

Technology Certified Networking Professional (1 Year Certification Diploma Program)

After many years of excellence since 2010, now EH1 Infotech™ has decided to introduce an exceptionally developed training model in the nation for the first time. For those individuals who want to have an opportunity to join the Pioneer IT industry.

Why is the need to join our Skill Based Course?

After devoting 15 important years of your life in school, 3-4 years in graduation and 2-3 years after post graduation. Still 75% of our youth is unemployed because our school or college education does not develop adequate skills for employability.

EH1 Infotech™ follows the exceptional way for training students. Where our focus is to:

- *Educate students for livelihood*
- *Enhancing their professional skills*
- *Assuring employability*
- *Catalyzing skill based education in response to IT industry demand*
- *Upscaling and expanding social/economic mobility*
- *Flexible and progressive learning scheme*

We have launched this model of training with an aim to reach:

- Students attending Regular Degree Program of any college/university
- Students attending Distance Learning Program of any college/university
- Students those who are college drop outs
- Students those who has backlogs in their degree
- Students those were not able to join higher studies due to some family issues

Our initiative is to make every student skilled and industry ready to make a bright future for employment in IT Industry.

Technology Certified Networking Professional Program

Content Highlights:

Networking	TCP/IP	IP Addressing	Routing Technologies	Active Directory
Windows Server	DHCP	DNS	IIS	Troubleshooting
WAN	Ethical Hacking	Practical Aspects of Networking	Attack Scanning & Virtual Lab Preparation	Email Ethical Hacking
Google Hacking	Website Ethical Hacking Attacks & Security	Theft Techniques	Social Engineering Attack	Wi-Fi Ethical Hacking & Security
Advance Ethical Hacking Technique	Android Ethical Hacking	LAN & WAN	Backtrack/Kali	Port Scanning
ARP Spoofing	Client Side Attacks	Password Attacks	Penetration Testing	Shell Scripting
Reconnaissance	ARP Poisoning –MITM	Vulnerability Discovery	WEP/WPA/WPA2 Ethical Hacking	Penetration Testing
Cloud Computing	LINUX	Computer Hardware		

Main attraction of 1 Year Technology Certified Networking Diploma Program:

- One to one discussions with your trainer before joining any class
- Get a chance to learn from Award Winning Training Company
- Real Live Projects from clients like from USA, UK, CANADA, AUSTRALIA and INDIA
- 6 Months Industrial Training Project Work at our Development Unit (Technology Certified™)
- 1 Year Technology Certified Networking Professional Diploma
- Additional four certificates from EH1 Infotech with 1 Year Diploma Certificate (EH1 Infotech is an ISO 9001:2008 Certified Organisation)
- Pay your fees in easy installments
- Video tutorial to each lecture
- Classrooms and Labs equipped with Plasma Screens & LCDs
- 100% Placement Assistance
- Free Ethical Hacking course

Certificates you will be awarded:

- Technology Certified Networking Professional (1 Year Certification Diploma)
- EH1 Infotech™ Certified Ethical Hacker
- EH1 Infotech™ Penetration Testing Expert
- EH1 Infotech™ Certified LINUX Administrator
- 6 Months IT experience letter from Technology Certified™ (Development unit of Baghla Technologies Pvt. Ltd.)

Content of Skill Based 1 Year

Technology Certified Networking Professional

Module 1: Networking

Module 2: Ethical Hacking

Module 3: Penetration Testing

Module 4: Cloud Computing

Module 5: LINUX

Module 6: Computer Hardware

Module 1: Networking

Module 1-1: Basics of Network Technologies

- Introduction to Network Devices (Hub, Switch, Router, Firewall)
- Introduction to OSI Model
- Ethernet LAN Cabling
- Basics of IP addresses
- Cisco Router Hardware & basic router Administration
- Cisco Router CLI basic commands
- Protecting router access with passwords
- Accessing Cisco router with SDM
- Cisco router IOS Management
- Router boot sequence
- Backup & restore Cisco IOS
- Backup & restore Configuration files
- Accessing Cisco router over the network (telnet, ssh)
- Cisco Discovery Protocol
- Router connectivity & troubleshooting

Module 1-2: Introduction of TCP/IP protocol & Subnetting

- TCP/IP and DoD reference model
- IP Addressing
- Subnetting ,VLSM Design & Summarization
- IP Routing
- The IP Routing Process
- Configuring Static & Default Routing
- Configuring RIP Routing protocol
- Configuring EIGRP routing protocol
- Configuring OSPF routing protocol
- Verify & troubleshooting routing protocols

Module 1-3: IP addressing (IPv4 / IPv6)

- Private and public IP addresses for IPv4

- IPv6 addressing scheme
- IPv4 addressing scheme using VLSM and summarization
- IPv6 in conjunction with IPv4 such as (dual stack)
- Describe IPv6 addresses

Module 1-4: LAN Switching Technologies

- Identify basic switching concepts
- Types of switching
- Collision / Broadcast Domains
- CAM Table
- Configure and verify initial switch configuration
- Switch operation (ping, telnet and SSH)
- Identify enhanced switching technologies
- RSTP / PVSTP
- Ether channels
- Configure and verify VLANs / Trunking
- DTP / Auto negotiation
- Configure and verify PVSTP operation
- Root bridge election / STP Modes

Module 1-5: IP Routing Technologies

- Describe basic routing concepts
- C E F
- Packet forwarding
- Router lookup process
- Describe the boot process of Cisco IOS routers
- Configure and verify basic Router configuration
- Configure and verify interface (serial and Ethernet)
- Configure and verify Static & Default routing
- Manage Cisco IOS Files
- Boot preferences / Cisco IOS image(s)
- Licensing
- Differentiate methods of routing and routing protocols
- Static vs. Dynamic
- Link state vs. Distance Vector
- Administrative distance

Module 1-6: Active Directory - Domain Services

- IP Addressing
- Logical Topologies, Peer to Peer & Domain Models
- Introduction to Directory Services
- Evolution of Directory Services – LDAP Protocol
- Features of Active Directory
- Installing Active Directory – Domain Controller

Module 1-7: Windows Server 2003

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- Installation, Network Configuration
- Resources and printer Management
- Managing Windows Server 2003 Environment
- Implementing Windows Server 2003 Network
- Implementing Security in a Windows Server 2003 Network
- Implementation of Exchange Server 2003/ 2007

Module 1-8: Windows Server 2008

- Windows 2008 Server Administrator
- Enterprise Administrator on Windows 2008

Module 1-9: Member Servers, Clients, User Configuration

- Configuring Member Servers and Clients
- Creating Users in AD-DS
- User Logon policies
- Password policies
- Account Lockout policies
- User properties

Module 1-10: Permissions/Access Control Lists

- File Systems
- Security and Sharing Permissions - Folders & Files
- Offline Folders

Module 1-11: Profiles and File Server Resource Manager [FSRM]

- Types of Profiles – Local & Roaming
- Home Folder
- Configuring Quotas using FSRM
- Implementing File Screening using FSRM
- Configuring Storage Reports Management

Module 1-12: Distributed File System

- Creating Organizational Unit
- Delegating Control to a User
- Active Directory Recycle Bin
- DFS Namespace
- DFS Folders

Module 1-13: Group Policy / System Policies

- User and Computer Policies
- Scope of Policies – OU, Domain, Sites
- Group Policy Modeling (RSOP)
- Software Deployment
- Scripts, Folder Redirection
- Group Policy Preferences

Module 1-14: Active Directory Trusts

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- Introduction to Trust Relationship
- Categories, Directions & Types of Trusts
- Functional Levels
- Authentication Protocols
- Configuring Forest Trusts between 2012 Forests

Module 1-15: Dynamic Host Configuration Protocol (DHCP)

- Introduction and Configuration of DHCP Server
- DHCP Client Configuration
- Reservations
- DHCP Backup
- Configuring DHCP Failover

Module 1-16: Domain Name System (DNS)

- Internet Basics, Host Files
- DNS Naming Hierarchy
- Lookup Zones – Forward and Reverse Lookup Zones
- Types of Zones – Primary, Secondary and Stub Zone
- Resource Records, Integration with AD-DS, SRV Records
- Forwarders, Dynamic Updates

Module 1-17: Internet Information Services (IIS)

- IIS 8.0 Configuration
- Hosting Websites, Virtual Directories
- Redirecting Web Sites
- Backup and Restoring Sites
- FTP sites

Module 1-18: Windows Deployment Services

- Introduction and Configuration of WDS Server
- Attended and Unattended Installation

Module 1-19: IP Services

- Configure and verify DHCP (IOS Router)
- Configuring router interfaces to use DHCP
- DHCP options
- Excluded addresses, Lease time
- ACL (Types, Features & Applications of ACLs)
- Standard, Extended, Named & Numbered
- Log option
- Configure and verify ACL.
- Identify the basic operation of NAT
- Purpose, Pool, Static, 1 to 1 & Overloading
- Source addressing & One way NAT
- Configure and verify NAT
- Configure and verify NTP as a client

- Recognize High availability (FHRP, VRRP, HSRP & GLBP)
- Configure and verify Sys log
- Describe SNMP v2 & v3

Module 1-20: Troubleshooting

- Troubleshoot and Resolve VLAN problems
- Identify that VLANs are configured
- port membership correct
- IP address configured
- Troubleshoot and Resolve trunking proble
- correct trunk states
- Correct encapsulation configured
- Correct Vlans allowed
- Troubleshoot and Resolve STP
- Root switch
- Priority
- Mode is correct
- Port states
- Troubleshoot and Resolve routing issues
- Routing is enabled
- Routing table is correct
- Correct path selection
- Troubleshoot and Resolve OSPF problems
- Neighbor advances
- Hello and Dead timers
- OSPF area, Interface MTU
- Network types, Neighbor states
- OSPF topology database
- Troubleshoot and Resolve inter VLAN
- Connectivity
- Encapsulation
- Subnet, Native VLAN
- Port mode trunk status

Module 1-21: WAN

- Introduction to WAN Networks
- Understanding WAN Term
- WAN encapsulation types (HDLC, PPP)
- WAN Connectivity using serial dedicated networks
- Introduction to frame-relay technologies
- Implementing frame-relay wan network
- Introduction to DSL technologies (ADSL,SDSL)
- Introduction to VPN
- Configuring IPSEC site-site VPN using SDM

Module 2: Ethical Hacking

Module 2-1: Introduction

- Introduction to Ethical Hacking
- Introduction to all Underground Ethical Hacking Community
- Cyber Laws In India & Abroad

Module 2-2: Practical Aspects of Networking

- Knowing the Basics of IP Address
- Knowing Remote System IP Address
- Hiding Your IP address (Proxy Server)
- Be Anonymous in Cyber World VPN and Proxy Servers
- VPN (Virtual Private Network)
- Tracing an IP Address

Module 2-3: Attack Scanning & Virtual Lab Preparation

- Network Reconnaissance
- Port Scanning, Daemon Banner Grabbing
- OS Detection & Firewall Enumeration
- Sniffing
- Making Virtual Lab using VMware or Oracle Virtual Box
- Active and Passive Information Gathering
- Configuring and Testing Your Network
- Live Firewall Implementation

Module 2-4: Ethical Hacking Windows

- Introduction
- Making USB Pendrive Bootable
- Ethical Hacking Window Administrative Password. (XP, Window 7, Window 8)
- Introduction to Backtrack/Kali Operating System
- Exploiting With Metasploit Framework 4.0
- Securing the Windows Account with SAM Lock Tool
- More on Securing Window Administrative Password

Module 2-5: Registry Ethical Hacking

Module 2-6: Email Ethical Hacking

- What is Email Ethical Hacking
- Tracing Email
- Email Forging
- How to Secure your Email Accounts

Module 2-7: Google Ethical Hacking

- Introduction to Google Ethical Hacking
- Using Google Dorks on Google Search Engine
- Demonstration of leaking of confidential information on vulnerable website

- Securing a website from Google Ethical Hacking

Module 2-8: Website Ethical Hacking Attacks & Security (Important Module)

- Introduction
- CMS Ethical Hacking Introduction
- 10+ Website Ethical Hacking Techniques (First Time Ever In World) & Countermeasures
- SQL Injection (Basic & Advance)
- Denial of Services Attack (DDOS Attack)
- OWASP
- Website Security

Module 2-9: Input Validation Attack

- Brute Force attack
- Other Input Validation Attack

Module 2-10: Important Theft Techniques

- Demonstration of E-Hacker Virus
- Keylogger, Spyware Software
- Trojan and Backdoors Attack
- Virus, Worm & Trojan
- Binders and Cryptors
- Spamming Attacks
- Session Hijacking
- Protocols Vulnerabilities and Exploiting through Sniffers
- USB Ethical Hacking Technique
- Implementing security against Important Theft Techniques

Module 2-11: Social Engineering Attack

- Ethical Hacking Anyone without even using a single tool
- Physical Security Threats

Module 2-12: Digital Forensics Science

- Recover data from the USB Pendrives , Hard Disk Drive - Police Forensic way

Module 2-13: Secure Socket Layer (SSL) Torn Apart

- Determining whether your connection is secure or not
- SSL: How it works

Module 2-14: Cryptography, Firewalls and Error Messages

Module 2-15: Steganography (Hide data into images)

Module 2-16: Penetration Testing

- Introduction to Penetration Testing
- How to do Penetration Testing

- Preparing the Report.

Module 2-17: Banking Ethical Hacking & Security

- Concept of ATM Ethical Hacking & Security
- Credit Card & Debit Card Hack Attacks & Security

Module 2-18: Wi-Fi Ethical Hacking & Security

- Ethical Hacking on Wi-Fi Passwords on Wi-Fi router with WEP|WPA|WPA2 encryption
- Securing Wi-Fi Router from being hacked

Module 2-19: Advance Ethical Hacking Technique

- Ethical Hacking IIS Server
- Sniffing the Network to E-Hack passwords
- Penetration Testing using Backtrack/Kali
- Advance Email Ethical Hacking Techniques
- Shell Ethical Hacking (Website Ethical Hacking)
- Server routing and Countermeasures (Website Ethical Hacking)
- Live Ethical Hacking Demonstration on Dedicated Server in US or at other Country

Module 2-20: Android Ethical Hacking & Security

- Ethical Hacking Practical on Smartphone
- Securing your Android mobile from being hacked
- Securing your family with Android Apps

Module 2-21: Important Concepts of MCSE & CCNA

Module 2-22: Discussion on Cyber Crime Cases of Chandigarh Police Solved by Er. Sahil Baghla

Module 2-23: Discussion on TV Interviews given by Er. Sahil Baghla

- Website Ethical Hacking & Security
- Credit Card Ethical Hacking & Security
- Call Spoofing (Fake Calls on Mobile)
- ATM Ethical Hacking & Security

Module 2-24: Backtrack/Kali Basics

- Finding your way around Backtrack/Kali
- Backtrack/Kali Services
- DHCP
- Static IP Assignment
- SSHD
- Apache
- FTP
- TFTP
- VNC Server
- Additional Resources

- Exercise
- The Bash Environment
- Simple Bash Scripting
- Sample Exercise
- Sample Solution
- Additional Resources
- Net cat the Almighty
- Connecting to a TCP/UDP port with Net cat
- Listening on a TCP/UDP port with Net cat
- Transferring files with Net cat
- Remote Administration with Net cat
- Using Wire shark
- Peeking at a Sniffer
- Capture and Display filters
- Following TCP Streams
- Additional Resources

Module 2-25: Information Gathering Techniques

- Open Web Information Gathering
- Google Ethical Hacking
- Miscellaneous Web Resources
- Other search engines
- Net craft
- Who is Reconnaissance

Module 2-26: Open Services Information Gathering

- DNS Reconnaissance
- Interacting with a DNS server
- Automating lookups
- Forward lookup brute force
- Reverse lookup brute force
- DNS Zone Transfers
- SNMP reconnaissance
- Enumerating Windows Users
- Enumerating Running Services
- Enumerating open TCP ports
- Enumerating installed software
- SMTP reconnaissance
- Microsoft NetBIOS Information Gathering
- Null sessions
- Scanning for the NetBIOS Service
- Enumerating Usernames/ Password policies
- Malt Ego
- Network Infrastructure
- Social Infrastructure

Module 2-27: Port Scanning

- TCP Port Scanning Basics
- UDP Port Scanning Basics
- Port Scanning Pitfalls
- Nmap
- Network Sweeping
- OS fingerprinting
- Banner Grabbing / Service Enumeration
- Nmap Scripting Engine
- PBNJ
- Unicorn Scan

Module 2-28: ARP Spoofing

- The Theory
- Doing it the hard way
- Ettercap

Module 2-29: Buffer Overflow Exploitation

- Looking for Bugs
- Fuzzing
- Exploiting Windows Buffer Overflows
- Replicating the Crash
- Controlling EIP
- Locating Space for our Shell code
- Redirecting the execution flow
- Finding a return address
- Basic shell code creation
- Getting our shell

Module 2-30: Exploiting Linux Buffer Overflows

- Setting things up
- Controlling EIP
- Landing the Shell
- Avoiding ASLR

Module 2-31: Working With Exploits

- Looking for an exploit on Backtrack/Kali
- Looking for exploits on the web

Module 2-32: Transferring Files

- The non interactive shell
- Uploading Files
- Using TFTP
- Using FTP
- Inline Transfers

Module 2-33: Exploit frameworks

- Metasploit
- Interesting Payloads
- Meterpreter Payload
- Binary Payloads
- Other Framework v3.x features
- Core Impact

Module 2-34: Client Side Attacks

- Client side attacks
- CVE-2009-0927
- MS07-017 – From POC to Shell
- MS06-001
- Client side exploits in action

Module 2-35: Port Fun

- Port Redirection
- SSL Encapsulation - Stunnel
- HTTP CONNECT Tunneling
- Proxy Tunnel 11.5 SSH Tunneling
- What about content inspection

Module 2-36: Password Attacks

- Online Password Attacks
- Hydra
- FTP Brute force
- POP3 Brute force
- SNMP Brute force
- Microsoft VPN Brute force
- Hydra GTK
- Password profiling
- CEWL
- Offline Password Attacks
- Windows SAM
- Windows Hash Dumping – PWDump / FGDump
- John the Ripper
- Rainbow Tables
- “Windows does WHAT????”
- Physical Access Attacks
- Resetting Microsoft Windows
- Resetting a password on a Domain Controller
- Resetting Linux Systems
- Resetting a Cisco Device

Module 2-37: Web Application Attack vectors

- Cross Site Scripting

- Browser redirection / I Frame injection
- Stealing Cookies / Abusing Sessions
- Local and Remote File Inclusion
- 3 SQL Injection in PHP / MYSQL
- Authentication Bypass
- Enumerating the Database
- Code Execution
- SQL Injection in ASP / MSSQL
- Identifying SQL Injection Vulnerabilities
- Enumerating Table Names
- Enumerating the column types
- Fiddling with the Database
- Microsoft SQL Stored Procedures
- Code execution
- Web Proxies

Module 2-38: Trojan Horses

- Binary Trojan Horses
- Open source Trojan horses
- World domination Trojan horses

Module 2-39: Windows Oddities

- Alternate NTFS data Streams
- Registry Backdoors

Module 2-40: Root kits

- Aphex Root kit
- HXDEF Root kit

Module 3: Penetration Testing

Module 3-1: Understanding Basics of Network

- Internet Protocol
- DHCP
- Static IP assignment
- SSHD
- Apache
- FTP
- TFTP
- VNC Server
- Additional Resources

Module 3-2: Practical Aspects of Networking

- Knowing the Basics of IP Address
- Knowing Remote System IP Address
- Hiding Your IP address (Proxy Server)

- Be Anonymous in Cyber World VPN and Proxy Servers
- VPN (Virtual Private Network)
- Tracing an IP Address

Module 3-3: Preparing Virtual Environment

- Making Virtual Lab using VMware or Oracle Virtual Box
- Installing BackTrack and Kali Linux on Virtual Machine

Module 3-4: Shell Scripting

- The Bash Environment
- Simple Bash Scripting

Module 3-5: Reconnaissance

- Passive Reconnaissance
- Active Reconnaissance
- Whois Reconnaissance
- DNS Reconnaissance
- SNMP reconnaissance
- SMTP reconnaissance
- Microsoft NetBIOS Information Gathering
- Maltego

Module 3-6: Network Scanning

- Nmap
- Hping
- Evasion during scanning
- Packet Crafting
- Scapy

Module 3-7: ARP Poisoning –MITM

- ARP Spoofing
- Ettercap
- Wireshark

Module 3-8: Port Fun

- Port Redirection
- SSL Encapsulation - Stunnel
- HTTP CONNECT Tunneling
- Proxy Tunnel
- SSH Tunneling

Module 3-9: DOS Attack

- SYN Flooding
- SMURF Attack
- Low Orbit Ion Cannon

Module 3-10: Password Cracking Techniques

- Offline Cracking
- Online Cracking

Module 3-11: Vulnerability Discovery

- Automated Discovery
- Scanners (Nessus)
- Interpreting scan reports

Module 3-12: Exploitation

- Metasploit
- Metasploit User Interfaces – msfcli, msfconsole, GUI, Web
- Understanding the msf modules – Auxiliaries, Exploits and Payloads
- Attacking Windows Services
- Attacking Linux Services

Module 3-13: Transferring Files

- The non interactive shell
- Uploading Files
- Using TFTP

Module 3-14: Trojan Horses

- Binary Trojan Horses
- Open source Trojan horses
- Rootkits
- Aphex Rootkit
- HXDEF Rootkit

Module 3-15: Wireless Technology Background

- Wireless Standards
- Wireless Handshake
- Attack Taxonomy
- Protocol Analysis
- Authentication types

Module 3-16: Current Wireless Security

- Risks of using Wireless Technologies
- Understanding Software Requirements
- Wireless Hardware and Drivers
- Understanding PSK, TKIP, EAP, PEAP

Module 3-17: Attacking Open Wireless Network

- Dissecting AP-Client Connections
- Dissecting WLAN Headers
- Defeating MAC Filtering
- Pawning Hidden SSIDS

Module 3-18: WEP Ethical Hacking

- WEP Cracking
- Caffe Latte Attack Basics
- Caffe Latte Attack Demo
- Korek's Chopchop Attack
- Fragmentation And Hirte Attack
- Concept of IVs

Module 3-19: WPA/WPA2 Ethical Hacking

- WPA Cracking
- WPA2 Cracking
- Speeding Up Wpa/Wpa Psk Cracking

Module 3-20: Cracking Eap-Md With Eapmdpass And Eapmdcrack

- Eap Types And Peap Demo
- Cracking Peap
- Cracking Peap In A Windows Network
- Cracking Eap-Ttls

Module 3-21: Advanced Wireless Attack

- Evil Twin Attack
- Man-In-The-Middle Attack
- SSL MITM Attack Over Wireless
- SSL MITM Attack Over Wireless Demo

Module 3-22: Considering choice of RADIUS

Module 3-23: Best Practices for enterprise Security

Module 3-24: BYOD (Bring Your Own Device) Security Issues

Module 4: Cloud Computing

Module 4-1: Introduction of Cloud Computing

- Defining cloud computing
- Components of a computing cloud
- Differentiating types of clouds: public, private, hybrid
- Delivering services from the cloud
- Categorizing service types
- Comparing vendor cloud products: Amazon, Google, Microsoft and others
- Adopting the Cloud

Module 4-2: Introduction to Cloud Storage Service

- Amazon Cloud Drive
- Google Drive

- Drop Box

Module 4-3: Exploiting Software as a Service (SaaS)

- Streamlining administration with centralized installation
- Optimizing cost and performance with scale on demand
- Comparing service scenarios
- Improving collaboration with business productivity tools
- Simplifying business process creation by integrating existing components
- Describing Gmail, WebEx and Amazon EC2 etc

Module 4-4: Exploring the technical foundation for PaaS

- Specifying the components of PaaS
- Analyzing vendor PaaS provisions
- Selecting an appropriate implementation
- Building services with solution stacks
- Evaluating the architecture of vendor-specific platforms
- Live implantation with App fog, Windows Azure and Google App Engine

Module 4-5: Deploying Infrastructure as a Service (IaaS)

- Provisioning servers on demand
- Handling dynamic, Elastic IP and static IP addresses
- Tools and support for management and monitoring
- Accessing Amazon AWS management console
- Recognize AWS Global Infrastructure
- Security Majors

Module 4-6: Networking Concepts used in Cloud Computing

- VLAN
- Protocols
- IP Network Classes
- Switching
- Bandwidth
- Advances in Networking and Processing Speeds that Led to Cloud Computing
- Networking Developments
- Increased Processing Speeds

Module 4-7: Security

- SSL
- VPN
- Products and services provided by cloud computing companies

Module 4-8: Storage Options for Cloud Computing

- Storage Capacity
- Data Protection and partitioning
- NAS
- SAN

- Redundancy
- Replication
- Backup and Recovery

Module 4-9: Virtualization

- Student Virtualization Architectures
- Hypervisor
- Virtualization as the "Operating System"
- Virtualization with a Host Operating System
- Virtualization Types
- Type 1 Virtualized Environment
- Type 2 Virtualized Environment
- Different Companies offering Virtualization Environments
- VMware Workstation
- Microsoft Virtualization
- Linux/ UNIX Virtualization
- Hands-On of Virtualization Product (VMware)

Module 4-10: Cloud Monitoring and Management using VMware Product

- Typical architecture of private cloud and leading software solutions for implementing private cloud
- VMware v Sphere suite Introduction and Hands - On for Creating Cloud
- Some major components that Suite includes are
- ESX
- V Sphere Client
- V Center Server
- Planning and Designing of Private Cloud
- Introduction & Hands - On Microsoft Product
- This includes
- Hyper-v installation
- Prerequisites of hyper-v installation
- How to manage hyper-v
- Amazon Cloud
- Introduction
- Architecture
- Amazon's Cloud Components and their usage

Module 5: LINUX

Module 5-1: System Administration Overview

- UNIX, Linux and Open Source
- Duties of the System Administrator
- Super users and the Root Login
- Sharing Super user Privileges with Others (su and sudo Commands)
- TCP/IP Networking Fundamentals

Module 5-2: Booting and Shutting Down Linux

- Boot Sequence
- System Startup and Shutdown
- Scripts
- The /etc/inittab File
- Run Levels
- chkconfig Command
- Shutdown Commands
- Handling Power Failures

Module 5-3: Installation and Configuration

- Planning: Hardware and Software
- Considerations
- Site Planning
- Installation Methods and Types
- Installation Classes
- Partitions
- File System Overview
- Swap Partition Considerations
- Other Partition Considerations
- Linux Loaders: LILO, MILO, SILO, GRUB
- Software Package Selection
- Adding and Configuring Peripherals
- Printers
- Modems
- Graphics Controllers
- Basic Networking Configuration
- The Emergency Boot Disk

Module 5-4: Managing Software and Devices

- Identifying Software Packages
- Using rpm to Manage Software
- Using Debian Software Commands
- Installing and Removing Software
- Identifying Devices
- Displaying Device and System Information (PCI, USB)
- Plug and Play Devices

Module 5-5: X Window System Administration

- X Window System Introduction
- Installation and Upgrading X
- Windows
- Configuring XFree86
- Utilities for Configuring X Windows
- Configuring the Graphics Driver and

- Mouse
- Selecting and Installing a Window Manager

Module 5-6: Managing Users and Groups

- Setting Policies
- User File Management
- The /etc/passwd file
- The /etc/shadow file
- The /etc/group file
- Adding Users
- Modifying User Accounts
- Deleting User Accounts
- Working with Groups
- Setting User Environments
- Global Restart Control Files
- User Restart Control Files
- X Windows Environment Files

Module 5-7: The Linux File System

- Conventional Directory Structure
- Mounting a File System
- The /etc/fstab File
- Special Files (Device Files)
- I nodes
- Hard File Links
- Soft File Links
- Creating New File Systems with mkfs
- The lost + found Directory
- Repairing File Systems with fsck
- The Journaling Attribute
- File and Disk Management Tools

Module 5-8: Linux File Security

- File Permissions
- Directory Permissions
- Octal Representation
- Changing Permissions
- Setting Default Permissions
- SUID Bit
- SGID Bit
- Setting the Sticky Bit

Module 5-9: Working with the Linux Kernel

- Linux Kernel Components
- Classes of Kernels

- Applying Kernel Update Patches
- Kernel Configuration Options
- The Kernel Configuration Tool
- Recompiling the Kernel

Module 5-10: Shell and Perl Scripting

- Shell Script Fundamentals
- Bourne Shell Syntax Overview
- Shell Script Examples
- Fundamentals of Perl
- Using Perl for Administration

Module 5-11: Controlling Processes

- Characteristics of Processes
- Parent-Child Relationships
- Examining Running Processes
- Background Processes
- Controlling Processes
- Signaling Processes
- Killing Processes
- Automating Processes
- cron and crontab
- at and batch
- System Processes (Daemons)

Module 5-12: System Backups

- Backup Concepts and Strategies
- User Backups with tar and cpio
- System Backup Options
- The restore Command
- Rescuing Disks

Module 5-13: Troubleshooting the System

- Common Problems and Symptoms
- Troubleshooting Steps
- Repairing General Boot Problems
- Repairing LILO Problems
- Repairing the GRUB Boot Loader
- Memory Allocation
- Hard Drive Problems
- Repairing Corrupted Shared Libraries
- System Logs
- syslogd
- Configuring the syslogd Daemon

Module 5-14: Setting Up Mail

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- Mail System Choices
- Installing and configuring send mail

Module 5-15: NFS, NIS, DHCP, and DNS

- Network File System (NFS)
- How to Configure the NFS Server
- Exporting NFS Shares
- How to Configure the NFS Client
- Purpose of NIS
- How to Configure NIS
- Implementing the Dynamic Host Configuration Protocol (DHCP)
- DHCP Configuration with Fixed and Leased Addresses
- Purpose of DNS
- Working with DNS
- How to Configure DNS
- The rndc.conf File
- Zone Files
- Running the named Daemon
- Networking Commands: telnet, ftp, rsh, rlogin, rcp
- Installing and Configuring Secure Shell (ssh)
- The Apache web server

Module 5-16: The Apache Web Server

- What is Apache?
- Configuring the Apache Web Server
- Common Directives
- Apache Virtual Hosting

Module 5-17: Introduction to System Security

- Security Overview
- Maintaining System Security
- Server Access
- Common System Hacking Options
- Physical Security
- Network Security
- Security Tools
- Preventing Break-Ins
- PAM Security Modules
- Scanning the System
- Maintaining File Integrity
- Installing and Configuring tripwire
- Security Scanning Using nessus
- Securing Linux Using LIDS

- Hardening the System Using
- Bastille
- Using Firewalls
- Packet Filtering with iptables
- Masquerading with iptables

Module 5-18: Red Hat System Administration 1

- Getting Started with the GNOME
- Graphical Desktop
- Manage File Graphically with
- Nautilus
- Get Help in a Graphical
- Environment
- Configure Local Services
- Administer Users and Groups
- Manage Files from the Command
- Line
- Secure Linux File Access
- Administer Remote Systems
- Configure General Services
- Manage Physical Storage 1
- Manage Logical Volumes
- Manage Physical Storage 2
- Monitor System Resources
- Install Linux Graphically
- Manage System Software
- Manage Virtual Machines
- Get Started with Bash
- Control the Boot Process
- Get Help in a Textual Environment
- Deploy File Sharing Services
- Establish Network Connectivity
- Secure Network Services

Module 5-19: Red Hat System Administration 2

- Automated Installations of Red Hat
- Enterprise Linux
- Controlling Access to Files
- Accessing the Command Line
- Managing SE Linux
- Intermediate Command Line Tools
- Installing and Managing Software
- Regular Expressions Pipelines and
- I/O Redirection
- Managing Installed Services
- Network Configuration and Troubleshooting

- Analyzing and Storing Logs
- Managing Simple Partitions and File systems
- Managing Processes
- Managing Flexible Storage with Logical Volumes
- Tuning and Maintaining the Kernel
- Access Network File Sharing Services
- Troubleshooting
- Managing User Accounts

Module 5-20: Red Hat System Administration 3

- Enhance User Security
- Centralized and Secure Storage
- Bash Scripting and Tools
- SSL-encapsulated Web Services
- File Security with GnuPG
- Web Server Additional Configuration
- Software Management
- Basic SMTP Configuration
- Network Monitoring
- Caching-Only DNS Server
- Route Network Traffic
- File Sharing with NFS
- Secure Network Traffic
- File sharing with CIFS
- NTP Server Configuration
- File sharing with FTP
- File systems and Logs
- Troubleshooting Boot Process

Module 6: Computer Hardware

- Information on PC & how it works
- Basic Electronics & Measuring Instruments
- Principle of Digital Electronics
- Operating Systems
- Architecture of the System
- PC Assembling
- Trouble shooting and Managing Systems

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