



كلية الحاسبات و المعلومات



جامعة بنها  
وحدة الضمان والجودة

## Database management system Course Specifications

<b>Program(s) on which the course is given</b>	:	Bachelor in Computer and Information Sciences
<b>Major or Minor element of programs</b>	:	All majors
<b>Department offering the program</b>	:	Scientific Computing
<b>Department offering the course</b>	:	Information System
<b>Academic year / Level</b>	:	3 <sup>rd</sup> Year / B.Sc.
<b>Date of specification approval</b>	:	

### A. Basic Information

**Title:** Database Management Systems

**Code:** DBA 372

**Lecture:** 3 hrs/week

**Practical:** 3 hrs/week

**Tutorial:** ---

**Total:** 6 hrs/week

### B. Professional Information

#### 1. Overall Aims of Course:

At the end of the course, students should be able to design and implement a complete database application, from the initial conceptual modeling stage to implementation with an SQL-based relational database system. They should have an overall appreciation of the internal organization of a



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database system, and of the main tasks of a database administrator. They should also be able to build server-side support for Web-based persistent data applications. They should have a basic knowledge

of the information retrieval techniques supporting search engines. And they should understand why the performance characteristics of search engines are very different from those of database systems.

## 2. Intended Learning Outcomes of Course (ILOs):

### a. Knowledge and Understanding

On completing the course students will know and understand:

- a1- The three steps that constitute the database design process.
- a2- The different data model used in the conceptual database design.
- a3- The functional dependencies and their role in database design.
- a4- The importance of having normalized relations and the different normal forms.
- a5- The properties of a well designed relational schema.

### b. Intellectual/Cognitive Skills

On completing the course students will be able to:

- b1- Read a conceptual database schema expressed using the ER model.
- b2- Convert English specification into ER schema.
- b3- Integrate different user views expressed in ER into a global conceptual schema
- b4- Minimize a given set functional dependencies to produce its minimum cover.
- b5- Determine the highest normal form of a given relational schema.

### c. Practical skills:

- c1- Design and implement a complete database application.
- c2- Inject basic data administration tasks.
- c3- Design server-side support for Web-based persistent database applications.

### d. Transferable skills:

- d1- Discuss the conceptual database design process.



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d2- Discuss the logical database design process and how to combine conceptual logical database design processed to build designed relational schema.

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a well

d3- Work effectively as a part of a team to apply skills gained throughout the course to design and build a complete database.

**e. Attitude:**

- e1-Demonstrate an ethical behavior toward software copyrights
- e2- Relationship Emphasis a successful with other students.

**3. Contents:**

Topic	No. of hours	Lecture	Practical
Database environment	3	1	2
The database development process	3	1	2
Data modeling using E-R model	6	2	2
Modeling data in organization	6	2	2
Logical database design and the relational model	6	2	2
Functional dependencies and Normalization for relational databases	6	2	2
The relational algebra and relational calculus	3	1	2
Database system concepts and architecture	6	2	2
The client/server database environment	6	2	2