

ITSW 1054 Course Syllabus

1. Name of Course: Oracle Database Administration I

2. Number of Clock Hours: 60 hours

3. Course Description:

Students will gain a conceptual understanding of the Oracle database architecture and how its components work and interact with one another. Students will also learn how to create an operational database and properly manage the various structures in an effective and efficient manner including performance monitoring, database security, user management, and backup/recovery techniques. The lesson topics are reinforced with structured hands-on practices. This course is designed to prepare you for the corresponding Oracle Certified Associate exam.

4. Course Objectives

At the end of this course, students will be able to:

- Install and configure the Oracle Database 11g
- Create and administer user accounts in the Oracle Database 11g
- Backup and Recovery of the Oracle Database 11g
- Monitor, troubleshoot, and maintain the Oracle Database 11g
- Configure Oracle Net services for the Oracle Database 11g

5. Rationale:

Upon completion of this course, students will have a better understanding of Oracle 11g, a powerful and popular database system.

6. Required Materials:

Oracle Official Curriculum included.

7. Evaluation

Those who participate in class discussions, complete course lab work, and miss no more than three class meetings will be awarded 6.0 continuing education units.

8. Course Outline

Introduction

- Explain the course objectives
- Identify the Oracle product line
- Describe the basic concepts of a relational database
- Know core database administrator tasks

Installing Oracle Database 11g Software

- Identify system requirements
- Use optimal flexible architecture
- Install software with the Oracle Universal Installer

Create an Oracle Database

- Describe Oracle Database Architecture
- Understand the instance architecture

Use the management framework
Use the Database Creation Assistant

Database interfaces

Use structured query language (SQL)
Use Procedural Language/Structured Query Language (PL/SQL)
Use Java
Use the Oracle C++ Call Interface (OCCI)

Controlling the database

Start and stop the agent
Start and stop the enterprise manager database console
Start and stop the listener
Startup and shutdown the database

Storage Structures

Define the purpose of tablespaces and data files
Create tablespaces
Manage tablespaces
Obtain tablespace information
Create and manage tablespaces using Oracle Managed Files (OMF)

Administering users

Create and manage database user accounts
Create and manage roles
Grant and revoke privileges
Control resource usage by users

Managing Schema Objects

Create and modify tables
Define constraints
View the attributes of a table
View the contents of a table
Create indexes and views

Managing Data

Manipulating data through SQL
Using Import
Using Export
Using SQL Loader

PL/SQL

Identify PL/SQL objects
Understand triggers and triggering events
Identify configuration options that affect PL/SQL performance

Oracle Database Security

Apply the principal of least privilege
Manage default user accounts
Implement standard password security features
Audit database activity

Oracle Net Services

Understand Oracle Net concepts
Use Oracle Net Manager to create and configure listeners
Use the listener control utility to control the Oracle Net Listener

Use the Oracle Net Manager to configure client and middle-tier connection
Use TNSPING to test Oracle Net connectivity

Oracle Shared Server

Understand when to use Oracle Shared Servers
Configure Oracle Shared Servers
Monitoring Shared Servers

Performance Monitoring

Troubleshoot invalid and unusable objects
Gather optimizer statistics
View performance metrics
React to performance issues

Proactive Maintenance: Objectives

Set warning and critical alert thresholds
Collect and use baseline metrics
Use tuning and diagnostic advisors
Use the Automatic Database Diagnostic Monitor (ADDM)
Manage the Automatic Workload Repository

Undo Management

Monitor and administer undo
Configure undo retention
Guarantee undo retention
Use the undo advisor

Monitoring and Resolving Lock Conflicts

Detect and resolve lock conflicts
Manage deadlocks

Backup and Recovery Concepts

Describe the basics of database backup, restore and recovery
List the types of failure that may occur in an Oracle Database
Describe ways to tune instance recovery
Identify the importance of checkpoints, redo log files, and archived log file
Configure ARCHIVELOG mode

Database backups

Create consistent database backups
Back your database up without shutting it down
Create incremental backups
Automate database backups
Monitor the flash recovery area

Database Recovery

Recover from loss of a control file
Recover from loss of a redo log file
Recover from loss of a data file