



Future Academy
Higher Future Institute for Specialized Technological Studies

Course Specification

1- Course information:

Course Code:	INM252
Course Title:	Database1
Year/level	2nd
Academic Programs	Computer Science Program (B.Sc.)
Contact hours/ week	4

2- Course aims:

This course aims to provide students with introduction to database and explain database versus files system, database concept, characteristics of database approach, simplified architecture of database system (Entity types, entity sets, attributes and keys), Structured Query Language, Database models (persistent data, operational data, data warehouse), Database design: data modeling using entity relationship (ER) model and ER model concepts.

Relationships: relationship types, relationship degree, recursive relationships and cardinal ratios, **The relational data model:** relational model concepts, relational model constraints, Database Normalization.

3- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding:

On successful completion of this course, the student should be able to:

- a1- Explain the main characteristics of the database approach
- a2- Describes different types of database end users
- a3- Interpret and explain the basic concepts of the relational model
- a4- Explain the basic concepts of relational data model
- a5- Describe the fundamental elements of relational database management systems
- a6- Understand and use data manipulation language (SQL) to query, update, and manage a database

b- Intellectual skills:

On completing this course, the student should be able to:

- b1- Improve the database design by normalization
- b2- Identify function dependencies and resolve database anomalies by normalizing database tables

- b3- Differentiate between Schemas, Instances, and State of DBMS
 b4- Design database systems

c- Professional and practical skills:

At the end of this course, the student will be able to:

- c1- Create database ER model
 c2- Use database system utilities and tools
 c3- Create database users and manage user roles in a database
 c4- Design and build a simple database system
 c5- Build code of Structured Query Language (SQL) for database definition and manipulation

d- General and transferable skills:

On successful completion of this course, the student should be able to:

- d1- Manage working in groups and Leadership
 d2- Essays, reports and presentations preparation
 d3- Logical Thinking in real time problem solving
 d4- Communication skills and teamwork skills
 d5- Practice teamwork skills

4- Course contents

Topics/units	Number of hours		ILO's
	Lecture hours	Practical hours	
Introduction to database and explain database versus files system and database users	2	2	a1,a2,b2,c3,d1
Database concepts, characteristics of database approach	2	2	a1,a2
The three levels of the DB architecture	2	2	a3,c3
Simplified architecture of database system (Entity types, entity sets, attributes and keys)	2	2	b1,b2,c3
Database design: data modeling using entity relationship (ER) model and ER model concepts	2	2	a4,b1,c4
Mid-semester exam			
Relationships: relationship types, relationship degree, recursive relationships and cardinal ratios,	2	2	a4,b1,c4
Database Normalization	2	2	b5,c1,d3
Structured Query Language	2	2	a6
Review	2	2	c4,d2,d3,d4
End of semester exam			

5- Teaching and learning methods

Methods	ILO's																			
	a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	c1	c2	c3	c4	c5	d1	d2	d3	d4	d5
Lectures	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓					
Training visits							✓	✓	✓	✓										
Practical sections							✓	✓		✓		✓	✓	✓						
Self-learning								✓	✓				✓							
Summer training																				
Assays and reviews		✓						✓		✓				✓						
Discussion groups																				

6- Teaching and learning methods for Low-achieving students

- Extra teaching hours for those who need help
- Use non simulation hybrid e-learning: (videos, presentation, or pdf files uploaded)
- More quizzes to assess their ability for understanding the course
- Encourage the team work for those students with other advanced ones to increase their participation and understanding

7- Student assessment

Assessment method	Time	Grade weight (%)	ILOs
Written exam		60%	
Practical exam		15%	
Oral exam			
Mid-term exam		10%	
Others		15%	

8-List of references

8.1. Student notebooks:

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8.2. Essential textbooks:

Fundamentals of Database Systems, Ramez Elmasri, Shamkant B. Navathe, 7th edition, ISBN-13: 9780133970777, Pearson, 2015.

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8.3. Recommended textbooks:

Database Management systems (3rd ed.), Ramakrishanan, R., and Gehrke, J., ISBN-13: 978-0071231510, McGraw-Hill: New York, 2003.

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8.4. Journals, Periodical and Reportsetc.

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8.5. Websites

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Date: