

## Training Objectives: -

The objective of this training program is to produce Enterprise Networking professionals capable of implementing, administering, maintaining Computer Networks and overall Security Systems. It is an advanced level program that measures the ability to administer any networking problems, This program has been designed to keep in mind that in now day's scenario for engineering graduate students from any stream.

### Career Option:

- ✓ Network Administrator
- ✓ System Administrator
- ✓ Windows Administrator
- ✓ Telecom Engineer
- ✓ Network Engineer

Course Fee*	Rs 6,500=00*
Eligibility	B.TECH. (CS/IT/EC) or MCA/M.Sc. (IT/CS/Electronics), BCA/PGDCA, Diploma in Computer/Electronics Stream, B.Sc. or B.A with basic knowledge of computing, O/A/B/C Level, Working Professional
Duration	4 Weeks (60 Hours)
Starting Date	12 January 2015
Seats	30

## How to Apply:

For Admission, submit completely filled in application form along with course fee either in Cash or Demand Draft in favor 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
- Regular Quiz

## Course Contents (Syllabus of Training)

### Module I

Internet Protocols: - TCP/IP Model, IP Addressing, IP Terminology, IP Addressing Scheme, TCP/IP Troubleshooting utilities ping, arp, traceroute, tracert, nslookup, netstat etc. Troubleshooting IP Addressing. Subnetting ICMP, IP addressing, IP address Classes, Public & private IP address, Basics of Subnetting, and Subnet Masking. TCP/IP troubleshooting command line utilities, Introduction to Transport layer, TCP and UDP Protocols, Port No. Socket Address, TCP & UDP Port No, Port types. IPv6, IPv4 vs IPv6

### Module II

Introduction to Computer Networks, Element of Networks, Types of Networks, Network Topologies: Bus, Star, Mesh, Ring, Hybrid etc. Physical Vs Logical Topologies. Network operating system Vs Client operating System.

Guided Media Vs Unguided Media, Common LAN Media: STP, UTP, Coaxial cable, and Optical fiber, TIA/EIA standards, Making & testing Cable, Straight thru Cable, Crossover Cable, and Connectors. NIC, Repeaters, Hub, Switches, Routers, Converter etc. Internetworking Vs Internetworking Devices, Collision Domain Vs Broadcast Domain

### Module III

Windows 2008 server family, Windows Server 2008 Standard Edition, Windows Server 2008 Enterprise Edition, Windows Server 2008 Datacenter Edition, Windows Web Server 2008

Performing a Clean Installation, Performing an Upgrade Installation, sharing file & folder, managing file and folder attributes. Managing shared folder permissions. user and group and its Permissions Configuring and managing the distributed file system. Creating and configuring a Dfs Root/Dfs links, their types, replicas. Configuring client computers to use Dfs. Managing NTFS file and folder security, NTFS permissions, EFS. How user and group NTFS permissions combine? Taking ownership of files and folders. Configuring and monitoring disk quotas. Troubleshooting.

### Module IV:

Introduction to Application Layer Protocols and their role e.g. RDP, HTTP, FTP, DNS, DHCP, Telnet, SMTP, POP3, SMTP, SNMP, TFTP, SNMP etc

### Module V:

Introduction to DHCP Server configuration, DHCP Scope, Reservation, DNS Server configuration Primary & secondary DNS Server, Forward lookup zones and reverse lookup zone,

Root Hints, Zone Transfer, Terminal Server, Telnet, IIS Web server, Configuring a website, Configuring multiple website using multiple IP address, Virtual directory and multiple ports, Configuring a FTP site, Configuring multiple ftp sites using multiple IP address, Virtual directory and multiple ports, Configuring Routing and Remote Access service (RRAS) Install, configure, and troubleshoot the Network Policy Server Role service. Configuration of Network Access Protection. Configuration of security features within Windows Server 2008 R2 that help to secure network communications. Windows Server Update Services.

### Module VI

Active Directory. Understanding the Features of Active Directory. Naming conventions logical structure of Active Directory. Windows 2008 R2 domain organizational units (OUs), trees and forests. Objects and classes, schema, global catalog server. Installing Active Directory Replication, Domain Name System (DNS). Installing Active Directory. Domain function levels. Upgrading Active Directory. What is DNS? What does DNS have to do with Active Directory? DNS domain names and naming conventions. Configuring DNS zones, configuring zone transfers. Forwarding and conditional forwarding. Verifying and troubleshooting an Active Directory installation. Organizational Unit (OU), Creating OUs, configuring OU, properties. Managing Active Directory objects. Active Directory Certificate Services.

### Module VII

Introduction to Group Policy. How to configure Group Policy. Filtering Group Policy. Active Directory Password Policy. Restricted Groups. Securing Windows Servers Using Group Policy Objects, Windows Security, Configuring Security Settings, Restricting Software, Configuring Windows Firewall with Advanced Security, Security Templates. Security Configuration Wizard. Auditing. Auditing Active Directory. Auditing Files. Troubleshooting Group Policy.

### Module VIII

Backup and Recovery: User data and system state, data backup types. Backup strategies, scheduling, recovering user data and system state, data recovering from a system failure

### Module IX

Introduction to ISM Band, Infra red communication Vs Radio wave communication & their advantage and disadvantage, IEEE 802.11 standard for WLAN, Types of Wireless LANs, Devices used in WLAN such as Access Point, LAN NIC, Antennas (Dipole, Directional and Omni

directional), Planning for a Wireless Network, Designing the Wireless LAN Deploying a Wireless Network.

#### Module X

Working with file systems, FAT, FAT32 NTFS. File conversion, understanding disks and volumes. Types of disks/partitions/volumes. Using disk management. Creating and formatting partitions. Upgrading a disk. Creating a simple spanned, striped, mirrored, RAID-0, RAID-1 & RAID-5. Logical drives, recovering disks and volumes. Software vs Hardware RAID, RAID calculator

#### Module XI

Internet, connection types, ISP, ISP study, Web hosting, Top Web Hosting Companies in India performing whois to get IP by name, Name by IP & IP address owner information, IANA, IANA Root Zone Database, IANA Number Resources, local Internet registry (LIR), National Internet Registry (NIR), AfriNIC, APNIC, ARIN, LACNIC, RIPE NCC, Regional Internet Registry (RIR), Registration of a domain, Top Domain Registrars, Registrar for .EDU.IN, .RES.IN, .AC.IN, .GOV.IN in INDIA

#### Module XI

Implementing Server Virtualization with Hyper-V Virtualization Technologies, Implementing Hyper-V Managing Virtual Machine Storage, Managing Virtual Networks

#### Lab Modules

1. To create a Crossover Cable & a Straight cable using standard color-coding (RJ-45, UTP, Crimping tools).
2. To identify various media (STP, UTP, Co-axial, Fiber optics etc) and its connectors.
3. To install NIC, installation of TCP/IP, assigning of IP address to the system.
4. To connect two PCs using a crossover cable.
5. To setup a LAN with a number of PCs using 8/16 port HUB/Switch.
6. To Use the Ping command (with all switches) to verify the TCP/IP Connection between the two workstations
7. To study TCP/IP command utility.
8. To share a file or folder on a windows Network.
9. To study backup types (Normal, Copy, Incremental, Differential) and Recovery procedure.
10. Managing & configuring file sharing
11. Installing and managing Primary Domain Name System (DNS) server [Forward & Reverse lookup Zone

12. Configuring Zone Transfer and managing Secondary (DNS) server.
13. Installing and uninstalling Active directory. Verifying installation and managing it.
14. Creating and configuring Organization Unit (OU).
15. Creating Roaming and Mandatory user profile.
16. Understanding and applying Group policy
17. Software deployment using Group policy
18. To study IIS and configuring it for Web server (HTTP).
19. To study IIS and configuring it for FTP server
20. Configuring Windows Server 2008 R2 as DHCP Server
21. Creating and configuring DFS server
22. Managing Disks /volume their creation and conversion, recovering from disk failure
23. Configuring Routing using RRAS in Windows 2008 R2 Server.
24. Configuring VPN(Virtual Private Network) using RRAS in Windows 2008 R2 Server
25. Configuring NAT (Network Address Translation) using RRAS in Windows 2008 Server R2
26. Configuring ICS (Internet Connection Sharing)
27. To study installation and Configuration of Wireless LAN NIC.
28. To study installation and Configuration of Access Point.
29. Wireless LAN Setup using ADHOC mode.
30. Wireless LAN Setup using Infrastructure mode.
31. Configuring an Access Point in Repeater Mode.
32. Using Access Point as a DHCP Server
33. To study Security implementation in Wireless LAN.
34. To implement Wi-Fi Protected Access (WPA) & wired Equivalent Privacy (WEP) in WLAN.
35. To implement MAC Filtering security in Wireless LAN.

#### CONTACT FOR INFORMATION:

**Abhinav Mishra**  
**Scientist C**  
**7752997204**  
**abhinav@nielit.gov.in**

#### ADDRESS FOR CORRESPONDENCE:

**National Institute of Electronics and Information  
Technology (NIELIT) Gorakhpur  
M. M. M. Engineering College campus,  
Gorakhpur (UP) – 273010.**

## ENTERPRISE NETWORK ADMINISTRATION & SYSTEM SECURITY USING WINDOWS SERVER 2008 R2



#### ORGANIZED BY

राष्ट्रीय इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी संस्थान,  
गोरखपुर  
**National Institute of Electronics and Information  
Technology (NIELIT) Gorakhpur**  
**An Autonomous Scientific Society of Ministry of  
Communication & Information Technology,  
Department of Electronics & Information Technology  
(DeitY), Govt. of India**  
**M. M. M. University of Technology, Gorakhpur  
U.P.– 273010**  
Web : <http://gorakhpur.nielit.gov.in>