

COLLEGE OF INFORMATION TECHNOLOGY DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE SYLLABUS/SPECIFICATION

CODE & TITLE:ITCS 434 – Database Administration II (ODBA – 4)					
WEIGHT:	(2 - 2 - 3)				
PREREQUISITE:	ITCS 433				
DESCRIPTION:	The ODBA-4 course provides critical information on diagnostic resources, globalization support, managing resources, flashback databases and recovering from user errors. It also provides details on maintaining and management of memory as well as automating tasks with the scheduler.				
Objectives:	 To diagnose and repair data failures with Flashback technology. To manage space and optimize database storage in response to growing space requirements. To monitor and manage major database components, including memory, performance and resources. To secure the availability of Oracle database through appropriate backup and recovery strategies. To automate DBA tasks with the scheduler. 				
Semester:	ACADEMIC YEAR:				

INSTRUCTOR: OFFICE TEL: EMAIL:

INTENDED LEARNING OUTCOMES (ILOS)

Upon successful completion of the course, students should be able to:

A. Knowledge and Understanding							
A1	<u>Concepts and Theories:</u> Recognize critical concepts and principles of the most important responsibilities a DBA has, like: performing backup and recovery as well as automating tasks via the scheduler.						
A2	Contemporary Trends, Problems and Research: NA						
A3	Professional Responsibility: NA						

B. Sub	ject-Specific Skills
B1	<u>Problem Solving</u> : Show ability to manage and optimize database storage, diagnose and repair data failure, perform backup and data recovery as well as use the scheduler to automate different tasks.
B2	Modeling and Design: NA
B3	<u>Application of Methods and Tools:</u> Apply specialized tools while monitoring, diagnosing and securing Oracle database; such as Recovery Manager (RMAN) command-line and enterprise manager, Data Recovery Advisor (DRA) and Automatic Diagnostic Repository (ODR).

C. Thinking Skills					
C1	<u>Analytic:</u> Critically evaluate the various tools of configuring, managing, monitoring, diagnosing and securing an Oracle database and choose the appropriate tools for a given situation.				
C2	Synthetic: NA				
C3	Creative: NA				

D. General and Transferable Skills (Other Skills Relevant to Employability and Personal					
Development)					
D1	Communication: The ability to express and communicate critical ideas related to data				
DI	base adminstration in oral and written form.				
D2	Teamwork and Leadership: NA				
D3	Organizational and DevelopmentalSkills: Demonstrate ability to organize ideas and				
	effectively allocate time in a given assignment.				
D4	Ethical and Social Responsibility: NA				

Course Structures (Outline)						
Week	Ho Lec.	ours Lab	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	2	A1	Introduction and syllabus distribution.	Lecture	
2	2	2	A1, B1, B3	 Core Concepts and Tools of the Oracle Database Configuring for Recoverability 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
3	2	2	A1, B1, B3	 Using the RMAN Recovery Catalog Configuring Backup Settings 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises/ Quiz1
4	2	2	A1, B1, B3, C1	 Creating Backups with RMAN Restore and Recovery Task 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
5	2	2	A1, B1, B3, C1, D1, D3	 Using RMAN to Perform Recovery Monitoring and Tuning RMAN 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises/ Assignment 1
6	2	2	A1, B1, B3, C1	• Diagnosing the Database	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
7	2	2	A1, B1, B3	• Using Flashback Technology I	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
8	2	2	A1, B1, B3	• Using Flashback Technology II	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
9	2	2	B1, B3, C1	• Performing Flashback Database	Lecture/ Class Discussion/ In-Lab Supervised	Lab Test

					Work	
10	2	2	A1, B1, B3, C1	 Managing Memory Managing Database Performance 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
11	2	2	A1, B1, B3, C1	 Managing Performance by SQL Tuning Managing Resources 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises/ Quiz 2
12	2	2	A1, B1, B3, C1	• Automating Tasks with the Scheduler	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
13-14	4	4	A1, B1, B3, C1, D1, D3	 Managing Space in Blocks Managing Space in Segments Managing Space for the Database 	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises/ Assignment 2
15	2	2	A1, B1, B3, C1	• Duplicating a Database	Lecture/ Class Discussion/ In-Lab Supervised Work	In-Lab Exercises
16	2	-	A1, B1,C1	All Topics		Final Exam

TEXTBOOK(S):	Oracle Database 11g: Administration Workshop II					
HANDOUT(S):	Oracle Learning Library available through:					
	http://www.oracle.com/technetwork/tutorials/index.html					
REFERENCE(S):	1. Oracle Database 11g : Database Administration					
	2. Oracle Database 11g : Database Administration Workshop I					
	3. Gehani N. and Annamalai M.(2013) The Database Book - Principles and					
	Practice using the Oracle Database System, Universities Press.					
	4. Greenwald R., Stackowiak R. and Sterns J. (2007) Oracle Essentials: Oracle					
	5. Database 11g, Fourth Edition, O'Reilly Media.					
WEBSITE(S):	http://www.oracle.com					

ASSESSMENTS:

Type of Assessment	Description	ILOs	Weighting
Assignments	The students will be given 2 research based assignments each worth 10 marks and their total will be considered at the end.	A1, B1, C1, D1, D3	20%
Quizzes	The purpose of the quiz is to assess the students' knowledge and understanding of the topics covered in the course like managing and optimizing database storage, diagnosing and repairing data failure, Performing backup and recovery as well as automating tasks via the scheduler. Students will be given two quizzes, each one is 30 minutes, and the best one will be considered.	A1, B1, C1	10%
Lab Test	The knowledge and practical skills of students will be evaluated throughout practical test that will be of 90 minutes. It will cover topics discussed in the first 9 weeks.	B1, B3, C1	30%
Final Exam	The final exam is comprehensive and will be of two hours duration. It will consist of multiple choice questions, fill in the blank, short-answer and few essay questions.	A1, B1, C1	40%
In-Lab Exercises	Each of the In-Lab exercises consists of a set of practical tasks to be carried by the students during lab time and that will help in evaluating hands-on capability of the students.		Formative
Overall			100%

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