

## DBMS - 1

### Course Description:

- To provide comprehensive introduction to SQL from several perspectives to introduce the methods for designing a database and learn various query methods.

### Learning Outcomes:

After completing this course, you will be able to:

- Write your SQL queries for data warehousing and analytics
- Navigate your way through a MYSQL Workbench environment
- Perform basic operations related to database and tables
- Apply data modelling concepts and their applications in design
- Construct a typical enterprise database

### Pedagogy

The course is a mixture of classroom lectures, decks, in-class lab exercises, quizzes, take-home exercises and mini-projects.

### Day 1

- Introduction DBMS
- RDBMS
- Structured Query Language (SQL) Basics
- Data Definition Language (DDL)
- Create Database
- Drop Database
- Create Tables
- Data Types
- Drop-Table
- Data Manipulation Language (DML)
- INSERT
- UPDATE
- DELETE
- Data Query Language (DQL)
- Compound Search Conditions
- Missing Data
- More Basic Operations - ALTER, DROP, RENAME

### Day 2

- SQL Constraints
- Not Null-Constraint
- Unique - Constraint
- Primary Key-Constraint
- Foreign Key - Constraint
- Constraint using ALTER
- Row Selection
- Where Clause Predicate - *Like* Predicate
- Set Operations
- Duplicate Rows
- Operator Precedence
- SQL Built-in Functions
- NUMERIC Functions

- String Functions
- DATE Function
- BIN Function
- CAST Function
- COALESCE Function
- Sorting Query Result

## Day 3

- Summary Queries(Aggregate Functions)
- COUNT
- SUM
- AVERAGE (AVG)
- MINIMUM (MIN)
- MAXIMUM (MAX)
- Grouped Queries
- Aggregation with Group by Clause
- Multiple Grouping Columns
- Null Values in Grouping Columns
- Aggregation With Having Clause
- Restriction on Grouped Search Condition
- Null values and Grouped Search Condition
- Having Without Group by

## Day 4

- Multiple Table Queries
- Introduction to Joins
- Two Table Query Example
- Simple Joins
- Parent-Child Relationship Queries
- Joins with Row Selection Criteria
- Natural Joins
- Non-Equi Joins
- SQL Consideration for Multiple Queries
- Self Join
- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL OUTER JOIN
- CROSS JOIN
- Join multiple tables
- Join Notations using (+) operator (Non-ANSI)
- Supported in Oracle- RDBMS