CIS C240: SQL DATABASE DEVELOPMENT

Item	Value
Curriculum Committee Approval Date	10/27/2023
Top Code	070200 - Computer Information Systems
Units	3 Total Units
Hours	68 Total Hours (Lecture Hours 54; Lab Hours 14)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

Students will explore an introduction to relational database fundamentals and structured query language (SQL) programming skills. Topics covered include relational database architecture, database design techniques, data retrieval, data integrity, and simple and complex query skills. This course is intended for students new to the SQL programming language. Careers and emerging trends in the field will be evaluated. ADVISORY: CIS C111. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Create and manage database objects; query data using the SELECT statement.
2. Create stored procedures, and work with functions, triggers, and data views.
3. Improve query performance by developing indexed views and clustered indexes.

Course Objectives

- 1. Explain what SQL is, its history, and its importance in database management.
- 2. Demonstrate the use of foundational SQL syntax using the basic structure of SQL queries, including SELECT, FROM, WHERE, and ORDER BY clauses.
- 3. Demonstrate the use of developed techniques to query and modify data and implement subqueries.
- 4. Describe how to optimize table structures and maintain data integrity.
- 5. Explain how to improve query functionality with manageability features.
- 6. Explain how to use aggregate functions like COUNT, SUM, AVG, MIN, and MAX to perform calculations on data.

Lecture Content

Data Retrieval Querying Data with the SELECT statement Joining related tables Aggregate Queries with the GROUP BY clause Modifying Data Modifying Data with the INSERT, UPDATE, and DELETE statements Enhancing functionality with the OUTPUT clause Managing Transactions Data Integrity Working with Data Types Validating Data Creating and Modifying Constraints Programming with T-SQL Creating Stored Procedures Working with Functions and Triggers Managing Data with Views Improving Query Performance Evaluating Query Performance Indexed Views and Clustered Indexes Implementing Full Text Search

Lab Content

Install a relational database management system Create a sample database and tables for a given scenario Insert sample data into the tables Write SQL queries to retrieve specified data Design a database Retrieve data from the database Insert, update, and delete records from the database

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)
- Lab (04)
- DE Live Online Lab (04S)
- DE Online Lab (04X)

Instructional Techniques

This course will utilize a combination of lecture, classroom/discussion student interactions, quizzes, tests, and problem-solving and troubleshooting assignments to achieve the goals and objectives of this course. All instructional methods are consistent across all modalities.

Reading Assignments

Students are required to read the assigned chapters and complete the review quiz, knowledge-based assignments, definitions, and text-based scenario questions.

Writing Assignments

Writing assignments consist of projects and discussions.

Out-of-class Assignments

Students are to complete projects utilizing the Virtualized Microsoft SQL Database development environments consisting of tasks associated with the topics learned in each lesson.

Demonstration of Critical Thinking

Given sets of operational data, the student will be able to critically analyze the data and make recommendations to improve the operations based on those findings.

Required Writing, Problem Solving, Skills Demonstration

Students will solve real-world scenarios that demonstrate mastery of core concepts. Students will be required to demonstrate their mastery of concepts through short skills-based assignments.

Eligible Disciplines

Computer information systems (computer network installation, microcomputer ...: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience. Computer service technology: Any bachelors degree and two

years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Viescas, J.. SQL Queries for Mere Mortals: A Hands-On Guide to Data Manipulation in SQL, 4TH ed. Pearson, 2018 Rationale: Low cost option

Other Resources

1. Coastline Library 2. Microsoft SQL Server books online 3. OER: Open Educational Resources 4. IT white papers are available at no charge to all IT students through the Microsoft IT Academy website.