

## **MICROSOFT SQL SERVER DBA COURSE CONTENT**

**Duration - 45 Days**

- ❖ **MODULE1: STARTING WITH SQL SERVER:**
  - Responsibilities of Database Administrator
  - Types of DBAs
  - History of SQL Server
  - Editions of SQL Server
  - Tools of SQL Server
  - Differences between Standard and Enterprise editions
  - Instances types in SQL Server
    - Default Instance
    - Named Instance
  - SQL Server Services
    - Instance aware services
    - Instance unaware services
  
- ❖ **MODULE2: INSTALLING SQL SERVER:**
  - Pre-requisites
  - Installation
  - Post Installation verification Session
  
- ❖ **MODULE3: FUNCTIONING OF DATABASES:**
  - Database
  - Types of Database and Brief explanation
    - System Databases
    - User Database
  - Database Architecture
    - Pages
    - Extents
    - File groups
    - Database
  - Transaction Architecture
  - Creating Database
  - Modifying Database
    - Adding Files
    - Moving and renaming of Database files
  - Database modes
  - Real time Scenario
  
- ❖ **MODULE4: SECURITY:**
  - Authentication Types in SQL Server
  - Types of Login
    - Windows Login
    - SQL Login
  - Creating Users and Logins
    - Server roles
    - Password policy
    - Understanding Database and Server Roles
    - Permissions
    - Working on access level issues
    - Orphan users Finding and Fixing

- Important Queries

❖ **MODULE5: DATABASE BACKUPS AND RESTORATION:**

- Database Backups
  - Why we need backups
- Types of Backup
  - Full Backup
  - Differential Backup
  - Transaction Log Backup
- Copy-only, Mirrored, Split and Tail log Backups
- Differences between backups
- Backup Strategy
- Understanding how the data moving from Log to Data File, **CHECKPOINT**
- Monitoring the space usage of Log File and fixing
- Checking the backup files **VALID** or **CORRUPTED**
- **Backup storage tables**
- **Important Queries**
- **Performing Restorations**
  - Types of Restoration
  - Attach and Detach
  - Shrinking files

❖ **MODULE6: RECOVERY MODELS OF DATABASE:**

- Types of Recovery Models
  - Full
  - Bulk Logged
  - Simple
- Differences between Recovery Models
- Setting Recovery Models according to the Scenarios with examples

❖ **MODULE7: AUTOMATION OF SQL SERVER:**

- Working with SQL SERVER Agent
  - Creating Jobs
  - Managing Jobs and Resolving issues
  - Monitoring Jobs
  - Monitoring Tables
- Log Shipping
- Mirroring
- Replication
- Clustering

**HIGH AVAILABILITY CONCEPTS**

❖ **MODULE1: LOG SHIPPING:**

- Log Shipping
  - Working with Log Shipping
  - Terminology
  - Pre-requisites to implement Log Shipping
  - Different modes of Log Shipping
  - Configuring Log Shipping
  - Monitoring
  - Manually Performing Failover
  - Log Shipping Tables

- Discussing Real Time Scenarios

❖ **MODULE2: DATABASE MIRRORING:**

- Working with Database Mirroring
  - o Terminology
  - o Pre-requisites to implement Mirroring
  - o Pre check mirroring ports ENABLED or DISABLED
  - o Architecture
  - o Operating Modes
  - o Differences between Modes
  - o Port numbers involved in Mirroring
  - o Requirements for Mirroring
  - o Configuring Mirroring
  - o Mirroring failover
  - o Issues on Mirroring

❖ **MODULE3: REPLICATION:**

- Working with Replication
  - o Terminology
  - o **Pre-requisites to implement to Replication**
  - o Types of Replications
  - o **DISTRIBUTOR** Database
  - o Agents involon in Replication
  - o Configuring Replication
  - o **Resolving Issues**

❖ **MODULE4: CLUSTERING**

- Introduction about clustering
- Clustering Architecture
- Importance of IP's involved in Clustering
- SAN importance
- Drive dependency
- Nodes in Clustering
- Important commands

**DIFFERENCES BETWEEN ABOVE HIGH AVAILABILTY CONCEPTS**

**ADVANCED CONCEPTS**

❖ **MODULE1: MONITORING TOOLS:**

- System Monitor
- SQL Server Profiler
- SQL Server and Windows Error Logs

❖ **MODULE2: DATABASE PERFORMANCE TANNING:**

- Indexes
- Types of indexes
- Fragmentation in Indexes
- Types of Fragmentations
- Database Tuning Advisor
- Dead Locks
- Blockings
- Terminating Processes

❖ **MODULE3: MANAGING THE SQL SERVER AND DATABASES:**

- Starting SQL Server in Single user mode
- Changing the Default path of Database files
- Modifying the Logical and Physical names of database files

