**SQL Server DBA Course Details**

**Syllabus:**

**Introduction to SQL SERVER**

* Responsibilities of Database Administrator
* Types of DBA's
* History of Sql Server - Versions
* What's new in Sql Server 2012 for Administrators
* Editions of SQL server
* Tools of SQL server
* Difference between enterprise and Standard editions
* Requirements - Hardware and Software
* Instances - Default Instance and Named Instance
* Sql Server Services
* Client Server Connectivity Issues

**Installing and Configuring SQL Server**

* Installations
* View  installation process with log files.
* Adding and removing components
* Installing Service Packs
* Configuration
* startup parameters
* configuring data file and log file paths
* Memory configuration
* Remote Connections
* configuring network protocols and ports
* configuration services
* configuring default backup folder and authentication windows registry

**Working with Databases**

* System databases
* Moving System databases
* Handling TempDB database
* Database Architecture
  + Data Files
  + Log files
  + File Groups
  + Extents
  + Pages -types
  + Page architecture
  + Tracking free space
* Create databases
* Adding files, filegroups

**Security**

* Security in Sql Server 2012 and 2014
* Security Enhancements
* Types of Authentication
  + windows authentication
    - creating logins from windows users and groups
    - orphan logins
* Sql Server authentication
* creating SQL logins and testing logins
* Setting authentication mode
* security auditing
* server role
* working with users
* Resolving orphans roles
* database roles, custom and application roles
* Permissions
* Encryption and Decryption

1. Working with certificates and schemas
2. Security catalog views and stored procedures

**Backup and Restore**

1. Full
2. Bulk logged
3. Simple
4. Setting Recovery Model
5. Database backups
6. Backup types - Full, Differential, Transaction, File or Filegroup
7. copy-only, Mirrored and tall log backups
8. Backup System databases
9. Compressions

Row Compression, Page Compression,   
Data Partitions, Table Compression using T-SQL,  
 Compressing Backups

1. using LiteSpeed for backups
2. point-in-time recovery
3. Viewing complete details in backup process

**Replication**

1. Replication and advantages
2. New features 2008 R2 / 2012
3. Replication Entities
4. Replication Architecture
5. Replication Agent
6. Types of Replication
7. Congfiguring Replication
   1. SnapShot Replication
   2. Transactional Replication
   3. Merge Replication
8. Peer to Peer Replication
9. Configuring oracle publication
10. Replication Topologies
11. Managing replication
12. Monitoring and Tuning Replication

**Automation Administrative tasks**

1. Working with database mail
   * + 1. mail architecture
       2. Configuring profiles and Accounts
       3. Sending Mail
   1. Configuring linked Servers
   2. Implementing Automation
      1. Configuring SQL Server Agent
      2. Creating Operators, Alerts, Jobs
      3. Managing jobs and resolving errors
      4. Monitoring jobs
      5. Auto alert when jobs are enabled, disabled and failed
      6. Database snapshots
      7. Reverting from snapshot
      8. Maintenance plans

**High Availability**

* Introduction to High Availability
* Working with log Shipping
* Features
* Jobs
* Requirements to implement Log Shipping
  + - Configuring Log Shipping
    - Monitoring Log shipping
    - Manually performing fail over
    - Transferring logins
    - Log Shipping tables and stored procedures
    - Handling out of sync Issues

**Working with Database Mirroring**

* Advantages
* Architecture
* Operating modes
* Servers involved in Mirroring
* Requirements of Mirroring
* Configuring
* Monitoring
  + using Mirroring Monitor
  + using System Monitor
  + using Profiler
  + using System views and Stored procedures
* Mirroring Fail over
* Mirroring system tables and stored procedures

**Advanced Administration Concepts**

* Monitoring and Tuning SQL Server
  + Performance counter setup
  + Measuring performance of sql server
  + Tuning Queries
  + Tuning Databases
  + Tuning physical architecture of databases
  + using DTA
* Monitoring Tools
  + System Monitor
  + SQL Server Profiler
  + Database Engine Tuning Advisor
  + Dynamic Management Views
  + Sql Server and Windows Error Logs
  + Trouble Shooting
  + Physical server performance
  + Connectivity to SQL Server
  + Database performance
* Managing Concurrency
* SQL Server Architecture
  + Relation Engine
  + Storage Engine
  + Buffer pool
  + Managing Execution plans
* Locks
* Dead Lock
* Transaction Isolation Levels
* Understanding Blocking
* Terminating processes
* using  DAC
* Managing Database
* Manage Index Fragmentation
* Manage Statistics
* Shrink Files
* Performance database integrity checks by using DBCC CHECKDB
* Index Rebuilding and Reorganizing
  + - SQL Server Up Gradation
    - using DBCC commands
    - Resource Governor
    - Trouble Shooting  SQL Server
      * Managing Resource Utilization
      * Resource Governor
      * Resource Pools
      * Creating a Resource Pool
      * Workload Groups
      * Creating a workload Group
      * Classification
      * Creating a classifier Function

**Clustering in Sql Server**

* Introduction to cluster environment and features
* overview of windows clustering
* How SQL Server Supports Clustering
* Requirements
* Installing and configuring Sql Server Clustering
* Moving groups
* Adding Node on a sql server Failover cluster
* Troubleshooting cluster issues
* Patching clustered instances

**SQL Server 2012 DBA concepts**

* Introduction to Sql Server 2012 environment
* Always On (HA/DR) features
* Column store indexes
* contained databases
* user defined server roles
* database recovery advisor
* New/Updated DMVs( Dynamic Management Views) Overview of windows clustering.