

LLO 13.1 Implement queries using Date and Time functions.

LLO 14.1 Implement queries using Aggregate functions.
 LLO 15.1 Execute Queries for ordering and grouping data.
 LLO 16.1 Execute the queries based on Inner & outer join.
 LLO 17.1 Create and manage Views for faster access on relations.
 LLO 18.1 Implement PL/SQL program using Conditional Statements.
 LLO 19.1 Implement PL/SQL program using Iterative Statements.
 LLO 20.1 Implement PL/SQL program using Sequential Control.
 LLO 21.1 Create implicit & explicit cursors.
 LLO 22.1 Implement PL/SQL program based on Exception Handling (Pre-defined exceptions).
 LLO 23.1 Implement PL/SQL program based on Exception Handling (user defined exceptions).
 LLO 24.1 Create Procedures and stored procedures for modularity.
 LLO 25.1 Create function for given database.
 LLO 26.1 Implement triggers for given database.
 LO 27.1 Implement SQL queries for database administration.

● **Laboratory Plan:**

Sr. No.	Course Outcomes	LLO	Name of Practical	Planned Date		Actual Date	Remark/ Assessment Date with Staff sign
				From	To		
1.	CO301.1	1.1	Install the provided database software	A: 01/07/2026 B: 02/07/2026 C: 03/07/2026	A: 04/07/2026 B: 06/07/2026 C: 07/07/2026		
2.	CO301.1	2.1	Draw ER diagram for given problem - Normalize the relation up to 3NF 1) Create Database for given application 2) Create tables for the given application 3) Assign Primary key for created table 4) Modify the table as per the application needs	A: 04/07/2026 B: 06/07/2026 C: 07/07/2026	A: 08/07/2026 B: 09/07/2026 C: 10/07/2026		
3.	CO301.1	3.1	Write queries using DDL Statements	A: 08/07/2026 B: 09/07/2026 C: 10/07/2026	A: 11/07/2026 B: 13/07/2026 C: 14/07/2026		
4.	CO301.1	4.1	Write queries using DML Statements	A: 11/07/2026 B: 13/07/2026 C: 14/07/2026	A: 15/07/2026 B: 16/07/2026 C: 17/07/2026		
5.	CO301.1	5.1	Write queries using DCL Statements	A: 15/07/2026 B: 16/07/2026 C: 17/07/2026	A: 18/07/2026 B: 20/08/2026 C: 21/08/2026		
6.	CO301.2	6.1	Write queries using TCL Statements	A: 18/07/2026 B: 20/07/2026 C: 21/08/2026	A: 22/07/2026 B: 23/07/2026 C: 24/08/2026		
7.	CO301.2	7.1	Write Queries using built-in Arithmetic operators.	A: 22/07/2026 B: 23/07/2023 C: 24/07/2026	A: 25/07/2026 B: 27/07/2026 C: 28/07/2026		
8.	CO301.2	10.1	Use following Set operators to perform different operations.	A: 25/07/2026 B: 27/07/2026 C: 28/07/2026	A: 29/07/2026 B: 30/07/2026 C: 31/07/2026		
9.	CO301.2	11.1	Write SQL Queries using built-in String functions	A: 01/08/2026 B: 30/07/2026 C: 31/07/2026	A: 05/08/2026 B: 03/08/2026 C: 04/08/2026		

10.	CO301.2	15.1	Implement Queries Using different Where, Having, Group by, & Order by clauses ..	A: 05/08/2026 B: 03/08/2026 C: 04/08/2026	A: 08/08/2026 B: 06/08/2026 C: 07/08/2026		
11.	CO301.2	16.1	Implement SQL queries for Inner and Outer Join	A: 08/08/2026 B: 06/08/2023 C: 07/08/2026	A: 19/08/2026 B: 13/08/2026 C: 14/08/2026		
12.	CO301.3	17.1	Create and Execute Views ,Sequeunce and Index in SQL	A: 19/08/2026 B: 13/08/2026 C: 14/08/2026	A: 22/08/2026 B: 17/08/2026 C: 18/08/2026		
13	CO301.4	18.1	Write a PL/SQL program using Conditional Statements- if, if then else ,nested if, if elseif else	A: 22/08/2026 B: 17/08/2026 C: 18/09/2026	A: 29/08/2026 B: 20/08/2026 C: 21/09/2026		
14	CO301.4	19.1	Write a PL/SQL program using Iterative Statements- loop,for, do-while, while	A: 29/08/2026 B: 20/08/2026 C: 25/08/2026	A: 02/09/2026 B: 24/08/2026 C: 28/08/2026		
15	CO301.5	21.1	Write a PL/SQL code to implement implicit & explicit cursors	A: 02/09/2026 B: 24/08/2026 C: 28/08/2026	A: 05/09/2026 B: 31/08/2026 C: 01/09/2026		
16	CO301.5	22.1	Write a PL/SQL program based on Exception Handling (Pre-defined exceptions)	A: 05/09/2026 B: 31/08/2026 C: 01/09/2026	A: 09/09/2026 B: 03/09/2026 C: 04/09/2026		
17	CO301.5	23.1	Write a PL/SQL program based on Exception Handling (user defined exceptions)	A: 12/09/2026 B: 07/09/2026 C: 08/09/2026	A: 16/09/2026 B: 10/09/2026 C: 11/09/2026		
18	CO301.5	24.1	Write a PL/SQL code to create Procedures and stored procedures	A: 19/09/2026 B: 17/09/2026 C: 18/09/2026	A: 23/09/2026 B: 21/09/2026 C: 22/09/2026		
19	CO301.5	25.1	Write a PL/SQL code to create functions.	A: 26/09/2026 B: 24/09/2026 C: 25/09/2026	A: 03/10/2026 B: 28/09/2026 C: 29/09/2026		
20	CO301.6	26.1	Write a PL/SQL code to create triggers for given database.	A: 03/10/2026 B: 01/10/2026 C: 06/10/2026	A: 07/10/2026 B: 08/10/2026 C: 09/10/2026		

● **Direct Assessment Criteria:(Practical)**

Process Related	Product Related	Total
15 Marks	10 Marks	25 Marks

● **Rules for Formative Assessment:**

- Formative assessment of each practical is based on Process Related (15 marks) and Product related (10 marks) - Total out of 25 marks as per the assessment scheme prescribed in manual given by MSBTE,
- The Performance Indicators of each practical is assessed according to product and process related skills.(Sample format is as given in above table)
- Final assessment of 25 Marks for all practicals. Following is the distribution of 75 Marks –
 - Summative Assessment (SA-PR) for 25Marks will be conducted by MSBTE after the completion of the term.
 - Formative assessment (FA-PR) will carry 25 Marks
 - Self learning assessment(SLA) will carry 25 Marks
- Final FormativeAssessment (F.A.) of 25 marks is calculated as follows:

$$\text{FA Marks} = ((\text{Total obtained marks}) \times 25) / (25 \times \text{Total Number of parcticals})$$
- A comprehensive Final Practical End Semester examination(SA-PR of 25 Marks) will be conducted by MSBTE at the end of semester. Examiner for this examination will be External examiner. The schedule of MSBTE

6. Practical Examination will be display on Notice board prior to examination.

Practical No.	LLO	CO301.1	CO301.2	CO301.3	CO301.4	CO301.5
1.	1.1	✓				
2.	2.1	✓	✓			
3.	3.1		✓	✓		
4.	4.1		✓	✓		
5.	5.1			✓		
6.	6.1			✓		✓
7.	7.1			✓		
8.	10.1			✓		
9.	11.1			✓		
10.	15.1			✓		
11.	16.1			✓		
12.	17.1			✓		
13.	18.1				✓	
14.	19.1				✓	
15.	21.1				✓	
16.	22.1				✓	
17.	23.1				✓	
18.	24.1				✓	
19.	25.1				✓	
20.	26.1				✓	

● **Practical wise LLO-CO Mapping:**

● **References:**

Books:

Sr.No	Author	Title	Publisher with ISBN Number
1	Rao, K. Nageswara Shaikh Akbar	Python Programing	Scitech Publications (India) Pvt. Ltd. ISBN: 9789385983450
2	Michael T. Goodrich, Roberto Tamassia	Data Structures and Algorithms in Python	Wiley publication New Delhi 2016 ISBN: 978-81- 265-5423-2
3	Beazley, David	Python Essential Reference	4th Edition, Addison-Wesley Professional, ISBN: 9780672329784
4	Dr.Basant Agarwal	Hands-On Data Structures and algorithms with Python	3rd Edition, Packt publisher, ISBN : 9781801073448

Web sites :

Sr.No	Link / Portal	Description
1	https://onlinecourses.nptel.ac.in/noc22_cs26/preview	Online Learning Initiatives by IIT faculties.
2	https://www.geeksforgeeks.org/graph-data-structure-and-algorithms/	Data structures in Python
3	https://www.freecodecamp.org/news/object-oriented-programming-in-python/	Object Oriented Programming Concepts
4	https://realpython.com/python3-object-oriented-programming/	Basics Object Oriented Programming Concepts.

Tools : Google Classroom to share study material.

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