Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for CIS 9010

WRITING SQL QUERIES USING MICROSOFT SQL SERVER

Effective: Spring 2018

I. CATALOG DESCRIPTION:
CIS 9010 — WRITING SQL QUERIES USING MICROSOFT SQL SERVER — 3.00 units

Introduction to how client/server architecture works, and examines the various database and business tasks that can be performed by using the components of Microsoft SQL Server. Learn SQL Server database concepts such as relational databases, normalization, and database objects. In addition, the student will learn how to use T-SQL to query databases and generate reports.

1.50 Units Lecture 1.50 Units Lab

Grading Methods:

Discipline:
- Computer Science

	MIN
Lecture Hours:	27.00
Expected Outside of Class Hours:	54.00
Lab Hours:	81.00
Total Hours:	162.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Describe the uses of and ways to execute the Transact-SQL language;
B. Use querying tool;
C. Write SELECT queries to retrieve data;
D. Group and summarize data by using Transact-SQL;
E. Join data from multiple tables;
F. Write queries that retrieve and modify data by using subqueries;
G. Modify data in tables;
H. Query text fields with full-text search;
I. Describe how to create programming objects;
J. Use various techniques when working with complex queries.

V. CONTENT:
A. Getting Started with Databases and Transact-SQL in SQL Server 2008
    1. Lessons
        a. Overview of SQL Server 2008
        b. Overview of SQL Server Databases
        c. Overview and Syntax Elements of T-SQL
        d. Working with T-SQL Scripts
        e. Using T-SQL Querying Tools
    2. Lab : Using SQL Server Management Studio and SQLCMD
        a. Exploring the Components and Executing Queries in SQL Server Management Studio
        b. Starting and Using SQLCMD
        c. Generating a Report from a SQL Server Database Using Microsoft Office Excel
B. Querying and Filtering Data
    1. Lessons
        a. Using the SELECT Statement
        b. Filtering Data
        c. Working with NULL Values
        d. Formatting Result Sets
        e. Performance Considerations for Writing Queries
    2. Lab : Querying and Filtering Data
        a. Retrieving Data by Using the SELECT Statement

b. Filtering Data by Using Different Search Conditions
c. Using Functions to Work with NULL Values
d. Formatting Result Sets

C. Grouping and Summarizing Data
1. Lessons
a. Summarizing Data by Using Aggregate Functions
b. Summarizing Grouped Data
c. Ranking Grouped Data
d. Creating Crosstab Queries
2. Lab : Grouping and Summarizing Data
a. Summarizing Data by Using Aggregate Functions
b. Summarizing Grouped Data
c. Ranking Grouped Data
d. Creating Crosstab Queries

D. Joining Data from Multiple Tables
1. Lessons
a. Querying Multiple Tables by Using Joins
b. Applying Joins for Typical Reporting Needs
c. Combining and Limiting Result Set
2. Lab : Joining Data from Multiple Tables
a. Querying Multiple Tables by Using Joins
b. Applying Joins for Typical Reporting Needs
c. Combining and Limiting Result Sets

E. Working with Subqueries
1. Lessons
a. Writing Basic Subqueries
b. Writing Correlated Subqueries
c. Comparing Subqueries with Joins and Temporary Tables
d. Using Common Table Expressions
2. Lab : Working with Subqueries
a. Writing Basic Subqueries
b. Writing Correlated Subqueries
c. Comparing Subqueries with Joins and Temporary Tables
d. Using Common Table Expressions

F. Modifying Data in Tables
1. Lessons
a. Inserting Data into Tables
b. Deleting Data from Tables
c. Updating Data in Tables
d. Overview of Transactions
2. Lab : Modifying Data in Tables
a. Inserting Data into Tables
b. Deleting Data from Tables
c. Updating Data in Tables
d. Working with Transactions

G. Querying Metadata, XML, and Full-Text Indexes
1. Lessons
a. Querying Metadata
b. Overview of XML
c. Querying XML Data
d. Overview of Full-Text Indexes
e. Querying Full-Text Indexes
2. Lab : Querying Metadata, XML, and Full-Text Indexes
a. Querying Metadata
b. Querying XML Data
c. Creating and Querying Full-Text Indexes

H. Using Programming Objects for Data Retrieval
1. Lessons
a. Overview of Views
b. Overview of User-Defined Functions
c. Overview of Stored Procedures
d. Overview of Triggers
e. Writing Distributed Queries
2. Lab : Using Programming Objects for Data Retrieval
a. Creating Views
b. Creating User-Defined Functions
c. Creating Stored Procedures
d. Writing Distributed Queries

I. Using Advanced Querying Techniques
1. Lessons
a. Considerations for Querying Data
b. Working with Data Types
c. Cursors and Set-Based Queries
d. Dynamic SQL
e. Maintaining Query Files
2. Lab : Using Advanced Querying Techniques
a. Using Execution Plans
b. Converting Data Types
c. Implementing a Hierarchy
d. Using Cursors and Set-Based Queries

VI. METHODS OF INSTRUCTION:

A. Lecture and classroom discussion
B. Computer demonstrations with overhead display panel
C. Read text and other supplemental sources (example, Internet sites)
D. Discussion boards
E. PowerPoint presentations
F. Chat rooms
G. Lab experience: hands-on lab assignments and database creation and manipulation

VII. TYPICAL ASSIGNMENTS:

A. Lecture 1. Grant security (e.g., system, object, and role privileges) 2. Grant execute security (e.g., definer and invoker rights) B. Reading 3. Read the chapter on Joins and Subqueries 4. Read the U.S. Department of Labor Bureau of Labor Statistics Occupational Outlook Handbook SQL jobs C. Hands-on lab assignment, write: 1. Display for each employee the employee number, last name, salary, and salary increased by 15% and expressed as a whole number. Label the column New Salary 2. Manage existing workspaces within an Oracle Application Express instance: Deleting a Workspace, Locking a Workspace, Managing Workspace to Schema Assignments

VIII. EVALUATION:

A. **Methods**

1. Exams/Tests
2. Quizzes
3. Class Participation
4. Lab Activities
5. Other:
    a. Methods
        1. Quizzes, chapter, midterm and final examination
        2. Graded hands-on lab assignments
        3. Relevant active participation

B. **Frequency**

1. Frequency
    a. Chapter quizzes, examinations (mid-term, final)
    b. Weekly hands-on lab assignments to reinforce and demonstrate mastery of the various tools

IX. TYPICAL TEXTS:

1. Dawes, Chip *OCA/OCP Oracle11g DBA Administration Study Guide*., Sybex, 2009.
2. Oracle *Oracle iLearning.*, Oracle Corporation Curriculum, 2011.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Access to the World Wide Web with any major Web browser