Course Information Form (CIF)

Course Code: CSC 176
Course Title: SQL Fundamentals I

Department: Business/Computer Science and Technologies
Effective Date: Summer 2026
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 11.0802
Repeatability: 0

Credit Hours

Catalog Notation: 3-0-3
Credit Hour Distribution:

Lecture: 3	Lab: 0	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Introduction to modern database and structured data systems. Entity relationship modeling, normalization, database design and methodology, SQL, security, and transaction management.

General Course Objectives

To provide an introduction to the field of database systems and database design. To present methodologies for a conceptual, logical, and physical database design. To introduce the SQL language and examine some specific topics necessary for understanding of modern database management.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

None

Recommended before enrolling (not required):
Prior programming experience

Methods of Evaluation

15 quizzes and 1 final exam.

Instructional Materials and Additional Supplies

Database Systems, by Rob, Course Technology 1-4239-0201-7
A remote database server is required.

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Database Systems	1. Explain what a database is, the different types of databases, and how a database management system (DBMS) aids organizational decision making.	3	0	0
Data Models	1. Explain what data models are. 2. Compare and contrast the major data models and their advantages and disadvantages.	3	0	0
The Relational Database Model	1. Explain Chen and Crow's Foot models in combination with screenshots to illustrate relationships between entities.	3	0	0
Entity Relationship (ER) Modeling	1. Discuss the decomposition of multivalued attributes, and of M:N relationships into I:M relationships.	3	0	0
Normalization of Database Tables	1. Discuss what data redundancies are and how redundancies are likely to create damaging data anomalies. 2. Define normalization.	3	0	0
Introduction to Structured Query Language (SQL)	1. Define the basic SQL commands and functions. 2. Demonstrate how to use SQL to perform basic data administrations tasks to add, modify, delete, or retrieve data.	3	0	0
Advanced SQL	1. Explain and demonstrate in depth SQL's relational set operators, joint statements, and other database objects such as views and triggers.	3	0	0
Database Design	1. Explain the System Development Life Cycle (SDLC) and Database Life Cycle (DBLC).	3	0	0
Transaction Management and Concurrency Control	1. Explain what concurrency control is and what role it plays in maintaining database integrity. 2. Demonstrate locking mechanisms and how they work at various levels of granularity.	3	0	0
Distributed Database Management Systems	1. Explain in detail how database transactions are managed in a Distributed Database environment.	3	0	0
Object Oriented Databases	1. Discuss the basic features of an Object Oriented (OO) database management system (OODBMS).	3	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
The Data Warehouse	1. Demonstrate what a data warehouse is and how data for it is prepared.	3	0	0
Databases in Electronic Commerce	1. Explain in detail various e-commerce styles and what Internet architectural components are required to conduct e-commerce.	3	0	0
Web Database Development	1. Use Macromedia ColdFusion middleware to create some examples of how databases are integrated into the Internet.	3	0	0
Database Administration	1. Discuss what the database administrator's managerial and technical roles are and explore various database administration tools and strategies.	3	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	0	0