CSC/CPE 365 Introduction to Database Systems

1. CSC/CPE 365 Introduction to Database Systems

2. **credit units** 4  **contact hours** 6

3. **Course Coordinator**: Alexander Dekhtyar

4. **Textbook** (and/or other required material)  

5. a. **Course Description**: Basic principles of database management systems (DBMS) and of DBMS application development. DBMS objectives, systems architecture, database models with emphasis on Entity-Relationship and Relational models, data definition and manipulation languages, the Structured Query Language (SQL), database design, application development tools. 3 lectures, 1 laboratory. Crosslisted as CPE/CSC 365.
   b. **Prerequisite**: CSC/CPE 103.
   c. **Required/Elective/Selective Elective for CPE, CSC, EE, SE**

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6. a. **Course Goals/Outcomes**
   The student will be able to:
   - Be familiar with the basic DBMS architecture, components, and interfaces;
   - Have experience using at least one modern database management system;
   - Understand and use database models in database and application design;
   - Be able to use SQL as a stand-alone and as an embedded language (e.g., JDBC, SQLJ);
   - Understand the following concepts as they relate to database management: transactions (ACID properties), data integrity, data independence, data protection, query processing, non-procedural programming;
   - Understand and appreciate the ethical aspects of database use in society.

   b. **How Student Outcomes addressed**
   ("B" = Basic level, "I" = Intermediate level, "A" = Advanced level)
7. **Major Topics Covered: (number of lecture hours each)**
   - Fundamental concepts of data management (3)
   - Relational model (relations, integrity constraints, relational algebra) (5)
   - SQL Relational database language (DDL, DML, SELECT-FROM-WHERE, grouping, aggregation, subqueries) (12)
   - Application development using JDBC (2)
   - Application development using PL/SQL (6)

Organization of DBMS – overview (2)