



# SQL Server DBA Course Content

## SQL Server

- Versions and Editions
- Features of SQL Server
- Differentiate the SQL Server and Oracle
- Services of SQL Server
- Tools of SQL server

## SQL Server Installation

- SQL server 2008 installation
- SQL Server 2012 Installation
- SQL Server 2014 Installation
- Difference between SQL 2008 to SQL 2008 r2/2012/2014

## SQL Server components over view

- Configuration Tool
- Server Components and Purpose
- Firewall Options and Instance Rules
- Service Accounts, Purpose and Usage
- Authentication Modes & Logins
- Instance Configuration Options
- Testing Multiple Installations
- Management Studio (SSMS) Tool Usage
- Shared Features and Client Components



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## Pages & extents

- Pages and Extents
- Type of Extents

## SQL Server Database Architecture

- Database Catalog and Storage Options
- Data Files: Purpose and Storage
- File groups: Purpose and Usage
- Log files: Purpose and Audits
- Use of Transaction Log Files
- Sizing and Placement - Data Files
- Sizing and Placement - Log Files
- Locations and Sizing Recommendations
- File growth and MAXSIZE Options
- Scripting Database Structures
- Database ALTERs and Considerations
- Designing Very Large Databases (VLDB)
- Placement of Files and File groups
- DB Design Parameters and Limitations
- Design Recommendations from Codeplex

## Security Logins, Users & Roles

- Understanding Security Architecture
- SQL Server Security Authentication
- Server Level Security and Logins
- Database Level Security Users
- Schemas and User Mappings - Usage
- Server Level Roles and Usage
- Database Level Roles and Usage
- Testing Security Operations in SQL
- Simulating SQL Server Security Logins
- Login Errors and Password Resets
- GRANT, DENY & REVOKE Permissions
- Common Security Functions & Queries
- Scripting Procedures ForSecurables



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## Backups and Restores

- Backup Verification Procedures
- Recovery Paths and FILELIST Options
- Database Restores & RECOVERY Options
- File Restores and Filegroup Restores
- FILELISTONLY and VERIFYONLY Options
- MOVE and REPLACE Options For Restores
- PARTIAL and Piecemeal Restores
- Tail Log Backups and REDO Phase Options
- Compressed Tail Log Restores and REPLACE
- Restores for Partial Online Databases
- Choosing Right Backups for Restores

## Backups, Restores and Recovery

- Backup Mirrors and Restore Options
- Backup Splits and Restore Options
- Media Set, Media Family and Options
- FORMAT, NOFORMAT, INIT and NOINIT
- SQL 2012 Backups to SQL 2014 Restores
- Partial Backups and STATS Options
- CHECKSUM and CONTINUE\_ON\_ERROR
- Compatibility, Recovery Model Options
- Working with Recovery Models & Backups
- Backups using UI and SSMS Tool
- COPY\_ONLY Backups and Importance
- Point-In-Time Restores & Recovery
- Overwrite Options for DB Restores
- Backup Devices Creation & Usage
- Backup Devices Uses and Limitations



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## Maintenance and Troubleshooting of System Databases

- Moving system databases
- Rebuilding system databases

## Troubleshooting, maintenance and Starting the SQL Server instances with following methods

- Single user mode
- Minimal Configuration Mode
- Command Prompt
- Net Command

## Login the SQL Server using by DAC

## Installation and Upgradation of SQL Server

- SP & Server Upgrades
- Establishing Downtime for Maintenance
- Precautions for Maintenance Activities
- Service Packs and Patch/hotfix Activities
- Verifications, Smoke Test and Rollbacks
- Upgrade Advisor Tool - Analysis Reports
- Upgrade Advisor Issues and Warnings
- Server Upgrades and Precautions
- Planning for Maintenance Activities
- Rebuilding System Databases & Objects
- Pre Database Maintenance Activities
- Post Database Maintenance Activities
- Real-world Management Considerations



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## Migrating SQL server Databases

- Backup and Restore
- Attach and Detach
- Import and Export
- Copy Database
- Migrating of Orphaned users

## Automation and SQL server agent

- Creating jobs
- Creating Job Scheduling
- Creating Alerts and Operators
- Database mail Configuration

## Monitoring SQL Server

- Job Activity Monitor
- Activity monitor
- Log File Viewer
- Performance Monitor
- Windows Event viewer
- Monitoring by SQL Server Alerts
- SQL Server Profiler
- SQL Server High Availability (Advance Topics)

## Mirroring

- Types of Mirroring
- High performance mode
- High availability
- High Protection
- Types of Data Transfer methods
- Failover of Mirroring



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## Log shipping & Replication

- Snapshot replications
- Transactional Replication
- Transactional With Updatable
- Merge Replications
- Types of Replication agents

## Clustering

- Connection Setup of Clusters
- Nodes
- Quorum
- Automatic failover
- Moving to another Node
- Monitoring Clusters
- Failover cluster instance improvements

## AlwaysOn concept and configuration

- Creating AlwaysOn availability groups Administering
- AlwaysOn Availability groups
- Reading secondary database copies

## Performance tuning

- Types of Isolation levels
- Locks
- Deadlocks
- Blockings
- Server level
- Instance level
- Database level
- Understanding database indexes Checking index fragmentation and maintaining them  
Database Statistics Understanding SQL Server Profiler Creating Traces Running server-side traces
- Query Optimizer and Query Execution Plan



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## Indexing

- Types of Indexes
- Differences of Indexes
- Index Structure
- Rebuild and Reorganizing
- Fill Factor

## Understanding Real-time Scenario

- DBA Challenges in Real-time
- SLA and OLA Process in Real-time
- Need for Documentations & References
- Downtime & Maintenance Notifications
- Using SQL Browser Service for TCP/IP
- Configuration Manager Tool - Usage
- SQL Server Log-On Accounts and Usage
- Resource Governor & Performance
- Workload Groups and Tuning Policies
- RECONFIGURE Options and Performance
- Routine DBA Activities - Checklist
- Database Maintenance Activities

## Alerts, Issues & Troubleshooting

- LOG File Space Issues and Solutions
- TEMPDB Space Issues with Solutions
- MEMORY Management Issues - Solutions
- OS Level Memory Clerks and Monitoring
- Memory Leaks, Hits and Solutions
- Logical and Physical Memory Architecture
- Procedure Cache Issues and Solutions
- DB State Events, Issues and Solutions
- Network Usage, Monitoring & Optimization
- Performance Monitor (PERFMON) Counters
- Replication Threshold Values & Agents



OR



+91 9676516545

<https://www.facebook.com/TechMasterIT>

admin@thetechmaster.in



@TechMasterIT

## TechMaster

- Database Options and Downtime
- Database States Alerts and DB Events
- DBCC Commands and Database Repairs
- Rebuild Operations and Considerations
- Important DMVs and DMFs for Audits

### Third-party monitoring tool

- Ticketing tool
- Backup tool
- Monitoring tool