

## **ITSW 2037 Course Syllabus**

**1. Name of Course:** Oracle 11g Database Administration II

**2. Number of Clock Hours:** 60 hours

### **3. Course Description:**

In this class, you'll learn how to configure an Oracle database for multilingual applications. Students will practice various methods of recovering the database, using RMAN, SQL, and Flashback technology. Tools to monitor database performance and what steps to take to improve database performance are also covered in this course. Students will also learn how to use various database technologies, such as Resource Manager, the Scheduler, and Automatic Storage Management (ASM). The lesson topics are reinforced with structured hands-on practices and a workshop. This course is designed to prepare you for the corresponding Oracle Certified Professional exam.

### **4. Course Objectives**

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

- Use RMAN to create and manage backup sets and image copies
- Recover the database to a previous point in time
- Use Oracle's Flashback technology to recover your database
- Detect block corruptions and take appropriate measures to correct them
- Use the various Database advisors and views to monitor and improve database performance
- Control database resource usage with the Resource Manager
- Simplify management tasks by using the Scheduler
- Improve the security of the listener
- Review database log files for diagnostic purposes
- Customize language-dependent behavior for the database and individual sessions

### **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**

Datetimes with Timezones  
Specifying Language-Dependent Behavior  
Locale Variants  
Linguistic Sorting  
Case and Accent Insensitive Sorts  
Linguistic Comparisons  
Obtaining Information about the Current NLS Configuration

### **Securing the Oracle Listener**

Listener Password Authentication  
Controlling Database Access  
Securing the EXTPROC Service Entry

## **Configuring Recovery Manager**

- Using a Flash Recovery Area with RMAN
- Setting Parameters for RMAN
- Starting RMAN
- Configuring Persistent Settings for RMAN
- Control File Autobackups
- Retention Policies

## **Using Recovery Manager**

- Issuing Recovery Manager Commands
- Parallelization of Backup Sets
- Compressed Backups
- Copying the Whole Database
- Making Incremental Backups
- Block Change Tracking
- Incrementally Updating Backups
- Monitoring RMAN Backups

## **Diagnostic Sources**

- The Alert Log
- Viewing Alerts with EM
- Alerts Notification
- Editing Thresholds
- Trace Files

## **Recovering from non-critical losses**

- Creating New Temporary Tablespace
- Recreating Redo Log Files
- Recovering an Index Tablespace
- Read-Only Tablespace Recovery
- Loss of Password Authentication File

## **Database Recovery**

- Recovery Steps
- User-Managed Recovery Procedures: RECOVER Command
- Types of incomplete recovery
- Incomplete Recovery Best Practices
- Recovery Using EM
- Simple Recovery Through RESETLOGS
- Point-in-time recovery using RMAN

## **Flashback database**

- When to Use Flashback Technology
- Configuring Flashback Database
- Monitoring Flashback Database
- Best Practices for the Database and Flash Recovery Area
- Flash Recovery Area Space Usage
- Flashback Database Examples

## **Recovering from User Errors**

- Recycle Bin
- Flashback Dropped Tables Using EM
- Querying Dropped Tables
- Flashback Versions Query
- Flashback Transaction Query
- Using Flashback Versions Query and Flashback Transaction Query

Flashback Table  
Using EM To Flashback Tables

## **Dealing with Database Corruption**

What is block corruption?  
Interpreting DBVERIFY  
The ANALYZE command  
How to Handle Corruptions  
The DBMS\_REPAIR Package  
Block Media Recovery (BMR)  
Detecting Database Corruptions Using DBVERIFY  
Using RMAN to Repair Corrupt Blocks

## **Automatic Database Management**

Automatic Optimizer Statistics Collection  
Workload Repository  
Database Control and Advisors  
Using the SQL Tuning Advisor  
Using the SQL Access Advisor  
Automatic Undo Retention Tuning

## **Monitoring and Managing Storage**

Redo Logfile Size Advisor  
Resumable Statements  
Tablespace Space Usage Monitoring  
Accessing the Segment Advisor  
Shrinking Segments Using SQL  
Segment Resource Estimation  
Monitoring Index Space  
Identifying Unused Indexes

## **Automatic Storage Management**

ASM Concepts  
ASM General Architecture  
Creating an ASM instance  
Creating tablespaces that use ASM storage  
Viewing ASM information  
Migrating a tablespace to use ASM storage

## **Monitoring and Managing Memory**

Oracle Memory Structures  
Automatic PGA Memory Management  
Using the Memory Advisor  
Using Automatic Shared Memory Management to avoid long running query issues

## **Managing Resources**

Creating a New Resource Plan  
Creating Resource Consumer Groups  
Assigning Users to Resource Consumer Groups  
Adaptive Consumer Group Mapping  
Using Sub-Plans to limit CPU Utilization  
Administering the Resource Manager  
Resource Plan Directives

## **Automating Tasks with the Scheduler**

Creating a Scheduler Job  
Using Scheduler Programs

Creating and Using Schedules  
Creating a Job Class  
Prioritizing Jobs within a Window  
Viewing Job Execution Details  
Creating a job that runs a program outside of the database