

# Course Specifications

<b>Course Title:</b>	Database Systems
<b>Course Code:</b>	ICS 212
<b>Program:</b>	Information and computer sciences
<b>Department:</b>	Computer science and information
<b>College:</b>	Science at Al-Zulfi
<b>Institution:</b>	Majmaah

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## A. Course Identification

<b>1. Credit hours:</b>			
<b>2. Course type</b>			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 2			
<b>4. Pre-requisites for this course (if any):</b> Computer Programming (ICS 122)			
<b>5. Co-requisites for this course (if any):</b>			

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	*	80%
2	Blended	*	0%
3	E-learning	*	0%
4	Correspondence	*	0%
5	Other	*	0%

## 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
<b>Contact Hours</b>		
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	60
<b>Other Learning Hours*</b>		
1	Study	
2	Assignments	
3	Library	
4	Projects/Research Essays/Theses	
5	Others (specify)	
	<b>Total</b>	

\* 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

This course aims to discuss the basic concepts and design of database. It introduces different data models, data storage and retrieval techniques and database design techniques. The course primarily focuses on relational data model and DBMS concepts. The course will be

accompanied by a practical part (lab) in which the students will learn (Mysql) and how to use this tool to develop database systems.

## 2. Course Main Objective

- a) Learn the fundamental database concepts and systems methodologies to design database systems.
- b) Understand data modeling using ER Model and EER Model and the mappings to relational model.
- c) Understand conceptual data model and logical database model and database creation using the specified DBMS in DB lab.
- d) Understand and evaluate a set of query using relational algebra and calculus.
- e) Understand and evaluate a set of query using query language.
- f) Understand concepts of functional dependencies.

## 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge:</b>	
1.1	Be able to discuss/ explain the importance of database systems.	a1
1.2	Be able to discuss/ explain the difference between file management and database.	a1
1.3	Be able to design a suitable database components and environments.	a1
1.4	Be able to formulate the major constructs of relational DB language SQL.	a1
<b>2</b>	<b>Skills :</b>	
2.1	Employ analytical skills as appropriate during database design and manipulation process.	b1
2.2	Design and implement practical database system. In particular, be able to discuss, explain, apply the relational model and mappings from conceptual designs to particular normalizations.	b1
2.3	Identify a range of DB-solutions and critically evaluate them and justify proposed design and development solutions.	b1
2.4	Analyze a wide range of database design issues and provide solutions through suitable design, structures, diagrams, and other appropriate design methods.	b1
2.5	Be able to apply and evaluate suitable database security and integrity levels.	b1
<b>3</b>	<b>Competence:</b>	
3.1	Work in a group and learn time management.	c1
3.2	Learn how to search for information through library and internet.	c1
3.3	Present a short report in a written form and orally using appropriate scientific language	c1

## C. Course Content

No	List of Topics	Contact Hours
1	Introduction to data and information, Database System Applications, Purpose of Database System, Comparison with File System, View of Data, Users of Database, Database System Concepts and Architecture	6

2	Data Models, Levels of Data Abstraction, Database Schema, Data Independence, and focuses on how to design databases for a given problem	6
3	How to use database effectively, these including Entity Relationship (ER) model, key and participation constraints, weak entities, generalization, aggregation and conceptual DB design using the ER model..	9
4	Relational model: The Relational Algebra and Relational Calculus, Relational Database Design by ER and EER to Relational Mapping, Creating and Modifying relation using query language, enforcing integrity constraints, ER to relational and view.)	9
5	SQL - The Relational Database Standard with case study and examples	6
6	Functional Dependencies and Normalization for Relational Databases	6
<b>Total</b>		

## D. Teaching and Assessment

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

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1		Developing basic communication Ability through short and varied situated discourse. Lecturing	Homework. Group Discussion Presentation
1.2			
...			
<b>2.0</b>	<b>Skills</b>		
2.1		Class discussion Presentation Individual meeting with the instructor (encouraging students to discuss different topics outside the classroom)	Presentation Essay Questions Research topics
2.2			
...			
<b>3.0</b>	<b>Competence</b>		
3.1		Discussion with students Making students aware about time management in completing their assignments. Counsel students how to make a good presentation in Database and DBMS	Respecting deadlines. Showing active class participation. Helping other students to understand tasks in the class. Giving clear and logical arguments Performing seriously on midterms and final exams
3.2			
...			

### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First written mid-term exam	6	15%
2	Second written mid-term exam	12	15%
3	Class activities, group discussions, Presentation	Every week	5%
4	Homework + Assignments	After Every chapter	5%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
5	Final Lab Exam	15	20%
6	Final written exam	16	40%
7	First written mid-term exam	6	15%

\*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 :**

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

**Office hours: Mon: 10-12, Wed: 8-10**

**Email: m.jemmali@mu.edu.sa**

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Database System Concepts 7th Edition Silberschatz, Korth and Sudarshan, Mc Graw Hil 2017 ISBN-13: 978-0078022159
	Fundamentals of Database Systems (7th Edition) Ramez Elmasri and Shamkant Navathe Pearsons 2015 ISBN-10: 0133970779
	Oracle Database 11g & MySQL 5.6 Developer Handbook Michael McLaughlin Mc Graw Hil 2012 ISBN: 978-0-07-176885-6
<b>Essential References Materials</b>	Jeffrey A. Hoffer, Mary Prescott, Fred McFadden, Modern Database Systems, 7th Ed., Prentice Hall
<b>Electronic Materials</b>	<a href="http://crystal.uta.edu/~elmasri/db1/">http://crystal.uta.edu/~elmasri/db1/</a>
<b>Other Learning Materials</b>	MySql

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> <li>Classrooms with required digital aids and to support traditional method of teaching using blackboard.</li> <li>Classrooms with proper lighting and air conditioning system integrated with the sound System /audio system.</li> <li>Classroom with smart board interface, display screen and a computer to aid the sessions</li> </ul>

Item	Resources
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Smart Board with supporting software / computers with updated versions of software as required to understand the subject concepts.
<b>Other Resources</b> (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
Student-faculty management meetings.	Program Leaders	Direct
Discussion within the staff members teaching the course	Peer Reviewer	Direct
Departmental internal review of the course.	Peer Reviewer	Direct
Reviewing the final exam questions and a sample of the answers of the students by others.	Peer Reviewer	Direct
Visiting the other institutions that introduce the same course one time per semester.	Faculty	Indirect
Student-faculty management meetings.	Program Leaders	Direct
Discussion within the staff members teaching the course	Peer Reviewer	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

<b>Council / Committee</b>	Program plan committee
<b>Reference No.</b>	
<b>Date</b>	08/09/2019