

## NCSA - Network Labs Certified Systems Administrator

### Course Contents:

#### Computer Hardware

**Basic Introduction to Computers**  
History of Computers  
Types of Computers  
Components, Features and System Design  
Identifying the different parts of computer

**Microprocessor Types and Specification**  
Processor Specification  
Intel-Compatible Processors  
Processor Types

**Motherboard and Buses**  
Mother Board Components  
Intel and Non-Intel Chipsets  
BIOS, CMOS, Type of I/O Buses,  
DMA Channels, IRQs, I/O Port Address

**Memory**  
Memory Basics  
Types of Memory  
Memory Speed  
Cache Memory  
System Logical Memory Layout

**Power Supply and case**  
Power Supply Function and Operation  
Switch Mode Power Supplies SMPS Connectors  
SMPS Voltages  
Voltage Stabilizers  
UPS as Backups  
Types of UPS  
UPS Specification

**Input - Output Interfaces**  
Serial, Parallel, USB, FireWire,  
ST-506, IDE, SCSI, SATA

**Magnetic Storage**  
Principles of Magnetic Storage  
Formatting  
Capacity Measurements

**Floppy drive**  
Floppy Drive Basics  
Types of Floppy Disk Drive  
Drive Components  
File Allocation

**DVD (Digital Versatile Disks)**  
DVD - ROM Basics  
DVD Specification  
DVD Standards  
DVD - Writers Basics  
Drive installation & Usage

**Input Devices Keyboard**  
Basics functions  
Types of Keyboard  
Compatibility  
Keyboard Technology

**Mice**  
Basics functions of Mouse  
Types of Mouse  
Mouse Interface

**Printers**  
Printer Technology  
Laser, Inkjet, Dot Matrix  
Color Printing  
Printer Drivers

**Display**  
Monitor Basics  
Monochrome vs Color  
Digital, Analog, TFT, LCD  
Display Adapters  
VESA SVGA Standards  
Video Adapter Components  
3D Graphics Accelerators

**Audio**  
Audio Adapter Features  
Audio Adapters Concepts and Terms  
Audio Adapter Applications  
Audio Adapter Installation

**Network Interface Cards**  
Need for NIC  
Type of NIC  
NIC Types  
NIC Connectors

**Modems**  
Need for Modem  
Types of Modem

Drive Installation  
**Hard disk drive**  
 Hard Disk Basics  
 File Allocation  
 Formatting - low and high  
 Using Disk Manager

**Tape Drives**  
 Tape Backup Standards  
 The QIC Standards  
 Tape Drive Installation  
 Tape Drive Backup Software

**Optical Storage**  
 CD R / RW  
 CD - ROM Driver Basics  
 Drive Specification  
 Loading Mechanism  
 Drive Formats  
 CD - Writers Basics  
 Drive Installation & Usage

Internet connection  
**Miscellaneous Devices**  
 Scanner, TV Tuner Cards  
 WEB Camera, Laptops  
 Notebooks, Dumb Terminals

**Assembling and Disassembling**

**Preventive Maintenance**  
 Diagnostic Software  
 PC Maintenance Tools  
 Maintenance Procedure  
 Upgrading your PC

**Troubleshooting**  
 Boot Problems  
 Motherboard, Devices  
 Modem Problems  
 NIC & Network Problems  
 Sound Card Problems  
 Video Problems, etc.,

**Desktop OS & Anti-Virus**

**DOS 6.2 DOS Fundamentals**  
 Booting DOS  
 Starting and Restarting a PC  
 Using DOS Commands  
 Batch Files, Controlling DOS  
 DOS Editor, Files and Directories  
 Comparing Files and Disks  
 Formatting Floppy Disks  
 Protecting Data on Disks  
 Setting Up a Hard Disk  
 System Configuration Files  
 Configuration Commands  
 Memory Management  
 System Diagnosis

**Win 98Basics**  
 Win98 Architecture  
 Basic Features,  
 Boot Sequence  
 Installation Process  
 Multimedia Configuration  
 System Administration  
 Configuring Win98  
 Printers, Networking, Utilities,  
 Using Outlook Express

**Anti-virus Software**  
 Introduction to Computer

**Windows XP Professional**  
 General  
 Introduction  
 Version Differences  
 New Features  
 Customizing Windows 2000 Professional

**Installation**  
 Installation Prerequisites/HCL  
 Installation Methods

**Management**  
 Setting up & Managing User  
 Setting up & Managing Group Accounts,  
 MMC, Services

Service Packs, ICS  
 Managing Data Storage  
 Disk Management  
**File Systems**  
 DFS, EFS, and Compression  
 FAT and FAT32, NTFS

**Printers**  
 Installing printer locally  
 Accessing a Remote printer  
 Implementing Security

**System Maintenance and Optimization**

Viruses, Worms, Trojan Horses. Macros etc.  
Installing & Configuring Anti-virus Software  
(Server & Client)  
Updating Anti-virus  
Virus Removal & Prevention

Auditing Resources & Events,  
De fragmentation, Performance,  
Scheduled Tasks, Disk Quotas, ERD,  
Backup & Restore, Troubleshooting  
Using Outlook Express

## Networking Essentials

### General

Introduction to Networking  
Basic elements of Networking  
Networking and its uses

### Types of Networks

LAN  
MAN  
WAN (Enterprise & Global)  
Peer-to-peer  
Client-Server

### Network Topology

BUS  
STAR  
RING  
MESH  
CELLULAR  
HYBRID

### Transmission Media

Cable  
Co-axial, Twisted Pair & Fiber Optic cables  
Wireless  
Radio, Infrared & Micro waves

### Network Devices

Repeaters  
Hubs  
Switches  
Bridges  
MUX  
MAU  
Routers  
Brouters  
Modems

### Transmission Media Connectors

T-BNC, RJ -11, RJ-45, etc.,

### Protocol Stacks

IPX/SPX Model  
IPV4  
IPV6  
Apple Talk

### IP Addressing

Address Classes  
Binary <- -> Decimal Representation  
Classful Masks  
Private Address Space  
Subnet Masks

### Routing & Switching

Circuit Switching  
Packet Switching  
Routing Table  
Link State  
RIP, OSPF  
Network Services & Protocols  
File, Print, Database, Messaging,  
Application & Specialized Services.  
DNS, DHCP, HTTP, FTP, Telnet, SMTP,  
NNTP, POP3, IMAP4, HTTPS, SSL, BOOTP,  
L2TP, PPTP, IPSec, Kerberos, SNMP, etc.,

### WAN Technology

Serial Connectivity, X.25, FDDI, ISDN, ATM,  
Frame Relay, CSU/DSU, etc., VPN, Proxy  
Servers, Firewalls RAID, Network Attached  
Storage, Storage Area Networks,

### Network Administration

NOS  
Backup  
Client Server  
Clustering  
Documentation  
Security  
Scenarios

**Cabling Standards**

Jack Panel  
I/O ports  
Structured Cabling Guidelines.

**OSI Model**

Application Layer  
Presentation Layer  
Session Layer  
Transport Layer  
Network Layer  
Data-Link Layer  
Physical Layer

**Network Cards**

Cable Crimping  
Configuration  
Installation

**Troubleshooting**

Analyzers, Hardware-Related Problems,  
Logging Events  
Monitoring Trends and Performance  
Network  
Software  
User-Related Problems

**Network Operating System**

**Windows 2003 Server**

Introduction to Windows 2003 Server  
Installation of Windows 2003 Server  
Adding and Removing Drivers and Software  
File systems - FAT32 and NTFS  
Creating User & Group Accounts  
Configuring Disk Quotas  
Controlling Access to Files and Resources  
Sharing Resources on the Network  
Configuring Printers & Modems  
Installing & Configuring DNS, DHCP, ADS  
Installing & Configuring Terminal Services  
Using Backup & Restore Utility

**SCO UNIX 5.0.5**

Introduction to UNIX  
Basic Architecture of UNIX  
Installation of UNIX  
File system, Basic Commands  
Administering UNIX  
Creating Users & Groups  
File and Directory Permissions  
Processes and Process Administration  
Automating Tasks, Backup & Restore  
Installing and Configuring Printers, Mouse, NIC  
Working with X window System

**Linux**

Unix & Linux : Background and Perspective  
Linux Installation : A step-by-step  
Guidance Device  
An Introduction to BASH Shell  
Introducing the Graphical User  
The Vi Editor  
Login Shell & Help-line Class of Users,  
their Identities & Privileges Virtual  
Consoles & their  
Linux File System & its' Structure Basic  
Structure  
Basic Shell Commands  
Administration of Users  
Printer Administration  
Linux Networking Environment