Department of Business Administration

Course Outline & Schedule

Faculty Name: Ahmed Imran Kabir Email: iamahmedimrankabir@gmail.com	Semester: Fall 2018
Course Title: Database Management	Course Code : MIS 4182 Credit Hours:03
Course Category : Major	Program: Bachelor Of Business Administration.
Class Duration: 1 Hour 30 Minutes Venue: Computer Lab 1; Room 0226	Time Slot: SAT & TUE- 10:05am-11:35am (A) SUN & WED- 11:40am- 1:10pm (B)

Course Objective: Provides fundamental knowledge of, and practical experience with, database concepts. Includes study of information concepts and the realization of those concepts using the relational data model. Practical experience gained designing and constructing data models and using SQL to interface to both multi-user DBMS packages and to desktop DBMS packages.
Course Outcome: Upon successful completion of the course, the student will be able to: 1. Differentiate database systems from file systems by enumerating the features provided by database systems and describe each in both function and benefit.

2. Define the terminology, features, classifications, and characteristics embodied in database systems.
3. Analyze an information storage problem and derive an information model expressed in the form of an entity relation diagram and other optional analysis forms, such as a data dictionary.
4. Demonstrate an understanding of the relational data model.
5. Transform an information model into a relational database schema and to use a data definition language and/or utilities to implement the schema using a DBMS.
6. Formulate, using relational algebra, solutions to a broad range of query problems.
7. Formulate, using SQL, solutions to a broad range of query and data update problems.
8. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
9. Use an SQL interface of a multi-user relational DBMS package to create, secure, populate, maintain, and query a database.
10. Use a desktop database package to create, populate, maintain, and query a database.
11. Demonstrate a rudimentary understanding of programmatic interfaces to a database and be able to use the basic functions of one such interface.

Teaching techniques: Discussion on the theoretical background of each topic, in- class problem solving after completion of each topic, relevant / similar problems will be assigned for self practice.

Evaluation Policy:

Evaluation is comprised of:

Midterm Exam 25%

Final Exam 40%

Individual Assignments and /or quizzes 15% (To be announced on class)

Computer Based Group Assignment and presentation 15% (To be announced on class)

Attendance 5%

Required Text Book

Author	Title	Edition & Year	Publisher	ISBN
R. Elmasri and S. Navathe	Fundamentals of Database Systems	7th Edition, 2016	Pearson	ISBN-13: 978-0133970777

Lecture No:	Topic/ Content	Date
1	**Topic 1: Orientation/ Introduction** **Overview of the Lecture:** Understanding the course syllabus and structure Interactive question – Answer session after the discussion.	
2	**Topic 2: Chapter 1: Introduction to Database.** **Overview of the Lecture:** Term project selection and review, Term project team formation, Introduction to database management system. Interactive question – Answer session after the discussion.	
3	**Topic 3: Chapter 2: Database system concepts and architecture** **Overview of the Lecture:** Database system concepts, Term project team formation. Interactive question – Answer session after the discussion.	
4	**Topic 4: Chapter 3: Data modeling using ER model,** **Overview of the Lecture:** Data modeling with ER and UML. **Other topics:** Due: Team Projects: A vision statement and/or a scope definition for the term project. Objective of the vision/scope statement: Motivation and scope definition definition, the choice of a DBMS (e.g., mySQL?), system users (users and applications), interface choice (e.g., web-based?), storage and processing requirements. Also include team title, team members, a description of tentative roles for each member, team member skills, contact information, etc. Interactive question – Answer session after the problem- solving session. **Assignments:** Problem 3.21	
5	**Topic 5: Chapter 4: The enhanced ER (EER) model** **Overview of the Lecture:** Data modeling with ER and UML. Interactive question – Answer session after the problem- solving session.	
6	**Topic 6: Chapter 5: The relational data model** **Overview of the Lecture:** Solving relevant practical problems from the text book. Interactive question – Answer session after the problem- solving session **Assignments:** TBD	

	Other topics: Paper/workshop (special project) proposal is due	
7	**Topic 7: Chapter 5: The relational data model, Chapter 8: The relational algebra and relational calculus (will only cover the relational algebra, sections 8.1-8.5)** **Overview of the Lecture:** The relational model, the relational algebra notation Interactive question – Answer session after the problem- solving session **Assignments:** TBD	
8	**Topic 8: Chapter 6: Basic SQL** **Overview of the Lecture:** Introduction to SQL Interactive question – Answer session after the discussion.	
9	**Topic 9: Chapter 7: More SQL: Complex queries, triggers, views and schema modification, Chapter 9: Relational database design by ER- and EER-to-relational mapping** **Overview of the Lecture:** Advanced SQL, From ER to a relational model Interactive question – Answer session after the problem- solving session.	
10	**Topic 10: Chapter 14: Basics of functional dependencies and normalization for relational databases** **Overview of the Lecture:** Database design and normalization Interactive question – Answer session after the problem- solving session.	
11	**Review Class Before Mid-Term**	
12	****Mid-Term Examination****	
13	**Topic 11: Chapter 14: Basics of functional dependencies and normalization for relational databases** **Overview of the Lecture:** Database design and normalization Interactive question – Answer session after the discussion.	
14	**Topic 12: Chapter 15: Relational database design algorithms and further dependencies** **Overview of the Lecture:** Relational database design algorithms Interactive question – Answer session after the problem- solving session.	
15	**Topic 13: Chapter 30: Database security**	

	Overview of the Lecture: Database security	
	Interactive question – Answer session after the problem- solving session.	
16	**Topic 14: Chapter 30: Database security, Chapter 23: Distributed database concepts,**	
	Overview of the Lecture: Database security, Distributed databases	
	Interactive question – Answer session after the discussion.	
17	**Topic 15: Chapter 24: NOSQL databases and big data storage systems**	
	Overview of the Lecture: Non-SQL databases and big data storage	
	Interactive question – Answer session after the problem- solving session.	
18	**Topic 16: Chapter 20: Introduction to transaction processing concepts and theory**	
	Overview of the Lecture: Transaction processing	
	Interactive question – Answer session after the problem- solving session.	
19	**Topic 17: Chapter 21: Concurrency control techniques**	
	Overview of the Lecture: Concurrency control	
	Interactive question – Answer session after the discussion.	
20	**Topic 18: Chapter 22: Database recovery techniques.**	
	Overview of the Lecture: Database recovery	
	Interactive question – Answer session after the problem- solving session.	
21	**Topic 19: Chapter 26: Enhanced Data Models: Introduction to Active, Temporal, Spatial, Multimedia and Deductive Databases.**	
	Overview of the Lecture: Active, temporal, spatial, multimedia and deductive databases.	
	Interactive question – Answer session after the problem- solving session	
22	**Topic 20: Chapter 27: Introduction to Information Retrieval and Web-Search**	
	Overview of the Lecture: Webpage mining.	
	Interactive question – Answer session after the discussion.	
23	**Topic 21: Chapter 28: Data Mining Concepts**	
	Overview of the Lecture: Basic concepts about Data Mining	
	Interactive question – Answer session after the problem- solving session	

24	**Team Projects:** Presentations and demos; Project portfolios including the user's manuals. Presenttion objective: 15-minute presentation by each team to present the design (architecture and the rationale) for their database project and to demonstrate the best features of the project. The presentations normally should focus on the ER diagram (to provide a conceptual view), discuss the resulting relations (keys, attributes, etc.) and their normal form, a rationale for the normal form achieved, and a sampling of interesting SQL queries and their output. Review for the final exam	
25	**Review Class Before Final Exam**	
26	****Mid-Term Examination****	

Note: The instructor reserves the right to make changes to the syllabus if necessary.

			Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
			A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
			A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
			B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
			B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
			B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
27	**Grading Policy**					F (Fail)	<55	0.00