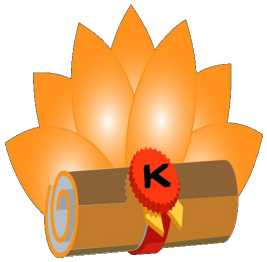
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Database Management System (Lab) — Complete Syllabus

BTEUP Diploma in Information Technology • 3rd Semester • Session 2026–27

Subject 3.6 (Practical) • Total 100 Marks • 2 Credits • L 0 – P 4

About this document: Database Management System (Lab) is subject 3.6 of the 3rd semester of the Diploma in Information Technology. It is the practical companion to subject 3.2 Database Management System: there is no theory paper, and assessment is 60 marks internal practical and 40 marks external practical (3 hours). This document gives the complete list of experiments and case studies, the examination scheme and the course outcomes from the official curriculum.

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Examination Scheme

Code	Paper	Type	L – P	Credits	Internal	External	Total
3.6	Database Management System (Lab)	Practical	0 – 4	2	Practical 60	Practical 40 (3 hrs)	100
Database Management System (Lab) Total				**2**	**60**	**40**	**100**

What This Subject Aims To Do

It covers the development of database-driven applications using the capabilities provided by modern database management system software. The concepts include conceptual modeling, relational database design and database query languages.

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List of Experiments — 6 Experiments

S.No.	Name of Experiment
1	Install and configure a database system (MySQL through XAMPP Server, MySQL, PostgreSQL, or SQLite).
2	Design an ER Model for a Library Management System.
3	Study of the different properties present in an ER Model.
4	Creating Database: creating a database; creating a table; specifying relational data types; specifying constraints; creating indexes.
5	Table and Record Handling: INSERT statement; using SELECT and INSERT together; DELETE, UPDATE, TRUNCATE statements; DROP, ALTER statements.
6	Retrieving Data From a Database — the SELECT statement: using the WHERE clause; using logical operators in the WHERE clause; using IN, BETWEEN, LIKE, ORDER BY, GROUP BY and HAVING clauses; using aggregate functions; combining tables using JOINS.

Case Studies — 4 Case Studies

Case Study 1: SQL — Library Management System

Scenario: An institute manages a library with columns BookID, Title, Author_Name, Year_of_publication, Publisher_name, Subject, MemberID (you may add other fields also).

Tasks: (1) Retrieve the names of all books with a specific author “A”. (2) Retrieve the names of books of a particular subject “X”. (3) Decrease the book count by 1 from the table for BookID = “101”. (4) Add a new member in the database.

Case Study 2: SQL — Employee Database

Scenario: An organization maintains an employee database with columns EmployeeID, FirstName, LastName, Department, Salary, JoiningDate.

Tasks: (1) Retrieve the names of all employees in the “Sales” department. (2) Find all employees who joined after January 1, 2020. (3) Update the salary of employee EmployeeID = 102 by 10%. (4) Delete an employee record where EmployeeID = 105.

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Case Study 3: SQL — Bookstore Inventory

Scenario: A bookstore stores information about books in columns BookID, Title, Author, Price, Genre, StockCount.

Tasks: (1) List all books in the “Science Fiction” genre. (2) Find all books priced greater than 200. (3) Increase stock count by 5 for all books authored by “John Doe”. (4) Remove a book from inventory with BookID = 201.

Case Study 4: SQL — Student Grades Database

Scenario: A school database stores students' grades with columns StudentID, FirstName, LastName, Subject, Grade.

Tasks: (1) Retrieve the names of all students with an “A” grade in the subject “Math”. (2) Find the average grade of all students in the “English” subject. (3) Update the grade for StudentID = 103 in “History” to “B+”. (4) Delete all records for students who have failed in “Science” (Grade: “F”).

How to Prepare

This lab turns the theory of subject 312 into SQL you write and run. Install MySQL (through XAMPP) early and practise every statement in experiments 4, 5 and 6 on your own tables before the case studies: the four case studies only combine the same INSERT, UPDATE, DELETE and SELECT skills on a bigger scenario. Draw the ER model of experiment 2 on paper first, then build its tables; a wrong model makes every later query harder. Keep your lab record complete and up to date: the 60 internal marks test on your practical work through the semester, and the external practical examination (40 marks, 3 hours) tests the same experiments and case studies.

Course Outcomes

- CO1: Installation of database system.
- CO2: Creating an database.
- CO3: Record handling in a database.
- CO4: Retrieving data from a database.
- CO5: Handle various operations of a database through case studies.

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Source: BTEUP IRDT Kanpur NEP-2020 curriculum for Diploma in Information Technology, effective session 2026-27 (urise.up.gov.in). Topic lists follow the official syllabus; short explanations are the author's own plain-English summaries, not syllabus text. Please confirm with your own polytechnic for any local changes.