East West University
Department of Computer Science and Engineering
Course Outline of CSE301
Summer 2019 Semester

Course Information

Course: CSE301 Database Systems (Section 2, 3 and 4)

Credit and Teaching Scheme:

	Theory	Laboratory	Total
Credits	3	1	4
Contact Hours	3 Hours/Week for 13 Weeks	2 Hours/Week for 13 Weeks	5 Hours/Week for 13 Weeks

Prerequisite: CSE 205 Discrete Mathematics

Instructor Information

Instructor: **Khan Mohammad Habibullah**
SeniorLecturer
　　　　　Department of Computer Science & Engineering
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Teaching Assistant: TBA

Class Routine and Office Hour

Day	08:30-10:00	10:10-11:40	11:50-01:20	01:30-03:00	03:10-04:40	04:50-06:50
Sunday	CSE301(3)LAB Room-637	OFFICE	CSE301(1) Room-AB1-501	CSE301(1)LAB Room-637		
Monday				CSE301(2) Room-AB1-601	OFFICE	CSE301(2)LAB Room-637
Tuesday	CSE301(3) Room-111	OFFICE	OFFICE			
Wednesday				CSE301(2) Room-AB1-601	OFFICE	
Thursday	CSE301(3) Room-111	OFFICE	CSE301(1) Room-AB1-501			

Course Objective

This course introduces the fundamental concepts and practices of designing and implementing database system. It also enables the student to design and perform complex query operations on relational databases. It builds the capability of optimizing the databases efficiently by applying different techniques. Knowledge of this course will be needed as prerequisite knowledge for future courses such as CSE 411 Software Engineering and Information System Design, CSE 435 Software Quality Assurance, CSE 436 Multimedia Design and Development, CSE464 Advanced Database System, CSE480 Web Database Programming.

Course Outcomes (COs)

After completion of this course students will be able to:

CO1	**Understand** basic concepts of relational database and**construct** algebraic expressions to represent relations.
CO2	**Perform** and **analyze** different query operations for data manipulation activities.
CO3	**Use** and **examine** different models and optimization techniques to design and develop relational database system.
CO4	**Choose**appropriate tools, **demonstrate** skills and **write** report to design, build and test real life database applications.

Course Topics, Teaching-Learning Methods and Assessment Scheme

Course Topic	Teaching-Learning Method	CO	Marks of COs			Exam Marks
			C3	C4		
Introduction to Database Management Systems and Relational Model	Lecture, Class Discussion, Discussion Outside Class with Instructor/ Teaching Assistant	CO1	5		5	**Midterm Exam I (20)**
Writing Basic and Advanced Relational Algebra	Do	CO1	10		10	
Writing Basic and DDL and DML Queries using SQL (Structured Query Language)	Do	CO2	5		5	

Intermediate and Advanced SQL Queries such as Join, nested subqueries, views, authorization.	Do	CO2	7	3	10	**Midterm Exam II (20)**
Designing a Database using ER and EER Model	Do	CO3	5	5	10	
Database Normalization based on Functional Dependency, Boyce-Codd Normal Form	Do	CO3	2	5	7	**Final Exam (20)**
Database Indexing and Hashing Techniques	Do	CO3	5		5	
Transaction Management and Concurrency Control Protocols	Do	CO3	5	3	8	

Lab Exercises

Experiment	Teaching-Learning Method	CO	Mark of Cognitive Learning Levels	Mark of Psychomotor Learning Levels		Mark of Affective Learning Levels	CO Mark
			C3	P2	P3	A2	
Introduction to oracle, SQL, simple DDL Commands	Lab Experiment and Result Analysis,Post-Lab Report	CO4					
Basic query pattern, single row function, Simple DML queries	Do	CO4					
Introduction to group by clause, aggregate function	Do	CO4					
Introduction to sub-query, Including constraints	Do	CO4					

			Mark of Cognitive Levels		Mark of Psychomotor Levels		Mark of Affective Levels	Mark of COs
Lab Mid (Exam)	Individual Lab Exam	CO4	1	0.5	1.5	0.5		3.5
Joining Multiple Tables, Introduction to view & sequence	Do	CO4						
Designing a Database using an ER model	Do	CO4						
Transforming an ER model into a Relational Schema	Do	C04						
User Access Control & Projecttemplate discussion	Do	CO4						
Lab Exercises		CO4	2.0	2.0	3.0	1.0		8.0
Lab Final (Exam)	Individual Lab Exam	CO4	1.0	0.5	1.5	0.5		3.5
Total			**4.0**	**3.0**	**6.0**	**2.0**		**15.0**

Mini Project

Mini Project	Teaching-Learning Method	CO	Mark of Cognitive Levels		Mark of Psychomotor Levels		Mark of Affective Levels	Mark of COs
			C3	C4	P2	P3	A2	
Mini Project including Report and Presentation	Group-based moderately complex Project withreport writing, and oral/poster presentation	CO4	**2**	**2**	**2**	**2**	**2**	**10.0**

Overall Assessment Scheme

	CO				Assessment Area Mark
Assessment Area	CO1	CO2	CO3	CO4	
Class Participation	1.25	1.25	2.50		5
Class Test/Quizzes	2.50	2.50	5.00		10
Midterm Exam - I	15.00	5.00			20
Midterm Exam -II		10.00	10.00		20
Final Exam			20.00		20
Laboratory Experiments, Exam, and Lab Project				25.00	25
Total Mark	**18.75**	**18.75**	**37.50**	**25.00**	**100**

Teaching Materials/Equipment

Text Book:

AviSilberschatz, Henry F. Korth, S. Sudarshan, *Database System Concepts*, Sixth Edition, McGraw-Hill, ISBN 0-07-352332-1

Reference Book:
- Hector Garcia-Molina. Jeffrey D. Ullman and Jennifer Widom, *Database Systems: The Complete Book*, Stanford InfoLab (2nd edition)

- Thomas Connolly, Carolyn Begg, Database Systems: *A Practical Approach to Design, Implementation and Management,* Perason (6th edition)

Software/Tools:
- Oracle Database https://www.oracle.com/database/
- MySQL Database https://www.mysql.com/
- Other appropriate tools to design and develop a database application.

* Lecture Slides and Lab Manuals will be made available to the students during the class.

Grading System

Marks (%)	Letter Grade	Grade Point	Marks (%)	Letter Grade	Grade Point
97-100	A+	4.00	73-76	C+	2.30
90-96	A	4.00	70-72	C	2.00
87-89	A-	3.70	67-69	C-	1.70
83-86	B+	3.30	63-66	D+	1.30
80-82	B	3.00	60-62	D	1.00
77-79	B-	2.70	Below 60	F	0.00

Exam Dates

Section	Term I	Term II	Final
1	13 June 2019	11 July 2019	22 August 2019
2	12 June 2019	10 July 2019	21 August 2019
3	11 June 2019	09 July 2019	20 August 2019

Academic Code of Conduct

Academic Integrity:
Any form of cheating, plagiarism, personification, falsification of a document as well as any other form of dishonest behavior related to obtaining academic gain or the avoidance of evaluative exercises committed by a student is an academic offence under the Academic Code of Conduct and **may lead to severe penalties as decided by the Disciplinary Committee of the university.**

Special Instructions:

- Students are expected to attend all classes and examinations. A student MUST have at least 80% class attendance to sit for the final exam.
- Students will not be allowed to enter into the classroom after 10 minutes of the starting time.
- For plagiarism, the grade will automatically become zero for that exam/assignment.
- Normally there will be **NO make-up exam**. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student miss any exam, the student MUST get approval of makeup exam by written application to the Chairperson through the Course Instructor **within 48hours**of the exam time. Proper supporting documents in favor of the reason of missing the exam have to be presented with the application.
- For **final exam**, there will be NO makeup exam. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student miss the final exam, the student MUST get approval of **Incomplete Grade** by written application to the Chairperson through the Course Instructor **within 48 hours**of the final exam time. Proper supporting documents in favor of the reason of missing the final exam have to be presented with the application. **It is the responsibility of the student to arrange an Incomplete Exam within the deadline mentioned in the Academic Calendar in consultation with the Course Instructor**.
- All mobile phones MUST be turned to silent mode during class and exam period.
- There is **zero tolerance for cheating**in exam. Students caught with cheat sheets in their possession, whether used or not; writing on the palm of hand, back of calculators, chairs or nearby walls; copying from cheat sheets or other cheat sources; copying from other examinee, etc. would be treated as cheating in the exam hall. The only penalty for cheating is **expulsion for several semesters as decided by the Disciplinary Committee of the university**.