**SQL QUERY OPTIMIZATION SYLLABUS**

**I. Introduction**

Overview of SQL and query optimization

Understanding database architecture

Performance monitoring and metrics

**II. Query Execution Plan**

Understanding query execution plan

Query plan types and optimization

Analyzing query execution plan

**III. Indexing**

Understanding indexing

Types of indexes

Creating and maintaining indexes

Indexing strategies

**IV. Query Rewriting and Optimization**

Query optimization techniques

Understanding join algorithms

Query tuning and optimization

Query profiling

**V. Performance Tuning**

Common performance issues

Optimizing database design

Managing hardware resources

Analyzing and troubleshooting performance issues

**VI. Advanced Topics**

Query caching

Parallel query processing

Query optimization in distributed systems

Working with large datasets

**VII. Hands-on Practice**

Practical exercises to reinforce the concepts learned

Performance tuning of real-world queries