements of DDL and DML.	Lab Assignments Midterm Examination (Lab) Final Examination (Lab)
3.0	**Competence**		
3.1	Accomplish a task assigned in a course group project	-Ask students about different ideas on a course group project in the lecture.	Course project
3.2	Present effectively the project work assigned as a team/member to range of audience	- Guide students on how to design a database, to write a good quality report maintaining all the formats, and to Present effectively the project work. - Group discussion/debate about the project work. - Encourage students to present their project work in the lecture.	Course project
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2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First midterm	6	15
2	Quiz1	5	3
3	Second midterm	10	15

#	Assessment task*	Week Due	Percentage of Total Assessment Score
4	Quiz2	11	3
5	Assignment	12	4
6	Mini-project	12	10
7	Final practical2	15	10
8	Final exam	16	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 :

- weekly office hours + appointments
- weekly academic advising hours
- Extra weekly 2 office hours prior to exams.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Elmasri, Ramez and Navathe, Shamkant. Fundamentals of Database Systems. Boston: 7th Edition, 2016
Essential References Materials	Silberschatz, Korth, Sydarshan , Database System Concepts. McGraw-Hill. Either 5th edition 2005 or 4th edition, 2002.
Electronic Materials	https://www.w3schools.com/sql/
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Room B-58 Laboratory A-16L
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, PCs.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Online course survey	Students	Indirect
Focus group discussion with small groups of students.	Instructor	Direct
Extent of achievement of course learning outcomes	instructor	Direct
Peer consultation on teaching	Faculty	Direct

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.	Session No. 10 (441-38-43300)
Date	17/02/2020