



Lab Manual

Database Engineering Lab
Course Code: 6IT351

Class: Third Year B.Tech
Academic Year: 2023-2024



Department of Information Technology,
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2023-24

Vision, Mission & Course Outcomes

VISION:

To be an Information Technology programme as the first choice by the aspiring students and prospective employers by implementing world class education practices.

MISSION:

To meet above Vision, all stakeholders of this programme are committed towards outcome Based Education Philosophy by-

1. To adopt vibrant academic curricula and implementing innovative teaching learning processes
2. To provide opportunities to the students for the development of professional skills
3. To nurture critical thinking and creativity in students
4. To inculcate students the life-long learning attitude and sensitivity towards society & environment

Under-Graduate POs

- **PO1: Engineering Knowledge:** Apply the knowledge of mathematics, engineering fundamentals and computational science to the solution of engineering problems.
- **PO2: Problem Analysis:** Identify, formulate, interpret and analyze the complex engineering problems leading to substantiated conclusions.
- **PO3: Design/Development of Solutions:** Design systems, components or processes to meet desired needs within realistic constraints such as economic, environmental, societal and ethical considerations.
- **PO4: Conduct Investigations of Complex Problems:** Use research based knowledge and methods including design of experiments, analysis, interpretation and synthesis of information to provide valid conclusions.
- **PO5: Modern Tool Usage:** Select and apply appropriate techniques, engineering skills and modern IT tools to prototype the model of complex engineering activities.
- **PO6: The Engineer and Society:** Apply contextual knowledge pertaining social, secure, legal and cultural issues with consequent responsibilities relevant to Information Technology.
- **PO7: Environment And Sustainability:** Understand the impact of the professional engineering solutions in social, environmental and the global contexts, demonstrating the knowledge of, and the need for sustainable development.
- **PO8: Ethics:** Apply ethical principles and commit to the professional ethics with responsibilities and norms of the engineering practices.
- **PO9: Individual and Team Work:** Work effectively as an individual as well as a member or a leader in diverse teams for multidisciplinary settings.
- **PO10: Communication:** Communicate effectively with the engineering community and with society **at large**, such as, being able to comprehend and write reports and design documentation to make effective presentations.

- **PO11: Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply those to original work or contemporary issues, as a member or/and a leader in a team or an entrepreneur, to manage projects in multidisciplinary environments.
- **PO12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Outcomes (CO):

CO1 Summarize real world problems into relational databases

CO2 Execute query languages on databases

CO3 Analyze transaction processing techniques

Experiment List

Sr. No.	Assignment	Date	Page No
1.	Study and design of Entity Relationship model. Construct ER Diagram for Sample Case Study (University/ Bank/Library etc.).		
2.	Create database schema from ER Model and apply database normalization		
3.	Create database tables and write SQL queries to retrieve information from the database using DDL (Create, Alter, Drop, Truncate, and Rename) and DML commands (Insert, Update, and Delete). Give Primary key and foreign key constraints.		
4.	Perform Insertion, Deletion, Modifying, Altering, Updating and Viewing records based on specific conditions.		
5.	Perform Aggregation and group by, having clause queries to retrieve summary information from database		
6.	Study of various types of integrity constraints (NOT NULL Constraint, DEFAULT Constraint, UNIQUE Constraint, PRIMARY Key, FOREIGN		

	Key, CHECK Constraint).		
7.	Perform set operations queries.		
8.	Create database views. Creation of views using views, Drop view.		
9.	Perform cross join, Natural Join, Inner join and Outer Join queries.		
10.	Create a row level trigger for the customers table that would fire for INSERT or UPDATE or DELETE operations performed on the CUSTOMERS table.		
11.	Implement MYSQL database connectivity with python/Java. Implement Database queries (insert, delete, update) using ODBC/JDBC.		
12.	Study of Open Source NOSQL Database: MongoDB (Installation, Basic CRUD operations, Execution)		

Experiment No. 1

Aim:

Introduction and method:

Results: