**Course:** Technical Training-7

**Course Code:** I200709P

**(30 Sessions, Each Session for 55 minutes)**

**Course Outline:**

| **Unit-1** | Introduction to Databases and SQL Basics  1. Introduction to Database and RDBMS, DBMS vs RDBMS, SQL overview and types (DDL, DML, DCL, TCL), Database objects (tables, views, indexes, sequences), Creating and using databases, Data types and constraints (NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, CHECK) 2. Implementing previous years’ questions asked in company's placement tests. | **7 Hours** |
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| **Unit-2** | Data Querying and Filtering  1. Basic SELECT statements, WHERE clause with operators (AND, OR, NOT,IN, BETWEEN, LIKE), ORDER BY and LIMIT, DISTINCT clause, Alias using AS, Working with NULL values 2. Implementing previous years’ questions asked in company's placement tests. | **6 Hours** |
| **Unit-3** | Aggregate Functions and Grouping  1. Aggregate functions (COUNT, SUM, AVG, MIN, MAX), GROUP BY clause, HAVING clause, Combining GROUP BY with WHERE, Advanced filtering on grouped data 2. Implementing previous years’ questions asked in company's placement tests. | **5 Hours** |
| **Unit-4** | Joins and SubqueriesTypes of Joins: INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL OUTER JOIN, Self Join, Subqueries: single row, multiple row, correlated subqueries, Nested SELECT statements, USING and ON clauses in joins  1. Implementing previous years’ questions asked in company's placement tests. | **6 Hours** |
| **Unit-5** | **Data Manipulation and Advanced SQL**   1. INSERT, UPDATE, DELETE operations, Transactions: COMMIT, ROLLBACK, SAVEPOINT, Views: Creating and managing views, Indexes and their uses, Stored procedures (Introduction only), Introduction to normalization (1NF, 2NF, 3NF) 2. Implementing previous years’ questions asked in company's placement tests. | **6 Hours** |