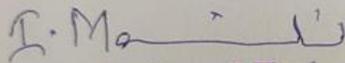


Department of Computer Science and Engineering

Action taken based on the analysis of students and faculty feedback on curriculum for the academic year 2024-2025

S. No.	Recommendation	Action Taken
1	Enhance practical-oriented learning in Cloud Computing	Practical exposure was strengthened through virtualization using Oracle VirtualBox . Hands-on activities were conducted, and students successfully completed and submitted related reports.
2	Introduce industry-relevant database technologies	Modern, industry-standard databases such as MongoDB were incorporated into the curriculum through the course 24CSL47B – DBMS with SQL and MongoDB Lab , providing students with exposure to NoSQL databases and real-world data management practices.
3	Upgrade laboratory infrastructure for DevOps and emerging technologies	A dedicated DevOps laboratory was established with upgraded i7 processor systems and tools to support CI/CD pipelines, containerization, automation, and cloud-based deployments, ensuring alignment with current industry practices.
4	Introduce placement-oriented courses	A structured elective basket aligned with students' career aspirations was introduced across the 5th, 6th, and 7th semesters , focusing on placement readiness and skill development.



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Syllabus Proof

DBMS with SQL and Mongo DB			
Course Code	24CSL47B	CIE Marks	50
Teaching Hours/Week (L: T: P)	0:0:2	SEE Marks	50
Credits	01	Total Marks	100
Contact Hours	15	Exam Hours	3
Examination type (SEE)	Lab		
Prerequisites: The students should have knowledge on <ul style="list-style-type: none"> • Basic Programming Skills • Understanding of Algorithms • Basic Mathematics • Problem-Solving Skills 			
Course Objectives: <ul style="list-style-type: none"> • Practice relational (SQL) and NoSQL (MongoDB) database operations. • Develop skills in schema creation, data manipulation, and complex queries. • Work with real-world data examples. 			
Teaching-Learning Process (General Instructions) Teachers can use following strategies to accelerate the attainment of the various course outcomes. <ol style="list-style-type: none"> 1. Chalk and Talk with Black Board 2. ICT based Teaching 3. Demonstration based Teaching 			
PART-A			
<ol style="list-style-type: none"> 1. Creating Tables, Users, and Constraints Table: Employee(EMPNO, ENAME, JOB, MANAGER_NO, SAL, COMMISSION) <ol style="list-style-type: none"> a) Create a new user and grant all permissions to the user. b) Create the Employee table. c) Insert three records into Employee table using INSERT. d) Use ROLLBACK to undo the transaction. e) Check the results after rollback. f) Add PRIMARY KEY and NOT NULL constraints to the Employee table. g) Try to insert NULL values and verify the constraint enforcement. 2. Altering Tables and DML Operations Table: Employee(EMPNO, ENAME, JOB, MGR, SAL) <ol style="list-style-type: none"> a) Add a new column COMMISSION with appropriate data type. b) Insert five records into the Employee table. c) Update JOB column details for any employee. d) Rename a column in the Employee table using the ALTER command. e) Delete the employee whose EMPNO is 105. 3. Queries using Aggregate Functions Table: Employee(E_id, E_name, Age, Salary) <ol style="list-style-type: none"> a. Create the Employee table with specified attributes. b. Count the number of employees in the table. c. Find the maximum age of employees. d. Find the minimum age of employees. 			

- e. Display salaries in ascending order.
- f. Find grouped salaries using GROUP BY.

4. Triggers

Table: CUSTOMERS(ID, NAME, AGE, ADDRESS, SALARY)

Create a row-level trigger for the CUSTOMERS table that fires on INSERT, UPDATE, or DELETE operations and displays the salary difference between the old and new SALARY.

5. Cursors

Table: Employee(E_id, E_name, Age, Salary)

Create a cursor for the Employee table:

- Declare variables
- Open the cursor
- Extract values from the table using the cursor
- Close the cursor

PART-B

6. Basic CRUD Operations in MongoDB

a. Execute basic commands and operations in MongoDB:

- Insert documents
- Query documents
- Update documents
- Delete documents
- Apply Projection to select specific fields

Note: Use any sample collection

Reference: Book 1, Chapter 4

b. Illustrate the use of WHERE, AND, and OR operators in MongoDB queries.

7. Selecting and Limiting Fields

- a. Develop a query to select specific fields and exclude other fields from any collection.
- b. Use limit and find to display only the first 5 documents from the results of (a).

References: Book 1, Chapter 4; Book 2, Chapter 5

8. Using Query Selectors

- a. Execute queries using comparison and logical selectors; list the results from any collection.
- b. Execute queries using geospatial and bitwise selectors; list the results from any collection.

Reference: Book 3, Chapter 13

9. Using Projection Operators

Create and demonstrate the use of projection operators:

- \$ (Positional Operator)
- \$elemMatch
- \$slice

Reference: Book 3, Chapter 14

10. Aggregation Operators

Execute aggregation operations using the following operators:

- \$avg
- \$min

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