



University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Computing and Information Technology
Program: B. Sc. In Computer Science, Information Systems, and Software Engineering

Form no. (12)
Course Specification

1- Course Data

Course Code: IS273	Course Title: Database Systems	Academic Year/Level: 2 /4
Specialization: Information Systems	No. of Instructional Units: Lecture 2 Practical 2	

2- Course Aim	To develop analysis skills in the design and analysis of database systems with applications to the market and some real life problems.
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3- Intended Learning Outcome

a- Knowledge and Understanding	<p>Students will be able to:</p> <p>K2. Modeling and design of computer-based systems bearing in mind the trade-offs. K5. The extent to which a computer-based system meets the criteria defined for its current use and future development.</p> <ul style="list-style-type: none"> • Define the database and the need of it • Explain problems with file systems, and database systems advantages • Define relational algebra and how to deal with it • Explain how to analyze the Word problems into an ERD • Analyze some word problems to get an ERD • Discuss the conversion into a relational Model • Discuss the Data Redundancy problems • Explain first, second and third normal form • Discuss Boyscodd Normal Form • Differentiate between the two normalization methods • Define XML • Describe trees building • Define concurrency control and the need for mutual exclusion
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b- Intellectual Skills	<p><u>By the end of the course, the student acquires high skills and an ability to:</u></p> <p>I4 Analyze, propose and evaluate alternative computer systems and processes taking into account limitations, and quality constraints.</p> <p>I11. Perform comparisons between (algorithms, methods, techniques...etc).</p> <p>I13. Identify attributes, components, relationships, patterns, main ideas, and errors.</p> <ul style="list-style-type: none"> • Discuss the Functional Dependencies • Convert the ERD to a Relational Model • Classify the degree of an ERD as the first, second or Third normal form • Simplify the ERD to get the Third Normal Form • Simplify the ERD to get the most normalized form using BCNF • Differences between the two normalization methods • Exercise on the XML using and building
c- Professional Skills	<p><u>By the end of the course the student will have the ability to:</u></p> <p>P2. Implement comprehensive computing knowledge and skills in projects and in deployment of computers to solve position practical problems.</p> <p>P4. Apply computing information retrieval skills in computing community environment and industry.</p> <p>P8. Handle a mass of diverse data, assess risk and draw conclusions.</p> <p>P9. Use appropriate programming languages, web-based systems and tools, design methodologies, and knowledge and database systems.</p> <ul style="list-style-type: none"> • Solve relational algebraic problems • Draw an ERD from a word problem • Build simple queries using Oracle. • Build tables using Oracle. • Exercise to build a whole database using Oracle • Write XML files
d- General Skills	<p>Students will be able to:</p> <p>G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.</p> <p>G3. Show the use of information-retrieval.</p> <p>G7. Show the use of general computing facilities.</p> <ul style="list-style-type: none"> • Verify theory with practice(Project First Stage) • Verify theory with practice(Project Second Stage) • Verify theory with practice(Project Third Stage)

	<ul style="list-style-type: none"> • Verify theory with practice on the project(Project Fourth Stage) • Verify with practice on project (Project Pre-Final Stage) <p>Project Final stage.</p>						
4- Course Content	<ul style="list-style-type: none"> • Introduction to Database systems • File systems Vs. Automated Systems • Relational Algebra • ERD • Relational Model • Normalization • BCNF • XML • Transaction Management • Presentation of projects 						
5- Teaching and Learning Methods	<ul style="list-style-type: none"> - Lectures - Tutorials - Reports & sheets - Laboratories 						
6- Teaching and Learning Methods for Students with Special Needs	<ul style="list-style-type: none"> • Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504) • Consulting with lecturer during office hours. • Consulting with teaching assistant during office hours. • Private Sessions for redelivering the lecture contents. <p>For handicapped accessibility, please refer to program specification</p>						
7- Student Assessment:							
a- Procedures used:	<p>1-Written Examinations</p> <p>2-Class Activities (Reports, Discussions, -----)</p>						
b- Schedule:	<table> <tr> <td>Assessment 1</td> <td>7th Week Written Exam</td> </tr> <tr> <td>Assessment 2</td> <td>12th Week Written Exam</td> </tr> <tr> <td>Assessment 3</td> <td>Continuous</td> </tr> </table>	Assessment 1	7 th Week Written Exam	Assessment 2	12 th Week Written Exam	Assessment 3	Continuous
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Assessment 2	12 th Week Written Exam						
Assessment 3	Continuous						

	Assessment 4	16 th Week Final Written Exam
c- Weighing of Assessment:	7 th Week Examination	25%
	12 th Week Examination	15%
	Final-term Examination	40%
	Practical Examination	10%
	Semester Work	10%
	Total	100%
8- List of References:	-	
a- Course Notes	-	
b- Required Books (Textbooks)	Connolly, Thomas, <i>Database Systems: A Practical Approach</i> , 3 rd Edition, Addison Wesley, 2003.	
c- Recommended Books	Ramakrishnan, R., <i>Database Management Systems</i> , 3rd Edition, McGraw-Hill, 2003.	
d- Periodicals, Web Sites, ..., etc.	-	

Course Instructor

Name:

Signature:

Head of Department

Name:

Signature: