COSC 386 Database Design and Implementation

Course Description

Introduction to the relational database model, date integrity, database management systems, high level database design technique, SQL database query language, relational algebra, data normalization, transactions in SQL, and web development of online database using PHP.

Prerequisites

- Data Structures & Algorithms Analysis (COSC220), with a grade of **C** or better.
- Discrete Mathematics (MATH210), with a grade of **C** or better.

Textbook

- *Required textbook:*

  "A First Course in Database Systems." Third Edition. Jeffrey D. Ullman and Jennifer Widom.
  eText: ISBN-10: 0136006752, ISBN-13: 9780136006756.
  Print: ISBN-10: 013600637X, ISBN-13: 9780136006374.

- *Reference books (Optional):*

  "PHP and MySQL Web Development." Forth Edition. Luke Welling and Laura Thomson.
  eText: ISBN-10: 0672332000, ISBN-13: 9780672332005.
  Print: ISBN-10: 0672329166, ISBN-13: 9780672329166.

Topics	Weeks
Relational Database and Its Management System	1
Key Constraints and Data Integrity	1
High Level Database Design and Schema Translation	2
Structured Query Language (SQL)	3
Relational Algebra	1
Online Database Programming Using PHP	2
Design Theory – Normalization	2
Transactions in SQL	1
Project Presentation	1
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Evaluation

- Homework, Labs, and Project   35 − 45%
- Midterms and Final Exams   45 − 55%
- Quizzes and In-class Exercises   10%

YJ/jlh   5/2021