

**Oracle PL/SQL Course Contents: 35-40 Hours**

**Course Outline**

**Relational Database and SQL Overview**

- Review of Relational Database Terminology
- Relational Database Management Systems
- Introduction to SQL Oracle
- Versioning and History Logical and Physical Storage
- Structures Connecting to a SQL Database
- Datatypes Sample Database
- Using Oracle SQL\*Plus
- SQL\*Plus
- The SQL Buffer
- Buffer Manipulation Commands
- Running SQL\*Plus Scripts
- Tailoring Your SQL\*Plus Environment
- Viewing Table Characteristics
- SQL\*Plus Substitution Variables
- Interactive SQL\*Plus Scripts
- Using iSQL\*Plus
- SQL Queries - The SELECT Statement
- The SELECT Statement The CASE...WHEN Statement Choosing Rows with the WHERE Clause NULL Values Compound
- Expressions IN and BETWEEN The LIKE Operator Creating Some Order
- Scalar functions
- SQL Functions Using SQL Functions String Functions Numeric Functions Date Functions Conversion Functions Date
- Formats Oracle Pseudocolumns
- SQL Queries - Joins
- Selecting from Multiple Tables
- Joining Tables
- Self Joins
- Outer Joins
- Types of Outer Joins
- Aggregate Functions and Advanced Techniques
- Subqueries Correlated Subqueries The EXISTS Operator The Aggregate Functions Grouping Rows
- Combining SELECT Statements
- Data Manipulation and Transactions
- The INSERT Statement
- The UPDATE Statement
- The DELETE Statement
- Transaction Management
- Concurrency
- Explicit Locking
- Data Inconsistencies
- Loading Tables From External Sources
  
- Data Definition and Control Statements

- Standard Datatypes
- Defining Tables
- Constraints
- Inline Constraints
- Modifying Table Definitions
- Deleting a Table Definition
- Controlling Access to Your Tables
- Other Database Objects
- Views
- Creating Views Updatable Views Sequences Synonyms

### **Oracle 11i PL/SQL Programming Course**

- PL/SQL Variables and Datatypes
- Declaring Variables
- Datatypes
- Subtypes
- Character Data
- Dates and Timestamps
- Date Intervals
- Anchored Types
- Assignment and Conversions
- Selecting into a Variable
- PL/SQL Syntax and Logic
- PL/SQL Blocks and Programs Conditional Statements - IF/THEN Conditional Statements - CASE Comments and Labels
- Loops
- WHILE and FOR Loops
- Stored Procedures and Functions
- Stored Subprograms
- Procedures and Functions
- Creating a Stored Procedure
- Calling a Stored Procedure
- Passing Parameters and Default Arguments
- Parameter Modes
- Creating a Stored Function
- Calling a Stored Function
- Stored Functions and SQL
- Local Procedures and Functions
- Exception Handling
- SQLCODE and SQLERRM Exception Handlers Nesting Blocks Scope and Name Resolution
- User-Defined Exceptions
- Compile-Time Warnings
- Records and Collections
- Record Variables Using the %ROWTYPE Attribute VARRAY and Nested TABLE Collections
- Using Nested TABLEs Using VARRAYs Associative Array Collections Collection Methods
- Iterating Through Collections FORALL Statement BULK COLLECT Clause Cursors
- Multi-Row Queries
- Declaring and Opening Cursors
- Fetching Rows

- Closing Cursors
- Thft Cursor FOR Loop
- FOR UPDATE Cursors
- Cursor Parameters
- The Implicit (SQL) Cursor
- Using Packages
- Packages
- Oracle-Supplied Packages The DBMS\_OUTPUT Package The DBMSJITILITY Package The UTL\_FILE Package
- The DBMS\_META DATA Package XML Packages Networking Packages Other Supplied Packages
- Creating Packages
- Structure of a Package
- The Package Interface and Implementation
- Package Variables
- Overloading Package Functions and Procedures Named Parameter Notation REF CURSOR Variables
- Working with LOBs
- Large Object Types
- Oracle Directories
- LOB Locators
- Internal LOBs
- External LOBs
- Temporary LOBs
- The DBMS\_LOB Package
- Maintaining PL/SQL Code
- Privileges for Stored Programs PL/SQL Stored Program Compilation The PL/SQL Execution Environment Dependencies and Validation Maintaining Stored Programs
- Dynamic SQL
- Generating SQL at Runtime
- Native Dynamic SQL vs. DBMS SQL Package
- The EXECUTE IMMEDIATE Statement
- Using Bind Variables Multi-row Dynamic Queries Bulk Operations with Dynamic SQL Using DBMS\_SQL DBMS\_SQL Subprogram
- Triggers
- Types of Triggers Row-Level Triggers
- Cascading Triggers and Mutating Tables Generating an Error System Triggers Maintaining Triggers