

# Oracle 11g Foundations: SQL & SQL\*Plus (5 Days) CTI 600

*This course gives students an introduction to SQL Basics and SQL\*Plus, including a basic knowledge of relational databases and how to access them through SQL and SQL\*Plus. Topics necessary to the development and administration of an Oracle 11g database are covered.*

Prerequisites: An understanding of relational database design concepts.  
Minimum software requirements: Windows Server 2003, Windows XP Pro or Vista Pro; Oracle 11g.  
Minimum hardware requirements for all machines: Minimum 512 MB RAM (2 GB preferred); 20 GB of free space on hard drive (before installation). Machines need static IP addresses.  
Microsoft PowerPoint and Internet access on instructor's workstation for presentation purposes.

## **Module 1: In the Beginning-Database Management System Overview**

What is a Database?  
Types of DBMSs

## **Module 2: Introduction to Entity Relationship Modeling**

What is a Data Model?  
Why Use an Entity Relationship Model?  
Input and Components of an Entity Relationship Model  
Guidelines for a Model Review

## **Module 3: Fundamentals of Relational Database Management Systems**

What is an RDBMS?  
History of SQL  
Physical Data Storage  
Relationships between Tables

## **Module 4: SQL Basics and SQL\*Plus**

Understanding the Difference between SQL, SQL\*Plus and PL/SQL  
Invoking and Leaving SQL\*Plus  
Entering and Executing Commands  
The SQL Buffer, SQL\*Plus Default Output  
LOGIN.SQL  
The SELECT Command and Mandatory Clauses

## **Module 5: Using SQL Developer**

Understanding the SQL Developer Environment and Commands

## **Module 6: The WHERE and ORDER BY Clause**

WHERE, ORDER BY Clause  
Using the Data Dictionary  
Hierarchical Queries

## **Module 7: Single Row Functions**

Single Row vs. Group Functions  
Date and Numeric Format Models  
Data Conversion  
Control Statements  
Regular Expressions

## **Module 8: Joining Data from Multiple Tables in Queries**

The JOIN Condition/The Cartesian Product  
Outer JOINS  
SET Operators  
ANSI SQL99 Joins

## **Module 9: Group Functions and the GROUP BY Clause**

Group Functions  
Distinct Operator in Group Functions  
GROUP BY, WITH Clause, ROLLUP, CUBE  
GROUPING SETS

## **Module 10: Using Subqueries and CASE Clauses**

Single-Row, Multi-Row, Multi-Column Subqueries  
Subqueries in a WHERE Clause  
Subqueries in the FROM Clause - In-Line Views  
Subqueries in the SELECT Clause - Scalar Subqueries  
Correlated Subqueries  
CASE Clause

## **Module 11: Analytic Functions (Optional)**

Single Row Analytic Functions  
Aggregating Analytic Functions  
PIVOT/UNPIVOT

## **Module 12: SQL\*Plus Reporting**

SQL\*Plus Report Writing Commands  
COLUMN Command/Titles, System Variables  
Master-Detail Report with TITLE and COLUMN Commands  
Control Breaks, Computing Aggregate Amounts  
Using SET Variables in SQL\*Plus, SQL to Generate SQL

## **Module 13: Data Manipulation Language (DML) Commands**

INSERT, UPDATE, DELETE, MERGE Commands  
Use of Subqueries  
Transaction Control Commands/Read Consistency/Locking  
The MERGE Command  
Flashback Queries

## **Module 14: Data Definition Language (DDL) Commands**

DDL Commands, Object Naming, Dropping Objects  
TRUNCATE, COMMENT, RENAME Commands  
Creating Tables/Integrity Constraints  
CREATE TABLE, ALTER TABLE Commands  
Datatypes, Types of Declarative Constraints  
Default Values  
Creating, Deferrable, Dropping, Disabling/Enabling Constraints/Displaying Constraint Information  
Handling Exceptions  
Views, Synonyms, Sequences, Indexes, Virtual Columns  
Temporary Tables, External Tables

## **Module 15: Security**

Users, Privileges, Roles, Changing Passwords

## **Module 16: Getting Data In and Out of Oracle**

SQL\*Loader Basics  
Importing Oracle Data into Excel  
Direct Database Queries using ODBC