Teaching Plan

FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DATABASE ADMINISTRATION

BITP2323	SEMESTER 2	SESSION 2021/2022

BITP 2323 DATABASE ADMINISTRATION (3, 2, 2)
TYPE OF COURSE: CORE
EDITION: 2
UPDATED: 03-03-2020

1.0 LEARNING OUTCOMES

At the end of the lesson, students should be able to:

i. Explain the concepts of database administration. (C2, PLO2)
ii. Apply functions of database administration. (C3, TS1, PLO5)
iii. Analyze database performance. (C4, CTPS1,PLO6)

2.0 SYNOPSIS

In this course students will take up the roles, issues and responsibilities as database administrator. They will also identify the functions of the DBMS such as storage, access and data updates; database objects; data integrity; physical database design; user management and database performance.

3.0 PRE-REQUISITE

BITP 1323 Database

4.0 PRACTICAL

Training will be conducted in the database lab where students will learn to design, manage and analyze the DBMS using the Oracle RDBMS.

5.0 REFERENCES

1. Deirdre Matishak, Mark Fuller (2010), *Oracle Database 11G: Administration Workshop I (Volume I & II),* Edition 2.0, Jobi Varghese and Veena Narasimhan (Oracle Corporation).
2. Bert Rich, Roopesh Ashok Kumar (2019) Oracle Database 2 Day DBA 18C, Oracle Corporation
3. Bert Rich, (2012), *Oracle Database 2 Day DBA 11g Release 2 (11.2)*, (Oracle Corporation).

4. Oracle Corporation, (2014), Oracle® Database Express Edition,Getting Started Guide & Installation guide 11g *Release 2 (11.2)*

5. Mullins, Craig, S. (2012) *Database Administration – The Complete Guide to Practices and Procedures Second Edition*. Addison-Wesley.

6. Peasland, Brian. (2019) *Oracle DBA Mentor: Succeeding as an Oracle Database Administrator,* 1st ed. Edition, Apress.

6.0 COURSE IMPLEMENTATION

i. Lecture
   - 2 hours per week for 14 weeks (Total = 28 hours)

ii. Laboratory Activities
   - 2 hours per week for 14 weeks (Total = 28 hours)

7.0 COURSE EVALUATION

Assessment Method	LO 1	LO 2	LO 3	Scheme, Rubric/ guideline
Quiz = 10%	KZ1 (5%) Lecture 1 & 2	KZ2 (5%) Lecture 3 & 4		Quiz1schema.doc Quiz2 schema.doc
Lab Assignment = 40%	TG1(10%)	TG2(10%)	TG3(10%) TG4(10%)	TG1schema.doc TG2schema.doc TG3schema.doc TG4schema.doc
Mid-term exam= 20%	UJ(10%)	UJ(10%)		UJschema.doc
Final= 30%	PA(10%)	PA(10%)	PA(10%)	PAschemaschema.doc
Total	35%	35%	30%	

8.0 STUDENT LEARNING TIME (SLT)

		Guided Learning Time (hr)				Independant Learning(hr)								Assessment Time (hr)				
Minggu *Week*	CLO	L	T	P	O	L	T	P	O	F	T	A	O	F	T	A	O	SLT
W1	1	2	0	2	0	1	0	1	0	0	0	6	0	0	0	1.5	0	13.5
W2	1	2	0	2	0	1	0	1	0	0	1	0	0	0	0.25	0	0	7.25
W3	1	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W4	1	2	0	2	0	1	0	1	0	0	1	0	0	0	0.25	0	0	7.25
W5	2	2	0	2	0	1	0	1	0	0	0	6	0	0	0	1.5	0	13.5
W6	2	2	0	2	0	1	0	1	0	0	0	6	0	0	0	1.5	0	13.5
W7	2	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W8	2	2	0	2	0	1	0	1	0	0	4	0	0	0	1	0	0	11
W9	2	2	0	2	0	1	0	1	0	0	0	6	0	0	0	1.5	0	13.5
W10	3	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W11	3	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W12	3	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W13	3	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W14	3	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	6
W15	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	0	0	10
Keseluruhan *Overall*		28	0	28	0	14	0	14	0	8	6	24	0	2	1.5	6	0	131.5
																	SLT Credit Equivalent	3.29

9.0 DETAILED SYLLABUS AND TEACHING PLAN

Week	Session	Contents	References	Delivery /Assessment Method
1	**Lecture 1** **Lab 1**	**Introduction to Database Administration** **Lecture content** Introduction to Database Administration and Tasks of a DBA Advantages of Database Administration **Laboratory content** Familiarizing with Oracle Database Control Environment Group formation and environment setup	[1], [2]	Lecture, demo Assignment 1
2	**Lecture 2** **Lab 2**	**Database Environment and Creation** **Lecture content** Database planning Database Configuration Assistant (DBCA) **Laboratory content** Create database and delete database using DBCA	[1], [2]	Lecture, demo . Quiz 1
3	**Lecture 3** **Lab 3**	**Database Architecture and Administration Tools** **Lecture content** Database Server architecture Database Control tool (OEM and SQL-based Management Tools) OS Environment Variables Configuration Database Control Setting **Laboratory content** Exploring Oracle Database Control tools Setting OS Environment Variables	[1], [2]	Lecture, demo
4	**Lecture 4** **Lab 4**	**Database Instance Management** **Lecture content** Understanding Instance Management Initialization parameter files Data dictionary **Laboratory content** Managing Oracle Instance	[1], [2]	Lecture, demo Quiz 2
5	**Lecture 5** **Lab 5**	**Database Storage Structures Management** **Lecture content** Understanding control files, redo log files, rollback segments and data files	[1], [2], [3]	Lecture, demo. Assignment 2

		Laboratory content Viewing and reporting database storage structure information Creating tablespace Modifying tablespace		
6	**Lecture 6** **Lab 6**	**Database Security and Managing User Accounts** **Lecture content** Database Security Basics Understanding Administering Roles **Laboratory content** Viewing and Administering User Accounts Setting Database Password Policy	[1], [2]	Lecture, demo Assignment 3
7	**Lecture 7** **Lab 7**	**Managing Data Concurrency** **Lecture content** Locking mechanism Resolving lock conflicts Deadlocks **Laboratory content** Managing Data and Concurrency	[1], [2]	Lecture, demo Mid-term Examination
8	**Lecture 8** **Lab 8**	**Managing Undo Data** **Lecture content** Transactions and undo data Managing and configuring undo data **Laboratory content** Managing Undo segments	[1], [2]	Lecture, demo. Assignment 4
9	**MID SEMESTER BREAK**			
10	**Lecture 9** **Lab 9**	**Database Auditing and Maintenance** **Lecture content** Standard database auditing Configuring audit trails Standard database auditing Configuring audit trails **Laboratory content** Implementing audits	[1], [2]	Lecture, demo
11	**Lecture 10** **Lab 10**	**Database Performance** **Lecture content** Use Enterprise Manager to monitor performance Use the Memory Advisor to size memory buffers View performance-related dynamic views Troubleshoot invalid and unusable objects **Laboratory content** Performance maintenance Perform performance monitoring		

12	**Lecture 11** **Lab 11**	**Backups and Recovery Managing Concepts** **Lecture content** Failures categories Flashback technologies **Laboratory content** Configuring for recoverability	[1], [2]	Lecture, demo
13	**Lecture 12** **Lab 12**	**Database Backups** **Lecture content** Understanding Database Backup and Recovery Backup and Recovery manager **Laboratory content** Backing up database Displaying backup reports	[1], [2]	Lecture, demo,
14	**Lecture 13** **Lab 13**	**Database Recovery** **Lecture content** Data Recovery advisor Loss of: control file, Redo log file and Data file **Laboratory content** Recovering database	[1], [2]	Lecture, demo
15	**Lecture 14** **Lab 14**	**Moving Data** **Lecture content** General moving data architecture Oracle Data Pump Managing file locations Data loading **Laboratory content** Moving data using SQL*Loader	[1], [2]	Lecture, demo
16	**FINAL ASSESSMENT**			

10.0 MATRIX OF LEARNING OUTCOMES

SUBJECT vs PROGRAM OUTCOME (PO)

Subject	PROGRAM OUTCOME (PO)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
BITP 2323		X			X	X			

LEARNING OUTCOME (LO) vs PROGRAM OUTCOME (PO)

LO	PROGRAM OUTCOME (PO)								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1		x							
LO2					x				
LO3						x			

LEARNING OUTCOME (LO)

LO1	Explain the concepts of database administration. (C2)
LO2	Apply functions of database administration. (C3, TS1)
LO3	Analyze database performance. (C4, CTPS1)

SUBJECT vs SOFT SKILLS

Subject	SOFT SKILLS																							
	communication skill					critical thinking & problem solving					team work			lifelong learning			entrepreneurship skills			ethics&moral professionalism			leadership skills		
	CS1	CS2	CS3	CS4	CS5	CTPS1	CTPS2	CTPS3	CTPS4	CTPS5	TS1	TS2	TS3	LL1	LL2	LL3	ES1	ES2	ES3	EM1	EM2	EM3	LS1	LS2	LS3
BITP 2323						X					X													

LEARNING OUTCOME (LO) vs SOFT SKILLS

LO	SOFT SKILLS																							
	communication skill					critical thinking & problem solving					team work			lifelong learning			entrepreneurship skills			ethics & moral professionalism			leadership skills		
	CS1	CS2	CS3	CS4	CS5	CTPS1	CTPS2	CTPS3	CTPS4	CTPS5	TS1	TS2	TS3	LL1	LL2	LL3	ES1	ES2	ES3	EM1	EM2	EM3	LS1	LS2	LS3
LO1																								
LO2											X													
LO3						X																		

SUBJECT vs TAXONOMY

Subject		Taxonomy																
	Affective					Cognitive						Psychomotor						
	A1	A2	A3	A4	A5	C1	C2	C3	C4	C5	C6	P1	P2	P3	P4	P5	P6	P7
BITP 2323						x	X	X	X									

LEARNING OUTCOME (LO) vs TAXONOMY

LO		Taxonomy																
	Affective					Cognitive						Psychomotor						
	A1	A2	A3	A4	A5	C1	C2	C3	C4	C5	C6	P1	P2	P3	P4	P5	P6	P7
LO1						X	X											
LO2						X	X	X										
LO3						X	X	X	X									