

## Oracle® Database 11g: A Comprehensive Hands-On Introduction - 4 Days

*Course 926 Outline*

- You Will Learn How To**
- Design, build and manage Oracle 11g database applications
  - Establish a data model and a storage framework
  - Retrieve and manipulate data efficiently using SQL Developer
  - Create and manage database tables, sequences and synonyms
  - Ensure data integrity, enforce security and enhance performance
  - Write structured PL/SQL code to develop stored procedures, triggers and packages

**Course Benefits** The Oracle Database 11g server enables high-speed transactions, better business decisions and sophisticated applications. These capabilities provide users the functionality to build high-quality and efficient database applications. In this course, you gain a solid foundation to maximise Oracle 11g and develop robust databases for your organisation.

**Who Should Attend** Those who are new to Oracle databases as well as those planning to move to an Oracle database environment. Familiarity with relational databases and experience with the SQL programming language at the level of Course 925, "SQL Programming Language: A Comprehensive Introduction", are required.

**Hands-On Training** Throughout this course, exercises provide hands-on experience building Oracle 11g databases, including:

- Designing a database with a data model
- Navigating the dictionary with Enterprise Manager
- Coding with SQL Developer and SQL\*Plus
- Retrieving and manipulating data with SQL constructs
- Creating tables, sequences, views and synonyms
- Managing security, integrity and performance
- Programming with cursors, loops and control logic
- Debugging PL/SQL programs
- Building procedures, packages and triggers

# Oracle® Database 11g: A Comprehensive Hands-On Introduction - 4 Days

## Course 926 Outline

### Introduction to Oracle 11g Technology

- The Oracle database product offering
- Relational database concepts
- Applying data modelling techniques
- Oracle database tools: SQL Developer and SQL\*Plus

### Database Installation and Administration

#### Assessing the Oracle database architecture

- Defining memory structures, processes and SGA
- Establishing a storage framework

#### Managing Oracle databases

- Installing and configuring Oracle Database 11g
- Working with Oracle Enterprise Manager
- Leveraging the Oracle Data Dictionary

### Accessing and Manipulating Data

#### Retrieving data efficiently with SQL Developer

- Selecting, restricting and ordering data
- Avoiding pitfalls in null values
- Exploiting built-in SQL functions

#### Applying powerful SQL techniques

- Joins, outer joins and ANSI joins
- Grouping data and applying aggregate functions
- Combining result sets with set operators
- Comparing simple and correlated subqueries

#### Modifying data with SQL statements

- Inserting, updating, deleting and merging data
- Controlling transactions with ROLLBACK and COMMIT
- Locking data to preserve integrity

### Creating and Managing Database Objects

#### Implementing the physical design

- Mapping logical model to physical design
- Creating users and schemas

#### Constructing and maintaining tables

- Defining column datatypes
- Altering and dropping columns
- Restoring data with Flashback and the recycle bin

### Building views, sequences and synonyms

- Filtering data with views
- Generating unique IDs with sequences
- Streamlining access to objects with synonyms

### Maintaining Integrity, Security and Performance

#### Enforcing integrity

- Implementing referential integrity with primary, unique and foreign keys
- Incorporating business rules with check constraints
- Managing transactions and data with deferred and enforced constraints

#### Securing the data

- Authenticating users with password aging
- Controlling access with system and object privileges
- Simplifying privilege management with roles

#### Improving performance

- Guidelines for creating indexes
- Indexing the data for optimal access
- Managing unique, non-unique and composite indexes

### Programming with PL/SQL

#### Writing basic programs

- Declaring and initialising variables
- Controlling logic with IF and CASE statements
- Performing iterations with WHILE and FOR LOOPS
- Defining and managing PL/SQL records
- Trapping errors with exception handlers

#### Processing data with cursors

- Declaring cursors to perform row-level operations
- Passing parameters to cursors to increase flexibility
- Simplifying cursors with FOR LOOPS
- Improving insert and delete performance with CURRENT OF or ROWID
- Terminating loops with cursor attributes

### Implementing Server-Side Logic

#### Modularising code

- Constructing procedures and functions
- Passing parameters to subprograms

- Debugging programs with DBMS\_OUTPUT

### Creating packages and triggers

- Advantages of deploying packages
- Bundling subprograms in packages
- Defining statement and row-level triggers
- Governing triggers with conditional predicates