South Central College

COMP 2220  SQL/DB2

Common Course Outline

Course Information

Description  This course covers Structured Query Language (SQL) and the Database Management System (DB2) commonly used on IBM platforms, such as the IBM Power System. Topics covered include data modeling and design as it pertains to the relational database model and the use of SQL commands to create schemas and tables, manipulate data, and retrieve data. (Pre-requisite: COMP2200 IBMi Operating Systems or Instructor Approval)

Total Credits  4.00
Total Hours  64.00

Types of Instruction

Instruction Type  Credits/Hours
Lecture  4/64

Pre/Corequisites

Prerequisite  COMP2200 - IBMi Operating Systems

Institutional Core Competencies

Analysis and inquiry: Students will demonstrate an ability to analyze information from multiple sources and to raise pertinent questions regarding that information.

Critical and creative thinking: Students will develop the disposition and skills to strategize, gather, organize, create, refine, analyze, and evaluate the credibility of relevant information and ideas.

Course Competencies

1  Explore the concept of Database Management Systems (DBMSs).
   Learning Objectives
   Discuss the characteristics of the DB2 Universal Database.
   Explain the hierarchy of database, tables, rows, and columns.

2  Examine the processes of Database Modeling and Design.
   Learning Objectives
   Define the purpose of physical database design.
   Define the purpose of logical data modeling.
   Identify the steps for developing a data model.
   Explain what entity relationship diagrams (ERDs) are.
   Demonstrate the process of the normalization of data.
Compare the different normal forms.

3 **Explore the concepts of Structured Query Language (SQL).**

   Learning Objectives
   - Examine SQL syntax.
   - Describe the different SQL data types.
   - Differentiate the relationship between a schema and a table.
   - Use the Interactive SQL interface.

4 **Maintain a schema using SQL commands.**

   Learning Objectives
   - Use the CREATE command to build a schema.
   - Change the default schema.
   - Remove a schema from a display list.

5 **Create a table using SQL commands.**

   Learning Objectives
   - Use the CREATE command to create a table.
   - Add data to a table using the INSERT and VALUES commands.
   - Examine the use of NULL values.
   - Use the DROP command to delete a table from a schema.

6 **Maintain a table using SQL commands.**

   Learning Objectives
   - Use the INSERT command to add data to a table.
   - Use the UPDATE command to modify data in a table.
   - Use the DELETE command to remove data from a table.

7 **Examine database constraints.**

   Learning Objectives
   - Explain the purpose of constraints.
   - Apply a primary key constraint.
   - Apply a foreign key constraint (referential integrity).
   - Apply a unique constraint.
   - Apply a check constraint.

8 **Create a query from a single table.**

   Learning Objectives
   - Use a SELECT statement to retrieve data from a table.
   - Construct a computed column in the select list.
   - Use the AS clause.
   - Use simple and compound conditions in a WHERE clause.
   - Use the DISTINCT, CONCAT, BETWEEN, LIKE, and IN operators.
   - Use the ORDER BY clause to sort records in a query result.
   - Use the GROUP BY clause to group records in a query result.

9 **Create a query from multiple tables.**

   Learning Objectives
   - Explain the different types of Joins.
   - Use joins to retrieve data from two or more tables.
   - Use aliases.
   - Use the UNION operator.
   - Create a sub-query within a query.

10 **Examine Views and Indexes.**

    Learning Objectives
    - Describe a view (access path).
    - Create a view.
Explain the use of indexes.
Access data using an index.

11 **Examine the use of conditional triggers.**
   
   **Learning Objectives**
   - Explain the use of triggers.
   - Create a trigger program.

12 **Explore database security concepts.**
   
   **Learning Objectives**
   - Explain basic database security concepts.
   - Use the GRANT and REVOKE statements.

**SCC Accessibility Statement**

If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible. This information will be made available in an alternative format, such as Braille, large print, or cassette tape, upon request. If you wish to contact the college ADA Coordinator, call that office at 507-389-7222.

Disabilities page [http://southcentral.edu/academic-policies/disability-rights.html](http://southcentral.edu/academic-policies/disability-rights.html)