



Course Specification

Course Name: [Database Systems - 1]

Course Code: [IS211]

I. Basic Course Information

Major or minor element of program: [General]

Department offering the course: Information Systems Department

Academic level: [200 Level]

Semester in which course is offered: [Second (spring) Semester]

Course pre-requisite(s): [CS213 [Data Structures]]

Credit Hours: 3

Contact Hours Through:

Lecture	Tutorial *	Practical *	Total
2.5	0.0	1.5	4.0

* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: January 2015

II. Overall Aims of Course

[This course introduces basic concepts of database systems. The students will learn how to design, construct and manage databases. They will also learn the different components of a database management system, the database development process, the relational data model, database construction and management, and how to use Structured Query Language (SQL). Students will gain hands-on experience to understand the concepts and techniques for designing and implementing forms, queries, reports and using a popular database management system (DBMS) and object oriented programming language.]

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K2,K3,K4]	[I4,I7,I9]	[P3,P4,P8]	[G2,G3,G6,G9]



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IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

On completing the course, students should be able to:

- K.1 Explain the specifications and components of Database systems.
- K.2 Illustrate the functionalities of Database management systems.
- K.3 Show the relational data model.
- K.4 Explain the relational algebra as a formal language to manipulate relational data.
- K.5 Use SQL language to define and manipulate relational databases.
- K.6 Use Entity Relationship Model to design databases.
- K.7 Learn data modeling and database designing.
- K.8 Convert ER Models to relational models.
- K.9 Normalize database tables.]

b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

- I.1 Convert data models.
- I.2 Formulate relational algebra expressions/SQL statements.
- I.3 Understand the correspondence between Relational algebra and SQL.
- I.4 Express real world environment in data models (database design skills).
- I.5 Normalize step by step.]

c. Practical/Professional Skills

On completing the course, students should be able to:

- P.1 Form and use Structured Query Language (SQL) in database construction and data manipulation.
- P.2 Hand on some well-known database management systems.
- P.3 Design database using specific software.
- P.4 Form design and implement database.
- P.5 Reports design and implement database.
- P.6 Retrieve different types of data and information.]

d. General and Transferable Skills

On completing the course, students should be able to:

- G.1 Enhance project management skills.
- G.2 Enhance work presentation skills.
- G.3 Enhance problem solving skills.
- G.4 Enhance communication skills.
- G.5 Enhance teamwork skills.
- G.6 Enhance data and information retrieval skills.]



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V. Course Matrix Contents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	[Introduction to database systems]	[1]	[K1]	[]	[P1,P2]	[]
2-	[File processing and database systems]	[1]	[K2]	[I1]	[]	[G1,G2,G6]
3-	[Database system components and characteristics]	[1]	[K3]	[I2,I3]	[P3]	[G3,G6]
4-	[Relational data model]	[1]	[K4]	[I3]	[]	[G4]
5-	[Relational Algebra and an introduction to SQL]	[2]	[K5]	[I4]	[P4,P5,P6]	[G5,G6]
6-	[The Entity Relationship Model]	[2]	[K6]	[I5]	[]	[]
7-	[Data modelling and database designing]	[2]	[K7]	[]	[P5,P6]	[]
8-	[Converting ER model to relational model]	[2]	[K8]	[I2,I3]	[P5,P6]	[G5]
9-	[Database tables and normalization]	[1]	[K9]	[]	[P6]	[]
	Net Teaching Weeks	13				

VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours *
1	[Introduction to Database Systems]	[2.5]	[2.5]	[]
2	[File Processing and Database Systems]	[4]	[2.5]	[1.5]
3	[Relational Data Model]	[4]	[2.5]	[1.5]
4	[Relational Data Model]	[4]	[2.5]	[1.5]
5	[Relational Algebra]	[4]	[2.5]	[1.5]
6	[Introduction to SQL]	[4]	[2.5]	[1.5]
7	Midterm Exam			
8	[The Entity Relationship Model]	[4]	[2.5]	[1.5]
9	[The Entity Relationship Model]	[4]	[2.5]	[1.5]
10	[Data Modelling]	[4]	[2.5]	[1.5]
11	[Database Engineering]	[4]	[2.5]	[1.5]
12	[Converting ER Model to Relational Model]	[4]	[2.5]	[1.5]
13	[Converting ER Model to Relational Model]	[4]	[2.5]	[1.5]
14	[Database Tables and Normalization]	[4]	[2.5]	[1.5]
15	Final Exam			
Total Teaching Hours		51	33	18

* No Practical/Tutorial during the first week of the semester



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VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	X	All	All		
Tutorials	X			P1,P2,P3,P6	
Computer lab Sessions	X			All	All
Practical lab Work	X			P2,P3,P4,P5,P6	All
Reading Materials	X	All			
Web-site Searches					
Research & Reporting					
Problem Solving / Problem-based Learning					
Projects					
Independent Work					
Group Work	X			All	
Case Studies	X		I1,I2	P1,P4,P6	
Presentations	X	All			
Simulation Analysis					
Others (Specify):					

VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	X	All	All	P1,P4		10%	7
Final Exam	X	All	All	P1,P4		60%	15
Quizzes	X	All	All	P1,P4		5%	10
Course Work	X	K3,K5,K6,K7,K8,K9		All		10%	3,5,8,10
Report Writing							
Case Study Analysis							
Oral Presentations							
Practical	X		I1,I2,I3	P1,P2,P3,P4		10%	4,6,9,11
Group Project	X				All	5%	12
Individual Project							
Others (Specify):							



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IX. List of References

Essential Text Books	<ul style="list-style-type: none">• [Ramez Elmasri and Shamkant B. Navathe, " Fundamentals of Database Systems", Addison Wesley, Version 5]
Course notes	<ul style="list-style-type: none">• [None]
Recommended books	<ul style="list-style-type: none">• [Connolly & Begg " Database Systems, A practical approach to design, implementation, and management", Addison Wesley]
Periodicals, Web sites, etc ...	<ul style="list-style-type: none">• [None]

X. Facilities required for teaching and learning

<p>List the facilities required</p> <ul style="list-style-type: none">• Computer laboratories• Computer software :<ul style="list-style-type: none">• SQL Server (as Database management system)• Power Designer (as CASE tool for ERD designing)• Visual Studio.NET: using C# to create and design forms and reports]
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Course coordinator:[Dr. Hanan Moussa]

Head of Department:[Ass. Prof. Ehab Ezzat]

Date: January 2015