

Detailed Course Description - Course Plan Development and Updating Procedures/ Computer Information Systems Department	QF01/0408-3.0E
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Faculty	Faculty of Science and Information Technology	Department	Computer Information Systems
Course Number	0113241	Course Title	Databases
Number of Credit Hours	3	Pre-Requisite/Co-Requisite	Object Oriented Programming

Brief Course Description

Introduction to database: characteristics of DB approach, components of DB systems, DB architecture, data modeling, database users and administrators. Relational model, SQL programming, Relational-Algebra, Entity-Relationship model, introduction to object oriented database and UML, relational database design, functional dependency and normalization, , practical applications using a standard relational DB system .

Course Goals and Learning Outcomes	
Goal 1	List and explain the fundamental concepts of a relational database system and utilize a wide range of features available in a DBMS package.
Learning Outcomes	1.1 Differentiate database systems from file systems by enumerating the features provided by database systems and describe each in both function and benefit 1.2 Understand and evaluate the role of database management systems in information technology applications within organizations. 1.3 Design a database system.
Goal 2	Analyze database requirements and determine the entities involved in the system and their relationship, and develop the logical design of the database using entity-relationship diagrams
Learning Outcomes	2.1 Understand data modeling and database development process 2.2 Develop logical data models 2.3 Design entity-relationship diagrams to represent simple database application scenarios
Goal 3	Manipulate a database using SQL.
Learning Outcomes	3.1 Understand the SQL data definition and SQL query languages 3.2 Develop sophisticated queries to extract information from large datasets 3.3 Convert entity-relationship diagrams into relational tables, populate a relational database and formulate SQL queries on the data
Goal 4	Provide details about normalization and create a relational database using a relational database package
Learning Outcomes	4.1 Construct and normalize conceptual data models 4.2 Review a database design and improve the design by normalization 4.3 Use database management systems such as Microsoft Access and Oracle SQL Plus

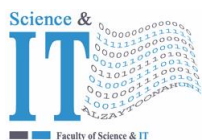
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Textbook	DataBase System Concepts, 6 th edition, McGraw Hill Book Company, 2013, by Abraham Silberschatz, Henry F.Korth and S.Sudarshan.
Supplementary References	<ol style="list-style-type: none"> 1. Database Systems: Design, Implementation, and Management", 11th Edition. 2015, by Carlos Coronel , Steven Morris . 2. Database Design and Relational Theory: Normal Forms and All That Jazz, 1st edition, O'Reilly Media, Inc. 2012, by C.J Date. 3. Fundamentals of Database Systems, 7th Edition, Pearson,2015, by Ramez Elmasri , Shamkant B. Navathe.

Course Timeline				
Week	Number of Hours	Course Topics	Pages (Textbook)	Notes
01	1 1 1	Introduction to Database systems <ul style="list-style-type: none"> - Purpose of database systems - View of data & Database languages. - Relational Databases - Database design. 	1-20	Chapter 1
02	1 1 1	Introduction to Database systems (cont) <ul style="list-style-type: none"> - Data storage and querying. - Transaction management. - Database users and administrators - Database architecture. - Data mining and information retrieval. 	20-33	Chapter 1
03	1 1 1	Introduction to the Relational model <ul style="list-style-type: none"> - Structure of relational database. - Database Schema & Schema diagrams. - Keys. - Relational Query Languages. 	39-48	Chapter 2
04	1 1 1	Relational Operations <ul style="list-style-type: none"> - Select, project, rename and set operations - The join operations. - Aggregate functions. 	48-52 218-239	Chapter 2 +Chapter6
05	1 1 1	Introduction to SQL <ul style="list-style-type: none"> - SQL Data definition. - Basic structure of SQL queries. - Additional Basic Operations. 	57-79	Chapter 3
06	1 1 1	Introduction to SQL (cont) <ul style="list-style-type: none"> - Set Operations. - Aggregate functions - Nested Sub queries. - Modification to database. <p style="text-align: center;">First Exam.</p>	79-107	Chapter 3

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07	1 1 1	Intermediate SQL - Join Expressions. - Views. - Integrity constraints. -SQL Data Types and Schemas. - Authorizations.	113-152	Chapter 4
08	1 1 1	Advanced SQL -Accessing SQL from programming language. - Triggers.	157-187	Chapter 5
09	1 1 1	Database Design and the E-R model. -Overview of the Design process. -The Entity-Relationship Model - Attributes & Constraints. - E-R diagrams. - Week entity sets.	259-283	Chapter 7
10	1 1 1	Database Design and the E-R model (Cont) - Reduction to Relational Schemas. - Entity-Relationship Design Issues.	283-295	Chapter 7
11	1 1 1	Database Design and the E-R model (Cont) - Extended E-R Features. - Alternative Notations for Modeling Data & UML. - Other Aspects of Database Design	295-315	Chapter 7
12	1 1 1	- Design entity-relationship diagrams. (an enterprise) - Convert entity-relationship diagrams into relational tables. (an enterprise) Second Exam	Example	
13	1 1 1	Relational Database Design - Features of Good Relational Designs. - Atomic Domains and First normal form - Decomposition using Functional dependencies.	323-238	Chapter 8
14	1 1 1	Relational Database Design (cont) Functional-Dependency theory - Closure set of functional dependency. - Canonical Cover.	338-348	Chapter 8
15	1 1 1	Relational Database Design (cont) - Algorithms for Decomposition. - Decomposition using Multivalued Dependancies. - More normal forms. - Database design process.	348-369	Chapter 8
16	1 1 1	Projects Discussion Final Exam		



جامعة الزيتونة الأردنية
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"عراقة وجودة"
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Theoretical Course Evaluation Methods and Weight	Participation = 10% First Exam 20% Second Exam 20% Final Exam 50%	Practical (Clinical) Course Evaluation Methods	Semester Students' Work = 50% (Reports, Research, Quizzes, Etc.) Final Exam = 50%
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Approved by Head of Department		Date of Approval	
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Extra information (to be updated every semester by corresponding faculty member)

Name of Teacher		Office Number	
Phone Number (Extension)		Email	_____@zuj.edu.jo
Office Hours			