

Arab Academy for Science and Technology and Maritime Transport
Information Systems Curriculum
Course Syllabus

Course Code: IS273	Course Title: Database Systems	Classification:	Coordinator's Name: Dr Nahla Belal Lecturer:	Credit Hours: 3
Pre-requisites: CS143 (Introduction to Problem Solving and Programming)	Co-requisites: None	Schedule: Lecture: 2 hours Lab: 2 hours		
Office Hours:				
Course Description: The course covers topics related to the analysis, design, and normalization of relational databases. Case studies are analyzed and discussed on each concept. Hands on implementation skills using SQL are covered including: data definition, data modification, SQL queries and subqueries. Implementation skills are practiced on ORACLE database management system. Advanced topics such as concurrent transactions are discussed along with related problems. Students also learn about additional Data Bases support for special data types such as Extensible Mark-Up Language (XML) documents.				
Textbook: Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom, <i>Database Systems: The Complete Book</i> , Prentice Hall				
References: <ol style="list-style-type: none"> 1. R. Elmasri and S. Navathe, <i>Fundamentals of Database Systems</i>, Benjamin-Cummings. 2. C. J. Date, <i>An Introduction to Database Systems</i>, Addison Wesley. 3. R. Ramakrishnan, J. Gehrke, <i>Database Management Systems</i>, McGraw-Hill. 				
Course Objective/Course Learning Outcome:			Contribution to Program Student Outcomes:	

<ol style="list-style-type: none"> 1. Understand the fundamental concepts of database and database management systems, and historical roots of database. 	<p>SO1 - Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.</p>
<ol style="list-style-type: none"> 2. Understand conceptual database design using Entity-Relationship modeling. 3. Understand database design methodology using normalization 4. Design a database system for a real-world problem. 	<p>SO2 - Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.</p>
<ol style="list-style-type: none"> 5. Learn about SQL data modification and data definitions. 6. Write SQL queries and sub queries. 7. Implement and verify a database system using ORACLE. 	<p>SO2 - Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.</p> <p>SO6 - Support the delivery, use, and management of information systems within an information systems environment.</p>
<p>Course Outline:</p> <ol style="list-style-type: none"> 1. Course Description and Introduction 2. The Entity Relationship Model 3. The Entity Relationship Model continued 4. Constraints in ERMs 5. The Relational Model 6. Case Study 7. 7th Week Examination 8. Normalization 	<ol style="list-style-type: none"> 9. SQL and Relational Algebra 10. SQL and Relational Algebra continued 11. SQL DDL and DML 12. 12th Week Examination 13. SQL Queries and Sub Queries 14. SQL Queries and Sub Queries continued 15. Revision 16. Final Examination
<p>Grade Distribution:</p> <p><u>7th Week Assessment (30%):</u> Exam (20%) + Project Scenario, ERD, and Schema 10%</p> <p><u>12th Week Assessment (20%):</u> Exam (15%) + Project Normalization 5%</p> <p><u>Coursework (10%):</u> Lab Project on ORACLE (10%)</p> <p><u>Final Exam (40%)</u></p>	

Policies:

Attendance:

AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:

AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:

Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)