Database management system Course Specifications

Program(s) on which the course is given :   Bachelor in Computer and Information Sciences

Major or Minor element of programs :   All majors

Department offering the program :   Information System

Department offering the course :   Information System

Academic year / Level :   3rd Year / B.Sc.

Date of specification approval :

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

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 highst 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.

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

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