

## Training Objectives: -

This training facilitates classroom and laboratory learning, letting students develop competence and confidence in administrating and customizing Linux Systems. This course covers Linux basics, as well as system administration topics on CentOS Linux.

**DURATION:** 4 WEEKS (80 Hours)

**FEE** : RS. 6000/-(Inclusive of Service .Tax)\*

**ELIGIBILITY:** B.E / B.TECH. in CS/IT/EC/EI/ IInd/ IIIrd/ IVth Year Students or MCA/M.Sc (IT/CS/Electronics), Diploma in any Stream

**Form Fee Rs 50.00 Extra**

## How to Apply:

For Admission, submit your college reference/training letter along with fee of Rs 6000 (either in Cash or Demand Draft in favour of “**NIELIT, Gorakhpur**”. The application form may be downloaded from our website or collected from reception.

## Accommodation:

Hostel accommodation is available for Male candidates only.

## Training Highlights:

- Well Managed Course pattern
- Daily Handouts & Lab Exercise
- Industry Compliant Syllabus
- Use of Latest Tools & Technology
- LAB Assistance
- Regular Quiz

## Course Contents (Syllabus of Training)

### Module I

#### Introduction to CentOS Linux

The CentOS Linux File system, The CentOS Shell, The CentOS Linux Utilities

### Module II

#### Installing CentOS Server

Preparing for the Installation, Starting the CentOS Server Installation Process, Configuring the Server's Hard Drive, Completing the Installation

### Module III

#### Using the Command Line

Working as root, working with the Shell, Using Bash to Best Effect, Managing Bash with Key Sequences, Performing Basic File System Management Tasks, Working with Directories, Working with Files, Viewing the Content of Text Files, Finding Files That Contain Specific Text , Creating Empty Files, Piping and Redirection, Piping, Redirection, Finding Files, Working with Vi Editor: Vi Modes, Saving and Quitting, Cut, Copy, and Paste, Deleting Text. Getting Help: Using man to Get Help,Getting Information on Installed Packages

### Module IV:

#### System Administration

Software Management, Software Repositories and Package Databases, Package Management Utilities, Using apt, Installing Software from Tarballs, Configuring a Graphical User Interface, Creating Backups, Making File Backups with tar, Making Device Backups Using dd, Configuring Logging, Configuring syslog

### Module V:

#### File System Management

Mounting Disks, Using the mount Command, Unmounting Devices, Automating Mounts with /etc/fstab, Checking File System Integrity, Working with Links: Working with Symbolic Links, Working with Hard Links. Configuring Storage, Comparing File Systems, Creating File Systems, Working with Logical Volumes

### Module VI

#### Configuring Server for Security

Setting Up User Accounts, Commands for User Management, Managing Passwords, Modifying and Deleting User Accounts, Configuration Files, Creating Groups, Commands for Group Management, /etc/group, Using Group Passwords, Managing the User's Shell Environment, Configuring Permissions, Read, Write, and Execute: The Three Basic Linux Permissions, Permissions and the Concept of Ownership, Working with Advanced Linux Permissions, Setting Permissions, Using umask to Set Default Permissions for New Files, Working with Access Control Lists, Preparing the File System for ACLs, ACL Limitations, Applying File Attributes, Apply Quota to Allow a Maximum Amount of Files, Installing the Quota Software, Preparing the File System for Quota, Initializing Quota, Setting Quota for Users and Groups, Configuring Administrator Tasks with sudo

### Module VII

#### Personalizing the System

Process Monitoring and Management, Different Kinds of Processes, Foreground and Background, Managing

Processes, Other Tools to Monitor System Activity, Setting Process Priority, Executing Processes Automatically, Configuring cron, Executing Once with at, Tuning the Boot Procedure, Managing the GRUB Boot Loader, The GRUB Configuration File, Installing GRUB, Working with the GRUB Boot Menu, Runlevels, Hardware Management with udev

### Module VIII

#### Configuring a Network Connection

Configuring the Network Card, Using ifup, ifdown, and Related Tools, Using ifconfig, Using the ip Tool, Configuring the DNS Resolver, Configuring Network Card Properties with the ethtool Command, Troubleshooting Network Connections, Testing Connectivity, Testing Availability of Services, Monitoring the Network Interface, Monitoring Network Traffic, Configuring Telnet & FTP, Connecting Remotely with SSH, Working with Public/Private Key Pairs, Working with Secure Shell, Configuring SSH, Using Key-Based Authentication, A Short Introduction to Cryptography, Using Public/Private Key-Based Authentication in an SSH Environment

### Module IX

#### Using CentOS Server as a File Server

Sharing Files with NFS, Using the NFS Server, Understanding How the NFS Works, Configuring an NFS Server, Configuring an NFS Client, Monitoring the NFS Server, Sharing Files with Samba, Samba Server Possibilities and Impossibilities, Configuring the Samba Server, Client Access to the Samba Server

### Module X

#### Configuring Network Infrastructure Services

Configuring DNS, Methods of Name Resolution, Structure of the DNS Hierarchy, Introducing Forward and Reverse DNS, Configuring DNS, Configuring Reversed Lookup, Testing Your Name Server, Configuring DHCP, Understanding the DHCP Protocol, Creating the DHCP Server Configuration, The DHCP Process, The /etc/dhcp/dhcpd.conf Configuration File, Advanced DHCP Configuration Options, Configuring NTP, How NTP Works, Configuring a Stand-Alone NTP Time Server, Pulling or Pushing the Time, Configuring an NTP Client, Checking NTP Synchronization Status, Customizing Your NTP Server, Starting Services with xinetd, Setting up Xinetd, Setting Up Mail Servers, Clients

### Module XI

#### Setting up Web Services

Setting up Apache, Apache Components, Starting, Stopping, and Testing the Apache Web Server, The Structure of the

Apache Configuration Files, Checking the Configuration, Working with Virtual Hosts, Configuring Virtual Hosts, Managing Access to the Web Server, Configuring Host-Based Access Restrictions, Configuring User-Based Access Restrictions

Enabling HTTPS, Creating a Self-Signed Certificate, Configuring Apache to Use the Self-Signed Certificate Using PHP, Setting Up MySQL, Setting the MySQL Root Password, Creating a MySQL Database, Configuring a Squid Proxy Server, Installing a Squid Proxy Cache, Configuring Squid Access Control Policies, Configuring User Authentication

#### Module XII

### Setting Up the Firewall with iptables

Using iptables to create a Firewall

#### Module XIII

### Setting Up the Mail Server

SMTP, POP3, IMAP, Postfix, Roundcube

#### Lab Modules

1. Linux introduction & Installation of CentOS Linux
2. Using various Linux commands
3. Using VI Editor
4. Software package management using YUM
5. Installing Software from Tarballs, RPM
6. Using the mount Command to Mount & Unmount the Disks, Devices.
7. Automating Mounts with /etc/fstab
8. Setting Up User Accounts
9. Modifying and Deleting User Accounts
10. Creating Groups
11. Managing the User's Shell Environment
12. Configuring Permissions, Read, Write, and Execute: The Three Basic Linux Permissions
13. Working with Advanced Linux Permissions
14. Working with Access Control Lists(ACL)
15. Setting Quota for Users and Groups
16. Process Monitoring and Management
17. Managing the GRUB Boot Loader, The GRUB Configuration File, Installing GRUB
18. Configuring Runlevels
19. Configuring the Network Card, Troubleshooting Network Connections, Testing Connectivity.
20. Configuring Telnet Server
21. Configuring FTP Server
22. Configuring SSH Server
23. Configuring an NFS Server & Client
24. Configuring the Samba Server and Client Access

25. Configuring bind DNS Server
26. Creating the DHCP Server Configuration
27. Configuring NTP Time server
28. Setting Up Apache Web server
29. Configuring SQUID Proxy Server
30. Setting Up PHP & MySQL server
31. Using iptables to create a Firewall
32. Configuring mail server setup using Postfix and Squirrel mail.

#### CONTACT FOR INFORMATION:

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## SUMMER TRAINING In “Linux System Administration” (CentOS Linux)



#### ORGANIZED BY

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