STC/SADM/CT02: **Certificate Course in System Administration using Linux**

Lectures: 40 hrs
Practical: 40 hrs
Total: 80 hrs

Objective of the Course

The objective of the course is to make candidates aware of the functioning of a Linux operating system. The candidates are expected to learn the commands while doing practical and emphasis should be given to those switches/options and flags, which are most frequently used in real life.

After completion of the course candidates will be able to:

- Understand Linux Operating System concepts.
- Use of Linux Commands and Editor.
- Understanding of Linux File System
- Use of Advance user Commands.
- Do Network configuration and security management in Linux.

Job Opportunity

- As a Linux Administrator
- Support Engineer
- Linux Professional
- Network Administrator

Course Contents

1.	Introduction of Linux Operating System	02 hour
2.	Linux Installation.	04 hours
3.	Linux Basic Commands & File Management System	10 hours
4.	Standard IO & Pipes	04 hours
5.	The X-Windows	04 hours
6.	Users , Groups and Permissions	08 hours
7.	Vi Editor	04 hours
8.	Kernel Services	04 hours
9.	Text Processing tools	06 hours
10.	Archiving and Copying Files between Systems	04 hours
11.	Installing and Updating Software Packages	04 hours
12.	Basic System Configuration Tools	06 hours
13.	Network Management Commands	20 hours

Detailed Syllabus

1. Introduction of Linux Operating System:

Overview of OS, Open Source, Brief history of Linux, Red hat distribution, Linux principle.

2. Linux Installation :

Linux Installation and Booting Steps.

3. Linux Basic Commands & File Managements System:

Date, Time, Help, Calendar and other basic commands. Linux File Hierarchy Concepts, Some Important Directories, Current Working Directory, File and Directory Names, Absolute and Relative Pathnames, Changing Directories, Listing Directory Contents, Copying Files and Directories, Copying Files and Directories: The Destination, Moving and Renaming Files and Directories, Creating and Removing Files, Creating and Removing Directories, Using Nautilus, Determining File Content.

4. Standard IO & Pipes:

Standard Input and Output, Redirecting Output to a File, Redirecting STDOUT to a Program(Piping), Combining Output and Errors, Redirecting to Multiple Targets (tee), Redirecting STDIN from a file, Sending Multiple Lines to STDIN.

5. The X-Windows:

XOrg: The X11 Server, XOrg Server Design, XOrg Server Configuration, XOrg Modularity, Server and Client Relationship, XOrg in runlevel 3, XOrg in runlevel 5, Configuration Utilities, Remote X Sessions.

6. Users, Groups and Permissions:

Users, Groups, Linux File Security, Permission Precedence, Permission Types, Examining Permissions, Interpreting Permissions, Changing File Ownership, Changing Permissions – Symbolic Method, Changing Permissions – Numeric Method, Changing Permissions – Nautilus.

User and Group ID Numbers, /etc/passwd, /etc/shadow and /etc/group files, User Management tools, System Users and and Groups, Monitoring Logins, Default Permissions, Special Permissions for Executable, Special Permissions for Directories.

7. Vi Editor:

Introducing vim, vim: A Modal Editor, vim basics, Opening a file in vim, Modifying a file, Saving a file and exiting vim, Using Command Mode, Moving around, Search and Replace, Manipulating Text, Undoing changes, Visual Mode, Using multiple "windows", Configuring vi and vim, Learning more.

8. Kernel Services:

Explore kernel Modules and variants, tune kernel parameters, Manage devices & Monitor Process & resources.

9. Text Processing Tools:

Tools for Extracting Text, Viewing File Contents, Viewing File Excerpts, Extracting Text by Keyword, Extracting Text by column, Tools for analysing text, Gathering text statistics, Sorting Text, Eliminating Duplicate Lines, Comparing Files, Duplicating File

Changes, Spell Checking with aspell, Tools for manipulating Text, sed, Special Characters for Complex Searches.

10. Archiving and Copying Files between Systems:

Back-up, Restore, Archiving the file etc.

11. Installing and Updating Software Packages:

12. Basic System Configuration Tools:

TCP/IP Network Configuration, Managing Ethernet Connections, Graphical Network Configuration, Network Configuration Files, Printing in Linux, Setting the System's Date and Time, Managing Services.

13. Network Management Services:

Network File Sharing services, Web Services, E-Mail Services, Configuring Telnet/DNS/FTP/SSH, Analysing and Storing Logs.