



# COURSE SYLLABUS

**ORACLE**

Oracle Certified Professional

## Oracle Database Administrator (OCP 10g Exam 1Z0-042)

50 Cragwood Rd, Suite 350  
South Plainfield, NJ 07080

Victoria Commons, 613 Hope Rd Building #5,  
Eatontown, NJ 07724

130 Clinton Rd,  
Fairfield, NJ 07004

## Avtech Institute of Technology Course

Instructor:

Course Duration: 70

Date/Time:

Training Location:

**Course: Oracle 10g Database Administrator**

## Text / Lab Books

Recommended:



OCP Oracle9i DBA Fundamentals I (II) Exam Guide

Oracle9i DBA Handbook

OCP Oracle9i DBA Certification Boxed Set

## Course Description

This course is an intensive training program for Oracle 9i Certified OPN eligible students. It provides attendees with a comprehensive training plan incorporating instructor led training to fully cover all of the new features in Oracle Database 10g - the database for Grid computing. Hands-on practice sessions give students an opportunity to examine many of the new features for themselves. A focused exam study session on the last day reviews key Oracle Database 10g concepts prior to the student taking the Oracle Certified Professional (OCP) certification exam at the end of class.

In this Course, the students will gain knowledge of Oracle Database 10g installation techniques. Also examine how to create a database and identify how to properly configure network connectivity through Oracle Net services. You will then examine how to interact with the system and make complex queries and modifications to databases using SQL and PL/SQL.

In this course, the students will determine server requirements for the network system to help you plan your network. You will then examine installation features and performance capabilities, as well as instance configuration. You will identify file types, object types, and database

processes. You will also describe the user connection process and resources available to the DBA. You will then follow the necessary steps to create a database and configure Oracle Net Services in order to allow users to connect to your database. Finally, you will use SQL and PL/SQL to interact with the data contained within the database.

This course introduces students to the new features in Oracle Database 10g - the database for Grid computing. Students learn how to use Oracle Database 10g new features to increase database availability, to simplify database performance monitoring and tuning through the use of Oracle Database 10g Advisors, and to offer simplified database manageability. The course also covers security and some development platform changes that students need to understand if applications running in databases support the related features. Hands-on practice sessions give students an opportunity to examine many of the new features for themselves.

With Oracle Database 10g you can: Master the skills necessary to set up, maintain, diagnose, tune and troubleshoot an Oracle database, as well as configure and troubleshoot Net8 in a networked environment. Progress to the level of expertise you need in your job role by moving through the DBA progression Paths: Oracle9i Progression Path for Oracle9i Database Administrator Oracle8i Progression Path for Oracle8i Database Administrator and establish your competence as an Oracle Certified Professional (OCP). Completing the recommended courses will give you the core knowledge to proceed to advanced level courses and prepare you for the OCP exams. As an OCP, you'll have the industry-recognized credential that affirms your competence; a powerful distinction in this competitive industry.

## Learning Objectives

### 1. Introduction

- 1.1. Get a Movie, Not a Picture: Flashback Versions Query
- 1.2. Querying Changes to a Table
- 1.3. Finding Out Changes During a Period
- 1.4. Final Analysis
- 1.5. Rollback Monitoring
  - 1.5.1. How Much Longer?: Rollback Monitoring
  - 1.5.2. Give users an accurate estimate of the duration of a rollback operation
  - 1.5.3. Extended Statistics for Transaction Rollback
- 1.6. SQL Statement
- 1.7. Parallel Instance Recovery
- 1.8. Tablespace Management
  - 1.8.1. What's in a Name?: Improved Tablespace Management
  - 1.8.2. gets a boost thanks to a sparser SYSTEM
  - 1.8.3. support for defining a default tablespace for users
  - 1.8.4. new SYSAUX, and even renaming
  - 1.8.5. Default Tablespace for Nonessential Schemas
- 1.9. Using Globalization Support
- 1.10. Securing the Oracle Listener
- 1.11. Configuring Recovery Manager and Using Recovery Manager
- 1.12. Diagnostic Sources

- 1.13. Recovering from non-critical losses
- 1.14. Database Recovery
- 1.15. Flashback database
- 1.16. Recovering from User Errors
- 1.17. Dealing with Database Corruption
- 1.18. Automatic Database Management
- 1.19. Monitoring and Managing Storage
- 1.20. Automatic Storage Management
- 1.21. Monitoring and Managing Memory
- 1.22. Managing Resources
- 1.23. Automating Tasks with the Scheduler
- 1.24. New Features
  - 1.24.1. Improved VLDB Support RMAN Enhancements
  - 1.24.2. Flashback Any Error
  - 1.24.3. General Storage Management
  - 1.24.4. Automatic Storage Management
  - 1.24.5. Maintain Software
  - 1.24.6. Security Enhancements
  - 1.24.7. Miscellaneous New Features

## **2. Export/Import and Data Movement**

- 2.1. Data Pump Export
- 2.2. Export Monitoring
- 2.3. Parallel Operation
- 2.4. Database Pump Import
- 2.5. Operating on Specific Objects

## **3. Using the Flashback Table feature to save session**

- 3.1. A Quick Test Drive
- 3.2. Implementation
- 3.3. Using the Statistics
- 3.4. Time Model
- 3.5. Active Session History
- 3.6. Manual Collection
- 3.7. Baseline

## **4. SQL\*Plus Grows Up; a tinny but powerful DBA tool**

- 4.1. Useful prompts and advanced file manipulations
- 4.2. Prompts for the Unmindful
- 4.3. Quote the Obvious? Why, No!
- 4.4. Improved File Manipulations
- 4.5. Login.sql is for Logins, Isn't It?
- 4.6. Change is bad!
- 4.7. Use DUAL Freely
- 4.8. Other Useful Tidbits

## 5. Automatic Storage Management

- 5.1. Common tasks of adding, shifting, and removing storage disks at no additional cost
- 5.2. What is ASM?
- 5.3. Creating an ASM-enabled Database, Step by Step
  - 5.3.1. Set up an ASM Instance
  - 5.3.2. Set up a Disk Group
  - 5.3.3. Create Tablespace
- 5.4. Maintenance

## 6. The Resource Manager (RMAN)

- 6.1. Definition: A redesign of incremental backup scheme, offline recovery of incremental backups, previewing restore, recovering through resetlogs, and file compression
- 6.2. Incremental Backups Revisited
- 6.3. Flash Recovery Area
- 6.4. Incremental Merge
- 6.5. Compressed Files
- 6.6. Look Before You Leap: Recovery Preview
- 6.7. Resetlogs and Recovery
- 6.8. Ready for RMAN

## 7. Auditing Tells All

- 7.1. What is Auditing: Oracle Database 10g auditing captures user activities at a very detailed level, which may obviate manual, trigger-based auditing
- 7.2. The New Stuff
  - 7.2.1. EXTENDED\_TIMESTAMP
  - 7.2.2. GLOBAL\_UID and PROXY\_SESSIONID
  - 7.2.3. INSTANCE\_NUMBER
  - 7.2.4. OS\_PROCESS
  - 7.2.5. TRANSACTIONID
    - 7.2.5.1.1. System Change Number
- 7.3. Extended DB Auditing
  - 7.3.1. When Triggers *Are* Necessary
    - 7.3.1.1.1. Avoiding False Positives
    - 7.3.1.1.2. Capturing Before-change Values
- 7.4. Uniform Audit Trail

## 8. Wait Interface

- 8.1. The ADDM and the 10g wait interface provides valuable data for diagnosis
- 8.2. Enhanced Session Waits
- 8.3. Sessions Show Waits Too
- 8.4. Everyone Leaves a Trail

## 9. Materialized Views

- 9.1. Managing materialized views in 10g with compulsory query rewrite
- 9.2. Introduction of powerful new tuning advisors that take guesswork out of the picture
- 9.3. Easier Implementation

#### 9.4. Rewrite or Die!

##### 9.4.1. Explain Plan Explains Better

### 10. Enterprise Manager 10g

10.1. A tool that serves as one-stop-shop for Oracle administration and management—  
Whether by novices or experts

10.2. Architecture

10.3. Main Database Home Page

10.4. General Usage

10.5. Performance Tuning Using EM

10.6. Latch Contention

10.7. Maintenance Made Easy

### 11. Virtual Private Database

11.1. Five types of policies, column relevant policies, and column masking make VPD an  
even more powerful tool in the DBA's security toolbox

11.2. Policy Types

11.2.1.1. Dynamic Policy

11.3. Selective Columns

11.4. Column Masking

### 12. Segment Management

12.1. Manage storage in segments efficiently with Oracle Database 10g—by reclaiming  
wasted space, reorganizing tables online, and estimating growth trends

12.2. Current Practices

12.3. Segment Management the 10g Way

12.4. Finding Candidates for Shrinking

12.5. Taking the Guesswork Out of Index Space Requirements

12.6. Estimating Table Size

12.7. Predicting the Growth of a Segment

### 13. Transportable Tablespaces

13.1. Across Differing Endianness of Platforms

13.2. Using External Tables as a Data Transfer Mechanism

### 14. Automatic Shared Memory Management

14.1. How Do You Split the Pie?

14.2. Setting up Automatic Shared Memory Management

14.3. Which Pools are Not Affected?

14.4. Using Enterprise Manager

14.5. Specifying a Minimum for Each Pool

### 15. ADDM and SQL Tuning Advisor

15.1. Make a query behave using SQL Profiles and learn how to use ADDM to solve  
common performance problems quickly and easily

15.2. Automatic Database Diagnostic Monitor (ADDM)

- 15.3. Access Analysis with SQL Tuning Advisor
- 15.4. Intermediate-Level Tuning: Query Restructuring
- 15.5. Advanced Tuning: SQL Profiles
- 15.6. Using ADDM and SQL Tuning Advisor
  - 15.6.1. Reactive Tuning
  - 15.6.2. Proactive Tuning
  - 15.6.3. Development Tuning
- 15.7. Using Enterprise Manager (EM)

## 16. Scheduler

- 16.1. Creating Jobs Without Programs
- 16.2. Associating Jobs with Programs
- 16.3. Classes, Plans, and Windows
- 16.4. Monitoring
- 16.5. Administration

## Prerequisite

Background in Oracle 9i

## Contact Hours

\_\_\_\_\_ Contact Hours (Lecture \_\_\_\_ Hours / Lab \_\_\_\_ Hours)

## Semester Credit Hours

\_\_\_\_\_ semester credit hours

## Teaching Strategies

A variety of teaching strategies may be utilized in this course, including but not limited to, lecture, discussion, written classroom exercises, written lab exercises, performance based lab exercises, demonstrations, quizzes and examinations. Some quizzes may be entirely or contain lab based components. A mid-course and end course examination will be given.

## Method of Evaluating Students

### Grade Distribution

Class Attendance	10
Mid Term	30
Finals	50
Special Projects Makeup projects	10
<b>Total</b>	<b>100%</b>

## Grading Policy

At the end of each course, each student is assigned a final grade as follows:

Point Range	Interpretation	Grade	Quality Points
90 – 100	Excellent	A	4.0
80 – 89	Very Good	B	3.0 – 3.9
70 – 79	Average	C	2.0 – 2.9
60 – 69	Poor	D	1.0 – 1.9
Below 60	Failure	F	0
N/A	Withdrawal	W	0
N/A	Pass	P	0
N/A	Incomplete	I	0

A student earning a grade of D or above is considered to have passed the course and is eligible to pursue further studies. A student receiving a grade of F has failed the course. A failed course must be repeated and passed to meet Avtech Institute's graduation requirements, in addition to an overall program GPA of 2.0.

## Requirements for Successful Completion of the Course

At a minimum, students must achieve the following:

- A passing grade of **D** or above
- Completion of all required examinations
- Submission of all required lab exercises and projects and;
- Adherence to the school attendance policy.

## Equipment Needed

Industry standard desktop computer for lab exercises.

Equipment Breakdown Lab room

Videos and Projector

## Library Assignments

To be determined by the instructor.

## Portfolio Assignment

Student program outcome portfolios are required to demonstrate student competencies. In conjunction with your course structure, please select a project/paper that best demonstrates what you have learned in this course and add it to your program portfolio.



## Course Policies

### Disruptive Behavior

Disruptive behavior is an activity that interferes with learning and teaching. Inappropriate talking during class, surfing inappropriate website, tardiness, cheating, alcohol or drug use, use of cell phone, playing loud music during class, etc. all disrupt the learning process.

### Copyright Infringement

Specific exemptions to copyright infringement are made for student use in the context of learning activities. Graphic design students often download images from the Internet, or scan images from publications. As long as this work is for educational purpose, and subject to faculty permission, this is not a problem.

### Plagiarism

Faculty cannot tolerate the *misrepresentation of work as the student's own*. This often involves the use by one student or another student's design, whether voluntarily or involuntarily. In the event that plagiarism is evident and documented, all students involved in the conscious decision to misrepresent work must receive an F as the grade for the project. A second occurrence may result in suspension for the rest of the quarter, and return to the school only after a review by the Academic Standards Committee.

## Attendance

### Attendance and Lateness

In education and the workplace, regular attendance is necessary if individuals are to excel. There is a direct correlation between attendance and academic success. Attendance is mandatory. All students must arrive on time and prepared to learn at each class session. At the faculty member's discretion, students may be marked absent if they arrive more than 15 minutes late to any class. More than five absences in a class that meets twice per week or more than two absences in a class that meets once per week may result in a failure.

## Make-Up Work

### Late Projects and Homework

All projects and homework must be handed in on time. Homework should be emailed to your instructor if you are going to miss a class. Work that is submitted one week late will result in the loss of one full grade; and work that is submitted two weeks late will result in the loss of two full grades; more than two weeks late you will receive a failing grade on the project.