❖ SCHEME OF PRACTICAL EVALUATION:

S.N.	Description	Max. Marks
1	Write Test Cases , Use any automated test tool, demonstration of any test management tool	20
2	Performance	10
3	Automate any installation procedure, selection of proper testing method	10
4	Viva voce	10
	TOTAL	**50**

❖ MAPPING COURSE OUTCOMES WITH PROGRAM OUTCOMES:

1. Computer Engineering:-

Course Outcomes	Program Outcomes (POs)										PSOs	
	1	2	3	4	5	6	7	8	9	10	1	2
1	-	3	-	-	-	-	-	-	-	3	-	3
2	-	3	-	-	-	-	-	-	-	3	-	3
3	-	3	-	-	-	-	-	-	-	3	-	3
4	-	3	2	2	-	-	-	2	2	3	2	3
5	-	3	2	2	-	-	-	2	2	3	2	3
6	-	3	2	2	-	-	-	2	2	3	2	3

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

2. Information Technology:-

Course Outcomes	Program Outcomes (POs)										PSOs	
	1	2	3	4	5	6	7	8	9	10	1	2
1	-	3	-	-	-	-	-	-	-	3	-	3
2	-	3	-	-	-	-	-	-	-	3	-	3
3	-	3	-	-	-	-	-	-	-	3	-	3
4	-	3	2	2	-	-	-	2	2	3	-	3
5	-	3	2	2	-	-	-	2	2	3	-	3
6	-	3	2	2	-	-	-	2	2	3	-	3

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

❖ REFERENCE & TEXT BOOKS:

S. N.	Title	Author, Publisher, Edition and Year Of publication	ISBN Number
1.	Software Testing	Ron Patton, Sams; 2 Edition , August 5, 2005	10: 0672327988 13: 978-0672327988
2.	Software Testing Foundations	Andreas Spillner, Tilo Linz, Hans Schaefer, Spillner, Linz, Schaefer, 4th Edition, 2014	978-1-937538-42-2
3.	Foundations Of Software Testing	Aditya Mathur, Addison-Wesley Professional; 1 Edition (April 17, 2008	10: 8131716600 13: 978-8131716601
4.	The Art Of Software Testing	Glenford J. Myers Tom Badgett Corey Sandler, Johnwiley & Sons, Inc., Hoboken, New Jersey., Third Edition,October 2011.	978-1-118-03196-4 978-1-118-13313-2
5.	Software Testing Principles and Practices	Srinivasan Desikan, Gopalswamy Ramesh, Dorling Kindersley, Sixth Empression, 2008	978-81-7758-121-8

❖ E-REFERENCES:

- **http://www.tutorialspoint.com/software_testing/software_testing_types.htm , assessed on 30th August 2016**
- **http://www.softwaretestingtimes.com/2010/04/software-testing-tutorials-for.html, assessed on 30th August 2016**
- **http://www.softwaretestinghelp.com/15-best-test-management-tools-for-software-testers/ , assessed on 30th August 2016**
- **http://www.etestinghub.com/testdirector.php , assessed on 30th August 2016**

❖ LIST OF MAJOR EQUIPMENTS/INSTRUMENTS WITH SPECIFICATION

1. Personal Computer with Operating system (XP, Windows etc)
2. Test management tool (e.g. Test Director) Wattmeter 0-3000 W
3. WinZip, Winrar, Acrobet Reader.
4. Bug Tracking Tool (e.g. Bugzilla, Bugit, etc).
5. Automation tool like QTP, Winrunner , Selenium etc).
6. Automation tool (eg. AutoIT).

❖ **LIST OF EXPERTS & TEACHERS WHO CONTRIBUTED FOR THIS CURRICULUM:**

S.N.	Name	Designation	Institute / Industry
1.	Mr. S. P. Lambade	HOD, Computer Engineering	Government Polytechnic, Nagpur.
2	Dr.A.R.Mahajan	H.O.D, Information Technology	Government Polytechnic, Nagpur.
3.	Ms. S. N. Chaudhari	Lecturer in Computer Engineering	Government Polytechnic, Nagpur.
4.	Ms. D. M. Shirkey	Lecturer in Computer Engineering	Government Polytechnic, Nagpur.
5	Ms. G. B. Chavan	Lecturer in Computer Engineering	Government Polytechnic, Nagpur.
6	Prof. Manoj Jethawa	HOD Computer Science	Shri Datta Meghe Polytechnic, Nagpur
7	Prof. N.V.Chaudhari	Asst.Proffessor(CSE)	DBACEO, Wanadongari,Nagpur
8	Mr. Atul Upadhay	CEO	Vista Computers, Ram Nagar,Nagur

(Member Secretary PBOS) **(Chairman PBOS)**

GOVERNMENT POLYTECHNIC, NAGPUR.

(An Autonomous Institute of Govt. of Maharashtra)

COURSE CURRICULUM

PROGRAMME : DIPLOMA IN COMPUTER ENGINEERING

LEVEL NAME : ELECTIVE COURSES

COURSE CODE : CM503E$

COURSE TITLE : DATABASE ADMINISTRATION

PREREQUISITE : NIL

TEACHING SCHEME : TH:03; TU:00;PR:02(CLOCK HRs.)

TOTAL CREDITS : 04 (1 TH/TU CREDIT = 1 CLOCK HR., 1 PR CREDIT = 2 CLOCK HR.)

TH.TEE : 03 HRs

PR.TEE : 02 HRs (External)

PT. : 01 HRs

❖ **RATIONALE:**

The student of Computer Engineering should know the concept of database administration. Database administration is just not a single activity but in real world it refers to the whole set of activities performed by a database administrator to ensure that a database is always available as needed. Other closely related tasks and roles are database security, database monitoring and troubleshooting, and planning for future growth. Database administration is an important function in any organization that is dependent on one or more databases.

❖ **COURSE OUTCOMES:**

After completing this course students will be able to–

1. Design database architecture.
2. Apply data integrity constraints.
3. Organize and manage Database & Database Files Locations.
4. Retrieve data from data dictionary.
5. Create and manage redo & Control files.
6. Create and manage user, roles, privileges tables, table spaces, indexes and integrity constraints.

❖ **COURSE DETAILS:**

A. THEORY :

Units	Specific Learning Outcomes (Cognitive Domain)	Topics and subtopics	Hrs.
1. Architectural Components	1. State the use of Buffers and pools in database. 2. State functions of Library Cache & Data Dictionary Cache. 3. Write a SQL Statement to retrieve data.	1.1 Overview of Primary Components, Server and Instance 1.2 Establishing a Connection and Creating a Session 1.3 Physical Structure 1.4 Memory Structure 1.5 System Global Area, Shared Pool, Library Cache, Data Dictionary Cache 1.6 Buffers and pools 1.7 Program Global Area, User Process, Server Process 1.8 Background Processes 1.9 Logical Structure, Processing a SQL Statement	6
2. Creating a Database And Managing an Instance	1. Design a Database structure. 2. Describe various options to start up and shut down the database safely.	2.1 Managing and Organizing a Database 2.2 Creation Prerequisites 2.3 Planning Database Files Locations 2.4 Creating a Database 2.5 Operating System Environment 2.6 Initialization Parameter Files 2.7 Starting UP a Database and Shutting Down the Database 2.8 Shutdown Options	6
3. Maintaining the Control File , Redo Log Files , Tablespaces and Data files	1. Describe space management in Tablespaces. 2. Describe working of data files and log files for database. 3. Describe working of Redo Logs files. 4. Design indexes, logical structure of table spaces within the database.	3.1 Use of control file, Multiplex and manage the control file. 3.2 Using Redo Log Files, Structure of Redo Log Files 3.3 Working of Redo Logs, Forcing Log Switches and Checkpoints 3.4 Database Storage Hierarchy, 3.5 Creating Tablespaces, Space Management in Tablespaces, Changing the Storage Settings, Undo Tablespace, 3.6 Data files, tables, undo data and indexes logical structure of table spaces within the database, create table spaces, 3.7 Undo Segments, types of undo segments, Automatic Undo Management.	12

4. Managing Tables , Indexes, Storage Structure And Relationships	1. State the use and distinguish between an extended versus a restricted row id. 2. Design structure of a row. 3. Differentiate between regular and temporary tables. 4. Describe use data dictionary. 5. Classify different Index.	4.1 Distinguish between an extended versus a restricted row id, structure of a row, creating regular and temporary tables, manage storage structures within a table, reorganize truncate, drop a table, purpose of undo data 4.2 Classification of Indexes, B-Tree Index, Bitmap Index 4.3 Segment types and uses 4.4 Keywords that control block spaces usage, storage structures from the data dictionary 4.5 Data dictionary content and usage 4.6 Data dictionary components, Contents and uses of data dictionary, Query the data dictionary	10
5. Managing Users, Role And Database Objects	1. Describe different privileges and roles in database. 2. Classify system and object privileges. 3. Write syntax to create users, privileges and roles. 4. Justify the procedure of adding and removing privileges and roles from created users. 5. Write SQL statement to retrieve user's and role information from data dictionary.	5.1 Managing users, privileges and roles. 5.2 Creating new database users alter and drop existing database users, 5.3 Monitor information about existing users, 5.4 Classify system and object privileges, Grant and revoke privileges, 5.5 Auditing, Create, modify and controlling availability of roles, 5.6 Remove roles, user predefined roles, 5.7 Display role information from the data dictionary	8
6. Maintaining Password Security, Resources Data Integrity	1. State the use of different keys. 2. Define different keys. 3. Describe syntax to add and drop different constraints on tables. 4. Apply different keys.	6.1.Manage passwords using profiles and Administrator profiles, Control use of resources using profile, Data Integrity, Types of Constraints, 6.2.Constraint States, Constraint Checking 6.3.Defining Constraints as Immediate or Deferred, 6.4.Primary and Unique Key Enforcement Foreign Key Considerations	6
		Total Hrs.	**48**

B. LIST OF PRACTICALS/LABORATORY EXPERIENCES/ASSIGNMENTS:

Practicals	Specific Learning Outcomes (Psychomotor Domain)	Units	Hrs.
1	Install database software.	Architectural Components	4
2	Create a database and configure it.	Creating a Database And Managing an Instance	4
3	Use different options to start up and shut down database with SQL Plus.		4
4	Use database manager to start up, shut down and, view parameters list		4
5	Create after drop a table space by using enterprise manager		2
6	Use SQL Plus to create users and assign roles and grant permissions table space.	Maintaining the Control File , Redo Log Files , Tablespaces and Data files	2
7	Create database objects and apply different constraints using SQL Plus.		2
8	Create and undo table space with database control and monitor undo with SQL plus.		2
9	Detect and resolve log connection.		2
10	Run a whole database backup and back up the control file to trace with SQL plus.	Managing Users, Role And Database Objects	4
		Skill Assessment	**2**
		Total Hrs	**32**

❖ SPECIFICATION TABLE FOR THEORY PAPER:

Unit No.	Units	Levels from Cognition Process Dimension			Total Marks
		R	U	A	
01	Architectural Components	02(02)	08(04)	00(00)	**10(06)**
02	Creating a Database And Managing an Instance	00(02)	04(04)	06(00)	**10(06)**
03	Maintaining the Control File , Redo Log Files , Tablespaces and Data files	02(00)	08(08)	06(00)	**16(08)**
04	Managing Tables , Indexes, Storage Structure And Relationships	04(00)	04(00)	06(06)	**14(06)**
05	Managing Users, Role And Database Objects	00(00)	04(08)	06(00)	**10(08)**
06	Maintaining Password Security, Resources Data Integrity	02(00)	08(00)	00(06)	**10(06)**
	Total	**10(04)**	**36(24)**	**24 (12)**	**70 (40)**

❖ QUESTION PAPER PROFILE FOR THEORY PAPER:

Q.	Bit 1			Bit 2			Bit 3			Bit 4			Bit 5			Bit 6			option
No	T	L	M	T	L	M	T	L	M	T	L	M	T	L	M	T	L	M	
1	1	R	2	3	R	2	4	R	2	4	R	2	6	R	2	1	R	2	**5/7**
	2	R	2																
2	1	U	4	2	U	4	3	U	4	1	U	4	2	U	4				**3/5**
3	1	U	4	3	U	4	4	U	4	5	U	4	5	U	4				**3/5**
4	5	U	4	6	U	4	6	U	4	3	U	4	3	U	4				**3/5**
5	2	A	6	3	A	6	4	A	6										**2/3**
6	4	A	6	5	A	6	6	A	6										**2/3**

R – Remember U – Understand A – Analyze / Apply

T= Unit/Topic Number L= Level of Question M= Marks

❖ ASSESSMENT AND EVALUATION SCHEME:

	What		To Whom	Frequency	Max Marks	Min Marks	Evidence Collected	Course Outcomes
Direct Assessment Theory	**CA** (Continuous Assessment)	Progressive Test (PT)	Students	Two PT (average of two tests will be computed)	20	--	Test Answer Sheets	1, 2, 3
		Assignments		Continuous	10	--	Assignment Book / Sheet	1, 2, 3
	TEE (Term End Examination)	End Exam	Students	End Of the Course	**70**	**28**	Theory Answer Sheets	1, 2, 3
				Total	**100**	**40**		
Direct Assessment Practical	**CA** (Continuous Assessment)	Skill Assessment	Students	Continuous	20	--	Rubrics & Assessment Sheets	4,5,6
		Journal Writing		Continuous	05	--	Journal	4,5,6
				TOTAL	**25**	**10**		
	TEE (Term End Examination)	End Exam	Students	End Of the Course	**50**	**20**	Rubrics & Practical Answer Sheets	4,5,6
Indirect Assessment	Student Feedback on course		Students	After First Progressive Test	Student Feedback Form			1, 2, 3, 4,5,6
	End Of Course			End Of The Course	Questionnaires			

❖ SCHEME OF PRACTICAL EVALUATION:

S.N.	Description	Max. Marks
1	Design database, create tablespaces, apply proper constraints Establish a Connection, Create a user Session etc.	10
2	Performance	20
3	Create users, assign privileges and roles, selection of proper indexes, and Retrieve data from data dictionary. etc.	10
4	Viva voce	10
	TOTAL	**50**

❖ MAPPING COURSE OUTCOMES WITH PROGRAM OUTCOMES:

Course Outcomes	Program Outcomes (POs)										PSOs	
	1	2	3	4	5	6	7	8	9	10	1	2
1	-	3	-	-	-	-	-	-	-	3	-	3
2	-	3	-	-	-	-	-	-	-	3	-	3
3	-	3	-	-	-	-	-	-	-	3	-	3
4	-	3	2	2	-	-	-	2	2	3	-	3
5	-	3	2	2	-	-	-	2	2	3	-	3
6	-	3	2	2	-	-	-	2	2	3	-	3

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

❖ REFERENCE & TEXT BOOKS:

S.N.	Title	Author, Publisher, Edition and Year Of publication	ISBN Number
1.	Database Administration The Complete Guide to DBA Practices and Procedures	Craig S. Mullins, Addison-Wesley, 2nd Edition, 2013	13:9780321822949 10: 0321822943
2.	Database System Concepts	Abraham Silberschatz, Henry F. Korth And S. Sudarshan, McGraw-Hill, 6th Edition, 2011	10: 0073523321 13: 9780073523323
3.	Oracle 9I Database: Fundamentals II exam guide	Rama Velpuri, McGraw-Hill Osborne Media, 2002	10: 0072195436 13: 9780072195439

❖ **E-REFERENCES:**

- **http://www.oracle-dba-online.com/ assessed on 04th August 2016**
- **https://www.tutorialspoint.com/db2/db2_bufferpools.htm assessed on 20th October 2016**
- **https://docs.oracle.com/cd/B10501_01/server.920/a96521/toc.htm assessed on 20th October 2016**

❖ **LIST OF MAJOR EQUIPMENTS/INSTRUMENTS WITH SPECIFICATION**

1. Computer/ Laptop (Latest Version)
2. Database tools(Oracle 9i/11g/SQL plus)

❖ **LIST OF EXPERTS & TEACHERS WHO CONTRIBUTED FOR THIS CURRICULUM:**

S.N.	Name	Designation	Institute / Industry
1.	Mr. S. P. Lambhade	HOD, Computer Engineering	Government Polytechnic, Nagpur.
2	Dr.Mrs. A.R. Mahajan	Head of Information Technology	Government Polytechnic, Nagpur.
3.	Ms. S. N. Chaudhari	Lecturer in Computer Engineering	Government Polytechnic, Nagpur.
4	Ms. D. M. Shirkey	Lecturer in Computer Engineering	Government Polytechnic, Nagpur.
5	Ms. G. B. Chavan	Lecturer in Computer Engineering	Government Polytechnic, Nagpur.
6.	Prof. Manoj Jethawa	HOD Computer Science	Shri Datta Meghe Polytechnic,Nagpur
7	Prof. N.V.Chaudhari	Asst.Proffessor(CSE)	DBACEO,Wanadongari,Nagpur
8	Mr. Atul Upadhay	CEO	Vista Computers,Ram Nagar,Nagur

(Member Secretary PBOS) **(Chairman PBOS)**