DBA 120 Database Programming I

COURSE DESCRIPTION:

PrerequisitesNone
Corequisites: None

This course is designed to develop SQL programming proficiency. Emphasis is placed on data definition, data manipulation, and data control statements as well as on report generation. Upon completion, students should be able to write programs which create, update, and produce reports.
Course Hours Per Week: Class, 2. Lab, 2. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon completing requirements for this course, the student will be able to:

1. Create a database table using Structured Query Language (SQL).
2. Query a database table using Structured Query Language (SQL).
3. Update a database table using Structured Query Language (SQL).

OUTLINE OF INSTRUCTION:

I. Introduction
   A. Introduction to Oracle Academy
   B. Introduction to Oracle Application Express
   C. Relational Database Terminology
   D. Anatomy of a SQL Statement
   E. Major Transformations in Computing

II. SELECT and WHERE
   A. Columns, Characters, and Rows
   B. Limit Rows Selected
   C. Comparison Operators

III. WHERE, ORDER BY, and Intro to Functions
   A. Logical Comparisons and Precedence Rules
   B. Sorting Rows
   C. Introduction to Functions

IV. Single Row Functions Part 1
   A. Case and Character Manipulation
   B. Number Functions
   C. Date Functions

VI. JOINs Part I
   A. Cross Joins and Natural Joins
   B. Join Clauses
   C. Inner versus Outer Joins
   D. Self-Joins and Hierarchical Queries

VII. JOINs Part II
   A. Oracle Equijoin and Cartesian Product
   B. Oracle Nonequijoins and Outer Joins

VIII. Group Functions Part I
   A. Group Functions
   B. COUNT, DISTINCT, NVL

IX. Group Functions Part II
   C. Using Group By and Having Clauses
   D. Using Rollup and Cube Operations, and Grouping Sets
   E. Using Set Operators

X. Subqueries
   A. Fundamentals of Subqueries
   B. Single-Row Subqueries
   C. Multiple-Row Subqueries
   D. Correlated Subqueries

XI. Ensuring Quality Queries Part I
   A. Ensuring Quality Query Results

XII. DML
   A. INSERT Statements
   B. Updating Column Values and Deleting Rows
   C. DEFAULT Values, MERGE, and Multi-Table Inserts

XIII. DDL
   A. Creating Tables
   B. Using Data Types
   C. Modifying a Table

XIV. Constraints
   A. Intro to Constraints; NOT NULL and UNIQUE Constraints

XV. Views
   A. Creating Views
   B. DML Operations and Views
   C. Managing Views

XVI. Sequences and Synonyms
   A. Workingwith Sequences
   B. Indexes and Synonyms

XVII. Privileges and Regular Expressions
   A. Controlling User Access
   B. Creating and Revoking Object Privileges
   C. Regular Expressions

XVIII. TCL
   A. Database Transactions

XIX. Final Project and Exam Review
   A. Testing
   B. Final Project Database Creation
   C. Final Exam Review

XX. Ensuring Quality Queries Part II
   A. Ensuring Quality Queries Part II
   B. Ensuring Quality Query Results – Advanced Techniques

REQUIRED TEXTBOOK AND MATERIAL:
Oracle Academy and Oracle Application Express (APEX) – resources