

# MS SQL Server 2025 Database Administration Bootcamp

## Course Description

This intensive 10-day bootcamp introduces participants to Microsoft SQL Server 2025, focusing on database administration skills. Starting from the basics of relational databases, the course gradually builds toward advanced topics such as performance tuning, high availability, and disaster recovery. By the end, learners will be equipped to manage, secure, and optimize SQL Server environments in real-world scenarios.

**Duration : 10 Days (80 hours)**

## Pre-requisites

- No prior database knowledge required
- Basic computer literacy (Windows OS navigation, file management)
- Familiarity with general IT concepts is helpful but not mandatory

## Learning Objectives

By the end of this bootcamp, participants will be able to:

- Understand relational database concepts and SQL Server architecture
- Install, configure, and manage SQL Server 2025 instances
- Create, manage, and secure databases and users
- Perform backup, restore, and disaster recovery operations
- Monitor and optimize SQL Server performance
- Implement high availability and scalability solutions
- Apply best practices for database security and compliance

## **Content Coverage**

### **Module 1: Introduction to Databases & SQL Server**

- What is a Database?
- Relational Database Concepts
- Introduction to SQL Server 2025
- SQL Server Editions and Features
- SQL Server Tools (SSMS, Azure Data Studio)
- Understanding SQL Server Services

### **Module 2: SQL Server Installation & Configuration**

- System Requirements and Planning
- Installing SQL Server 2025
- Configuring SQL Server Instances
- SQL Server Management Studio (SSMS) Overview
- Authentication Modes (Windows vs SQL Authentication)
- Configuring Server Settings

### **Module 3: Database Fundamentals**

- Creating Databases
- Understanding Data Files, Log Files, and Filegroups
- Database Objects: Tables, Views, Indexes
- Primary Keys, Foreign Keys, Constraints
- Introduction to SQL Queries (SELECT, INSERT, UPDATE, DELETE)

### **Module 4: Security & User Management**

- SQL Server Security Architecture

- Logins, Users, and Roles
- Permissions and Schemas
- Implementing Row-Level Security
- Auditing and Compliance Basics

### **Module 5: Backup & Recovery Strategies**

- Importance of Backup and Recovery
- Types of Backups (Full, Differential, Transaction Log)
- Backup Devices and Media
- Restoring Databases
- Point-in-Time Recovery
- Automating Backup Jobs

### **Module 6: Performance Monitoring & Tuning**

- SQL Server Performance Architecture
- Monitoring Tools (Activity Monitor, DMVs, Extended Events)
- Indexing Strategies
- Query Execution Plans
- Identifying and Resolving Bottlenecks
- Best Practices for Performance Optimization

### **Module 7: High Availability & Disaster Recovery**

- Concepts of HA/DR
- Log Shipping
- Database Mirroring
- Always On Availability Groups

- Failover Clustering
- Planning Disaster Recovery

### **Module 8: Advanced Administration**

- SQL Server Agent and Job Scheduling
- Automating Maintenance Tasks
- Partitioning and Compression
- Managing Large Databases
- Resource Governor
- Policy-Based Management

### **Module 9: Security & Compliance Deep Dive**

- Transparent Data Encryption (TDE)
- Dynamic Data Masking
- Data Classification and Sensitivity Labels
- GDPR and Compliance Considerations
- Security Best Practices

### **Module 10: Real-World Scenarios & Capstone Project**

- Case Studies: Common DBA Challenges
- Troubleshooting SQL Server Issues
- Designing a Backup & Recovery Plan
- Implementing a High Availability Solution
- Capstone Project: End-to-End SQL Server Administration Setup