Course Design Document

Course Code	
Course Name	Oracle PL-SQL

Duration (in days)	3	Proficiency Level	Fundamental
Pre-requisites	RDBMS	Target Audience	Campus Hires

Learning Outcome

At the end of the program, participants will learn

- Oracle Database 12c Architecture
- How to configure the Oracle Database 12c Network Environment
- How to manage Oracle Database 12c Storage Structures
- How to create Common Database Objects in Oracle Database 12c
- Overview of PLSQL
- Commonly used datatypes
- Looping constructs and Conditional Execution
- Cursors and their usage
- Exceptions & Debugging
- Procedures & Functions
- Local Subprograms
- Package Specification & Body
- Calling Functions from SQL

Day wise Session Plan

Day	Unit	Objectives	Hours
1	Exploring the Oracle Database 12c Architecture: Part 1	• Overview • What is Oracle Database 12c? • A Bit of Oracle Version History • Understanding Oracle Client/Server Architecture • Database and Instance • Oracle Database 12c Memory Structures • Program Global Area Components • Managing Memory in Oracle Database 12c • Summary	1
	Exploring the Oracle Database 12c Architecture: Part 2	• Overview • Oracle Database 12c Background Processes • Mandatory Background Processes • Optional Background Processes • Linking the Background Processes to the Memory Structures • Demo: Background Processes • Oracle Database 12c Physical Storage Structures • Oracle File Storage Options	2

		• Oracle Database 12c Logical Storage Structures • Oracle Storage Structures - A Conceptual View • Demo: Physical Storage Structures • Introducing the Oracle Management Tools • Demo: Oracle Management Tools • Summary	
	Introducing the Oracle Database 12c Instance	• Overview • Understanding Initialization Parameter Files • Some Key Initialization Parameters • Server Parameter File Tips and Tricks • Demo 1: Working with Initialization Parameters • Phases of Oracle Database Startup • Shutdown Modes • Demo 2: Starting Up and Shutting Down Oracle Database 12c • About the Oracle Database 12c Alert Log • Dynamic Performance Views • Demo 3: Viewing the Alert Log • Summary	2
	Configuring the Oracle Database 12c Network Environment	• Overview • What is Oracle Net Services? • The Oracle Net Listener • Configuring LISTENER.ORA • Managing the Listener • Demo 1: Configuring the Oracle Database 12c Listener • Oracle Naming Methods • Oracle Net Management Tools • Installing the Oracle Database Client • Demo 2: Working with the Oracle Database Client • Summary	1
	Managing Oracle Database 12c Storage Structures	• Overview • Review: How Data is Stored in Oracle Database 12c • What is a Tablespace? • More Tablespace Fun Facts • Demo 1: Investigating Tablespaces • PDBs, Tablespaces, and You • Database Files in a CDB • A Quick Word About Initialization Parameters • Demo 2: Creating Tablespaces • Summary	1
	Creating Common Database Objects in Oracle Database 12c	• Overview • About Schemas in Oracle Database 12c • Tables in the Relational Database Model • Integrity Constraints • Table Relationships • Table Types in Oracle Database 12c • Demo 1: Creating Tables • How B-Tree Indexes Work	1

		• Demo 2: Creating Indexes and Table Relationships • Summary	
	Introduction TO PLSQL	• What is PL/SQL? • Why learn PL/SQL? • How is PL/SQL Processed? • Tools • Summary	1
	Anonymous Blocks	• Overview • What is an Anonymous Block? • Structure of Anonymous Blocks • Comments in Anonymous Blocks • Demo of Anonymous Block Structure and Comment Styles • Nesting of Anonymous Blocks • Scope and Visibility of Variables in Nested Blocks • Labels • Demo: Scope and Visibility of Variables and Block Labels • Summary	1
2	PL/SQL Commonly Used Datatypes	• Introduction • Number: Fixed and Floating Type • Assignments, Defaults and Constants • Demo: Numbers • Subtypes • %TYPE • PLS_INTEGER or BINARY_INTEGER • BINARY_DOUBLE and BINARY_FLOAT • Character Datatypes • Demo: Character • DateTime Datatypes • Demo: DateTime Datatypes • Interval Datatype • Time Datatype Usage Guidelines • Boolean Datatype • Composite Datatype: Records • Composite Datatype: %ROWTYPE • Summary	1
	Loops	• Overview • Simple Loops • Demo: Simple Loops • FOR Loops • Demo: FOR Loop • FOR Loop Counter • Continue Statement • Nesting of Loops • Exit When & Continue When • While Loop • Summary	1
	Conditional Execution	• Overview • If Elsif Statements & Nesting • Demos • Case Statement • Case Expressions	1

		• Demo: Case Statement & Expressions • Summary	
	Cursors	• Introduction • Implicit Cursors • Demo: Implicit Cursors • Explicit Cursors • Cursor FOR Loop • Cursor FOR Update • Ref Cursors or Cursor Variables • Weak Ref Cursors • Cursor Expressions • Summary	1
	Exceptions	• Introduction • Oracle Internal Exceptions • Predefined Exceptions • User Defined Exceptions • Exception Scope & Propagation • Summary	1
	Debugging	• Introduction • DBMS_OUTPUT • DBMS_UTILITY • Demo: DBMS_OUTPUT & DBMS_UTILITY • SQLDeveloper Debugger: Privileges & Setup • Debugging with SQLDeveloper • Debugging an Exception with SQLDeveloper • Summary	1
3	Procedures	• What is a Procedure? • Defining Procedures • Compiling Procedures & Native Compilation • PLSQL_OPTIMIZE_LEVEL & Compile for Debug • Errors and Warnings • Demo: Creating & Compiling Procedures, Errors and Warnings • Executing Dropping & Terminating Procedures • Demo: Executing Dropping & Terminating Procedures • Summary	1
	Functions	• What is a Function? • Oracle Provided Functions • Defining Functions • Compiling & Executing Functions • Dropping & Terminating Functions • Demo • Summary	1
	Parameters in Procedures & Functions	• Formal vs. Actual Parameters • Parameter Modes • Passing by Reference & Value • NOCOPY hint • Demo: Parameter Modes & NOCOPY • Positional, Named & Mixed Notation	2

		• Default Values & Constraints on Formal Parameters • Demo: Default Values, Positional & Named Notations • Summary	
	Package Specification	• Why Use Package Specifications? • Package Structure & Contents • Defining Package Specification • Compiling Package Specification • Executing & Dropping Package Specification • Global Variables & Session State • Demo • Summary	1
	Package Body	• Defining Package Body • Package Initialization • Compiling & Executing Package Body • Order of Subprograms & Forward Declaration • Stateful & Stateless Packages • Overloading Subprograms • Overloading Considerations • Demo: Compiling & Executing Packages • Demo: Stateful & Stateless Packages • Summary	2
	Calling Functions from SQL	• Where Can They Be Called? • Restrictions • Demo: Functions in SQL Statements • Summary	1
		Total	24