Course Syllabus

A. COURSE INFORMATION AND TEACHING STAFF

1. Course	Name	INTRODUCTION TO DATABASE
	Code	240113121
	Activity	Lecture
	Credit hours	3
	Semester	Spring 2023/2024
	Pre-requisite	240111050 PROGRAMMING FUNDAMENTALS I FOR IT

2. Teaching staff, time and location	Section	Building	Room	Day	Time	Instructor	Office hours
	1	MS	404	N	08:00-09:15	Zeina Mamun Mahmoud Daghlas Zeina.Daghlas@aaup.edu	N 10:00 - 11:20 Th 14:01 - 16:00
		MN	109	T	08:00-09:15		

B. COURSE POLICIES

1. Commitment and Attendance

Attendance is required; and university regulations in this regard are strictly applied. It is important to note the following:

1. The student is expected to follow all announcements issued by the university, faculty, department as well as the course instructor through the official channels. It is the student's full responsibility to get aware of these announcements and to react accordingly.
2. The student has to communicate electronically with the course instructor, whenever needed, through the official channels exclusively which are limited to the AAUP email and Moodle messages only.
3. The student is expected to attend all classes* and to arrive at classroom on time.
4. If the instructor is late for class, the student must wait for at least 10 minutes before leaving the classroom.
5. Absence by more than 25% of classes leads to an automatic withdrawal from the course (the grade W is assigned).
6. The use of mobile phones or any other smart electronic devices is strictly prohibited during classes.

*a class refers to a lab session in case of labs.

2. Performance of assessment activities

The student must perform all course assessment activities, i.e. assignments, quizzes, exams etc. It is important to note the following:

1. Absence from an exam or a quiz other than the final exam leads to a zero mark in that exam or quiz. An exception allowing a makeup is made for a student submitting a legitimate excuse that is accepted by the instructor in a timely manner.
2. Absence from the final exam leads to an FA grade that eventually turns to an F grade. An exception allowing a makeup exam is made if the student submits an official excuse that is accepted by the Academic Affairs in compliance with the university regulations.
3. Late policy is applied if the student fails to submit his/her assignments and/or projects in due time.

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3. Academic Integrity	The student is expected to be honest during the performance of assessment activities. While not limited to the list below, the following actions are examples of cheating: 1. Copying from other students. 2. Using materials that are not authorized by the proctor during quizzes or exams. 3. Collaborating with other students during quizzes or exams. 4. Stealing or buying the content of exams, quizzes, and assignments. 5. Stealing ideas and work of others and presenting them as that of the student (known in academia as plagiarism). 6. Using mobile phones or any other smart electronic devices during quizzes or exams.	
4. Grading	A	4.00
	A-	3.67
	B+	3.33
	B	3.00
	B-	2.67
	C+	2.33
	C	2.00
	C-	1.67
	D+	1.33
	D	1.00
	F	0.35

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5. Learning and teaching methods	Lectures	Class sessions involve lectures, video shows, case studies, discussions, debates, and power-point presentations on topics and current issues related to the course contents.
	Readings	This must be a key responsibility to each student. Students should read the relevant parts of the textbook and other materials before class. They should be prepared to raise questions and to get engaged in arguments on related topics in the class schedule.
	In class learning activities	Students are encouraged to learn actively individually and cooperatively in groups. Students are expected to engage with the material, participate in the class, and collaborate with each other. Students will be asked to analyze an argument, demonstrate role play, discuss case studies, make presentations, or apply a concept to a real-world situation.
	Outside class learning activities	The course instructor assigns projects and home assignments to students individually or in groups.
	Feedback	The instructor provides the students with feedbacks on their performance throughout the course, which can help them to realize their weaknesses and work harder to improve their performance.
	Online learning	Online learning platforms are utilized to provide students with additional resources as well as a continuous access to the course material beyond the classroom.

C. COURSE DETAILS

1. Course description & purpose	This course acquaints students with the technicalities of the most prominent database systems. Students learn about essential terminologies and are introduced to real-world, hands-on techniques and examples. Students learn about the different database models with emphasis on relational database model. These are the systems that are most commonly used by companies and organizations today. Essentials of the model are deciphered and components of the model are further scrutinized, including entity-relationships, functional dependencies and normalization, and database languages. finally, an introduction to SQL language is provided.

2. CSLOs		**Upon the completion of the course, students will be able to achieve the following learning outcomes:**
	CSLO1	Explain database components and DBMS
	CSLO2	Construct Relational Algebra expressions
	CSLO3	Describe the development life cycle of a Database System
	CSLO4	Analyze Entity Relationship Diagram (ERD) concepts.
	CSLO5	Develop and demonstrate the relational data model, Install, configure, and interact with a relational database management system and apply many techniques in creating a database.

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2. CSLOs		**Upon the completion of the course, students will be able to achieve the following learning outcomes:**
	CSLO6	Apply SQL concepts

4. CSLOs assessment

Outcomes	CSLO 1	CSLO 2	CSLO 3	CSLO 4	CSLO 5	CSLO 6
- Final Exam	√		√	√		√
- Mid. Term	√	√		√		
- Project					√	√
- Quiz		√		√		

5. Assessments

Assessment tool	Weight %	CSLOs	Due week
Quiz	**10%**	2,4	6
Mid. Term	**30%**	1,2,4	8
Project	**10%**	5,6	14
Final Exam	**50%**	1,3,4,6	15
Total	**100%**		

6. Course schedule

Week	Topics	Study material	Assignment	CSLOs
1	• Introduction to Databases and Database Applications. • Basic Definitions (data, DB, DBMS and DBS). • Types of Database Users	Textbook Fundamentals of Database System (Chapter 1)		1

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	Week	Topics	Study material	Assignment	CSLOs
6. Course schedule	2	• Main Characteristics of the Database Approach. • Advantages of Using the Database Approach.	Textbook Fundamentals of Database System (Chapter 1+2)		1
	3	Database System Concepts and Architecture (Data models, Data independence, DBMS languages, Database system environment and classification of DBMS).	Textbook Fundamentals of Database System (Chapter 2)		1
	4	The Relational Data Model and Relational Database Constraints (Definitions, Characteristics of relations, Domain constraints, Key constraints, Entity integrity, and referential integrity)	Textbook Fundamentals of Database System (Chapter 3)		1
	5	The Relational Algebra (Unary Relational Operations, Relational Algebra Operations from Set Theory, Binary Relational Operations and Additional Relational Operations)	Textbook Fundamentals of Database System (Chapter 6)		2
	6	The Relational Algebra. Cont…	Textbook Fundamentals of Database System (Chapter 6)		2
	6	Quiz	Textbook Fundamentals of Database System (Chapter 6)		2,4
	7	Data Modeling Using the Entity-Relationship (ER) Model. - Conceptual Data Models for Database Design - Entity Types, Entity Sets, Attributes, and Keys - Relationship Types, Relationship Sets, Roles, and Structural Constraints	Textbook Fundamentals of Database System (Chapter 7)		4
	8	- Weak Entity Types - ER Design for the COMPANY Database - ER Diagrams, Naming Conventions, and Design Issues - Relationship Types of Degree	Textbook Fundamentals of Database System (Chapter 7)		4,5

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	Week	Topics	Study material	Assignment	CSLOs
6. Course schedule	8	Mid. Term	Textbook Fundamentals of Database System		1,2,4
	9	Basic Structured Query Language (SQL) • SQL Data Definition and Data Types. • Basic Retrieval Queries in SQL. • INSERT, DELETE, and UPDATE Statements in SQL • Additional Features of SQL	Textbook Fundamentals of Database System (Chapter 4)		6
	10	More SQL: Complex Queries, Views, and Schema Modification. • More Complex SQL Retrieval Queries • Specifying Constraints as Assertions and Actions as Triggers. • Views (Virtual Tables) in SQL	Textbook Fundamentals of Database System (Chapter 5)		6
	11	More SQL: Complex Queries, Views, and Schema Modification. • More Complex SQL Retrieval Queries • Specifying Constraints as Assertions and Actions as Triggers. • Views (Virtual Tables) in SQL	Textbook Fundamentals of Database System (Chapter 5)		6
	11	• Basics of Functional Dependencies • Informal Design Guidelines for Relation Schemas • Functional Dependencies	Textbook Fundamentals of Database System (Chapter 15)		5
	12	• Basics of Functional Dependencies • Informal Design Guidelines for Relation Schemas • Functional Dependencies	Textbook Fundamentals of Database System (Chapter 15)		5
	13	Normalization for Relational Databases. • Normal Forms Based on Primary Keys • General Definitions of Second and Third Normal Forms	Textbook Fundamentals of Database System (Chapter 15)		4,5

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	Week	Topics	Study material	Assignment	CSLOs
6. Course schedule	14	Normalization for Relational Databases. • Normal Forms Based on Primary Keys • General Definitions of Second and Third Normal Forms	Textbook Fundamentals of Database System (Chapter 15)		4,5
	14	Project			5,6
	15	Final Exam	Textbook Fundamentals of Database System		1,3,4,6
	16	Normalization for Relational Databases. • Normal Forms Based on Primary Keys • General Definitions of Second and Third Normal Forms	Textbook Fundamentals of Database System (Chapter 15)		4,5

D. COURSE MATERIAL	
1. Textbook	Fundamentals of Database Systems, 7th Edition 2016. Elmasri, Navathe
2. Reference material	Database System Concepts, *Sixth Edition,* Silberschatz, Korth. Sudarshan,
3. Internet resources	https://www.w3schools.com/sql/default.asp