Shanghai Jiao Tong University

CS392 Database System

Instructor Information:	Xiangdong An Home Institution: University of Tennessee at Martin Email: xan@utm.edu Office Hours: Determined by Instructor		
Term:	December 16, 2019 - January 7, 2020	**Credits:**	4 units
Class Hours:	Monday through Friday, 160 mins per teaching day		
Discussion Sessions:	2 hours each week, conducted by teaching assistant(s)		
Total Contact Hours:	64 contact hours (1 contact hour = 45 mins, 2880 mins in total)		
Required Texts (with ISBN):	Textbook1: Coronel, C., & Morris, Steven (2017). Database systems: Design, implementation, and management. (12th ed.). ISBN: 9781305627482 Textbook2: Coronel, C., & Morris, Steven (2019). Database systems: Design, implementation, and management. (13th ed.). ISBN: 9781337627900		
Prerequisite:	Some introductory programming units are required		

Course Overview

In this unit an introduction to the concepts of database design and usage and the related issues of data management are provided. Students will develop skills in planning, designing, and implementing a data model using an enterprise-scale relational database system. During the process, methods and techniques will also be presented to populate, retrieve, update and implement integrity features on data in the implemented database system.

Learning Outcomes

On completion of this subject students should

1. Describe the underlying theoretical basis of the relational database model and apply the theories into practice;
2. Explain the motivations behind the development of database management systems;
3. Develop a database based on a sound database design;
4. Develop a sound database design;
5. Use data modelling and database development tools effectively;
6. Construct queries that meet user requirements;
7. Access databases from other programming languages.

Grading Policy

Quiz	5%
Assignment 1 Part A（Entity Relational Model）	15%
Assignment 1 Part B（Relations and Normalization）	10%
Assignment 2（SQL）	20%
Paper	50%

Grading Scale

Number grade	Letter grade	GPA
90-100	A	4.0
85-89	A-	3.7
80-84	B+	3.3
75-79	B	3.0
70-74	B-	2.7
67-69	C+	2.3
65-66	C	2.0
62-64	C-	1.7
60-61	D	1.0
≤59	F (Failure)	0

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Class Schedule

Date	Lecture	Readings
Day 1	PART I: Database and the Relational Model	Textbook1 Chapter1&2 + Textbook2 Chapter1&2
Day 2	Relational Model	Textbook1 Chapter 3 + Textbook2 Chapter 3
Day 3	PART II: Database Design and Conceptual model - E/R Diagram	Textbook1 Chapter 4 + Textbook2 Chapter 4
Day 4	Logical model - E/R Transformation	Textbook1 Chapter 4 + Textbook2 Chapter 4
Day 5	Normalisation	Textbook1 Chapter 6 + Textbook2 Chapter 6 +
Day 6	Database Design Life Cycle	Textbook1 Chapter 9+ Textbook2 Chapter 9
Day 7	PART III: Database Language SQL I	Textbook1 Chapter 7 + Textbook2 Chapter 7
Day 8	SQL II	Textbook1 Chapter 8 + Textbook2 Chapter 8
Day 9	SQL III	Textbook1 Chapter 8 + Textbook2 Chapter 8
Day 10	PART IV: Transaction Management	Textbook1 Chapter 10 + Textbook2 Chapter 10
Day 11	Concurrency Control	Textbook1 Chapter 10+ Textbook2 Chapter 10
Day 12	Locking Methods, Deadlocks and Time Stamping Methods	Textbook1 Chapter 10 + Textbook2 Chapter 10
Day 13	Object-Oriented Databases	Textbook1 Appendix G + Textbook2 Appendix G
Day 14	PART V: Database Connectivity and Web Technologies	Textbook1 Chapter 15 + Textbook2 Chapter 15
Day 15	Examination period	