



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

Course title	Database Systems
Course code	IS273

Form no. (11A) Knowledge and skills matrix for a course

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Introduction to Database systems	1	<ul style="list-style-type: none"> Define the database and the need for it. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
File systems Vs. Automated Systems	2	<ul style="list-style-type: none"> Explain problems with file systems, and database systems advantages. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Building simple queries using Oracle. 	<ul style="list-style-type: none"> Verify theory with practice(First Stage)
Relational Algebra	3	<ul style="list-style-type: none"> Define relational algebra and how to deal with it. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Solve relational algebraic problems. 	<ul style="list-style-type: none">
ERD	4	<ul style="list-style-type: none"> Explain how to analyze the Word problems into an ERD 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Draw an ERD from a word problem. 	<ul style="list-style-type: none">
ERD, Cont'd	5	<ul style="list-style-type: none"> Analyze some word problems to get an ERD 	<ul style="list-style-type: none"> Discuss the Functional Dependencies 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Verify theory with practice(Second Stage)
Relational Model	6	<ul style="list-style-type: none"> Discuss the conversion into a relational Model 	<ul style="list-style-type: none"> Convert the ERD to a Relational Model 	<ul style="list-style-type: none"> Hands on to build tables using Oracle. 	<ul style="list-style-type: none"> Verify theory with practice(Third Stage)

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
7 th week Exam + Relational Design	7	•	•	•	•
Normalization	8	• Discuss the Data Redundancy problems	• Classify the degree of an ERD as the first, second or Third normal form	• Exercising to build a whole database using Oracle	•
Normalization, Cont'd.	9	• Explain first, second and third normal form	• Simplify the ERD to get the Third Normal Form	•	• Verify theory with practice on the project(Fourth Stage)
BCNF	10	• Discuss Boyscodd Normal Form	• Simplify the ERD to get the most normalized form using BCNF.	•	•
BCNF, Cont'd.	11	• Differentiate between The two normalization methods.	• Differentiate between the two normalization methods	•	• Verify with practice on project (Pre-Final Stage)
12 th week Exam + Revision	12	•	•	•	•
XML	13	• Define XML •	•	• Write XML files	• Verify with practice Exercise.
XML, Cont'd	14	• Describe trees building	• Exercise on the XML using and building	•	• Verify with practice Exercises
Transaction Management	15	• Define concurrency control and the need for mutual exclusion.	•	•	•

Course Instructor

Name:

Signature:

Head of Department

Name:

Signature:

