

# **Information Booklet cum Syllabus**

**Of**

**Certificate Course in Network Administration**

**Revision-I**



**July 2022**

**National Institute of Electronics and Information Technology**

An Autonomous Scientific Society under  
Ministry of Electronics and Information Technology, Government of India

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**1. About Course**

Certificate Course in Network Administration aims to groom the students to enable them to work on current network technology scenarios as well as prepare them to keep pace with the changing face of network technology and the requirements of the growing IT industry. After the completion of the course, students can work as Network Administrator / Network Support and associated service sectors

**2. NIELIT**

National Institute of Electronics and Information Technology, NIELIT, (Erstwhile DOEACC Society) is an autonomous scientific society of the Ministry of Electronics & Information Technology, Government of India. The Society is registered under the Societies Registration Act, 1860. NIELIT was set up to carry out Human Resource Development and related activities in the area of Information, Electronics & Communications Technology (IECT). NIELIT is engaged both in Formal & Non-Formal Education in the areas of IECT besides development of industry oriented quality education and training programmes in the state-of-the-art areas. NIELIT has endeavored to establish standards to be the country's premier institution for Examination and Certification in the field of IECT. It is also one of the National Examination Body, which accredits institutes/organizations for conducting courses in IT and Electronics in the non-formal sector.

**3. Objective of Course**

- Appreciate the importance of embarking on self-employment and has developed the confidence
- Identify business opportunities in chosen sector / sub-sector and plan and market and sell
- Start a small business enterprise by liaising with different stake holders
- Effectively manage small business enterprise or Working under wage employment
- Installation of all the software with cope with different operating system.
- Develop computer system configuration
- Have Knowledge of hardware components and latest development in the field
- Create any Network infrastructure like LAN or WAN connectivity.

**4. Job Roles of Course**

- Hardware and Network Support
- Network Administrator

**5. Eligibility**

12<sup>th</sup>

**6. Total duration of the Course**

80 Hrs.

## 7. Course Details

### 7.1.Course Outline and Objective of Each Unit

S. No.	Unit Name	Durati on (Theor y) in Hours	Duratio n (Practic al) in Hours	Total Learn ing Hrs.	Learning Objectives
1	<b>Introduction to Computers and Operating Systems</b>	2	2	4	After completing this unit, Learner will be able to understand <ul style="list-style-type: none"> <li>• Computer Basics - Introduction and History</li> <li>• Introduction to Internal Hardware</li> <li>• Introduction to Operating Systems</li> </ul>
2	<b>Network Configuration with Windows and Linux And Basic Network and OSI Network Layer</b>	2	2	4	After completing this unit, Learner will be able to understand <ul style="list-style-type: none"> <li>• Configuring a Computer Network</li> <li>• Computer Naming</li> <li>• Network Name and Address Planning</li> <li>• Why and When to Apply Patches</li> <li>• Applying OS Patches</li> <li>• Application Patches and Updates</li> <li>• What is Network</li> <li>• Benefits of Network</li> <li>• Basic Network Components</li> <li>• Computer Roles in a Network</li> <li>• Peer to Peer Network</li> <li>• Network Topologies</li> </ul>
3	<b>Network Media and Devices And LAN Cables(Straight through cable and Cross Over Cable)</b>	2	2	4	After completing this unit, Learner will be able to understand <ul style="list-style-type: none"> <li>• Source Channel and Destination</li> <li>• Rules of Communication</li> <li>• Comparison</li> <li>• Rules of Communication</li> <li>• Message Encoding</li> <li>• ETHERNET CABLE</li> </ul>

					<ul style="list-style-type: none"> <li>• Category</li> <li>• Color Coding</li> <li>• How to wire</li> </ul>
4	<b>Addressing the Network- IPv4 and intro of IPv6</b>	2	2	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Purpose of the IP Address</li> <li>• IP Address Structure</li> <li>• Parts of and IP Address</li> <li>• How IP Address and Subnet Mask Interact</li> <li>• IP Address Classes and Default Subnet Mask</li> <li>• Public and Private IP Addresses</li> </ul>
5	<b>Network Services like DNS, DHCP, FTP, Telnet, HTTP, Mail</b>	2	2	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Client Server Relationship</li> <li>• Role of Protocols in Client Sever Communication</li> <li>• TCP and UDP Transport Protocols</li> <li>• TCP IP Port Numbers</li> <li>• Domain Name Services (DNS)</li> <li>• Web Clients and Servers</li> </ul>
6	<b>Wireless Technologies Wireless Transmission, Microwave, Radio Waves and their respective connectors</b>	2	2	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Wireless Technologies and Devices</li> <li>• Benefits and Limitations of Wireless Technology</li> <li>• Types of Wireless Technology and Their Boundaries</li> <li>• Wireless LAN Standards</li> </ul>
7	<b>Configuratio n of Wireless router with WEP and WPA</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Configuring the Access Point</li> <li>• Configuring the Wireless Client</li> <li>• Why People Attack WLANs</li> <li>• Limiting Access to a WLAN</li> </ul>

					<ul style="list-style-type: none"> <li>• Authentication on WLAN</li> </ul>
8	<b>Basic Network Security types of Attack and their remedies</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Risks of Network Intrusion</li> <li>• Sources of Network Intrusion</li> <li>• Social Engineering and Phishing</li> <li>• Viruses Worms and Trojan Horses</li> <li>• Denial of Service and Brute Force Attack</li> <li>•</li> </ul>
9	<b>The Internet and its uses, Structure of Internet And Connecting to the internet through an ISP</b>				<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• The Internet and Standards</li> <li>• ISP and ISP Services</li> <li>• Delivering Internet Services to End Users</li> <li>• Internet Hierarchy</li> <li>• Identifying the Structure of the Internet</li> <li>•</li> </ul>
10	<b>Planning the addressing structure, Subnetting, Classful</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Review of IP Addresses</li> <li>• Subnetting a Network</li> <li>• Classful Subnetting</li> <li>• Custom Subnet Mask</li> <li>• Communicating Between Subnets</li> <li>• Basic Network Address Translation</li> </ul>
11	<b>Configuring network devices, Out-of-band, Inband</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Integrated Services Routers</li> <li>• Physical Setup of the ISR</li> <li>• In-band and Out-band Router Configuration</li> <li>• Device Configuration Files</li> <li>• Document Your Router</li> </ul>

					Configuration
12	<b>Switching in an enterprise Network(VLAN and VTP)</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Switching and Network Segmentation</li> <li>• Connecting Hosts Using a Hub or a Switch</li> <li>• Multilayer Switching</li> <li>• Types of Switching</li> <li>• Switch Security</li> <li>• Configuring VLANs</li> <li>• Virtual LAN</li> <li>• Static VLANs</li> <li>• Dynamic VLANs</li> </ul>
13	<b>STP, Inter-VLAN Routing</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Spanning Tree Protocol</li> <li>• Root Bridges</li> <li>• Rapid Spanning Tree Protocol</li> <li>• Configuring a VLAN Routing</li> </ul>
14	<b>Addressing in an enterprise Network (VLSM,CIDR ,NAT)</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Flat and Hierarchical Networks</li> <li>• Hierarchical Network Addressing</li> <li>• Using Subnetting to Structure the Network</li> <li>• Subnet Mask</li> <li>• Calculating Subnets Using Binary Representation</li> </ul>
15	<b>What is Routing, Types of Routing, Router as DHCP server</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Routing</li> <li>• Directly-Connected Routes</li> <li>• Dynamically-Updated Routes (Dynamic Routes)</li> <li>• Routing Protocols</li> </ul>

					<ul style="list-style-type: none"> <li>• Common Interior Routing Protocol</li> </ul>
16	<b>Configuration of Static Routing, Router as DHCP server</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Router Hardware</li> <li>• Basic Router CLI Show Commands</li> <li>• Configuring Static Routes</li> </ul>
17	<b>Routing with Distance Vector Protocol</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Enterprise Networks</li> <li>• Distance Vector Routing Protocols</li> <li>• Configure &amp; Verify RIP</li> <li>• Configure &amp; Verify EIGRP</li> </ul>
18	<b>Routing with a link-state protocol</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Link State Protocol Operation</li> <li>• OSPF Metrics &amp; Convergence</li> <li>• OSPF Adjacencies &amp; Neighbors</li> <li>• Configuring OSPF Authentication</li> <li>• Configuring Basic OSPF in a Single Area</li> </ul>
19	<b>Filtering traffic using Access Control Lists</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Traffic Filtering</li> <li>• Access Control List(ACL)</li> <li>• Types &amp; usage of ACL</li> <li>• ACL Processing</li> <li>• ACL Wildcard Mask Purpose &amp; Structure</li> <li>• Analyzing the Effects of the wildcard Mask</li> <li>• NAT</li> <li>• DMZ</li> </ul>
20	<b>Troubleshooting your network, Configuration of</b>	1	3	4	<p>After completing this unit, Learner will be able to understand</p> <ul style="list-style-type: none"> <li>• Troubleshooting</li> </ul>



	<b>VPN</b>				<ul style="list-style-type: none"><li>• Gathering Information</li><li>• Approaches for Troubleshooting</li><li>• Detecting Physical Problems</li><li>• Software Utilities for Troubleshooting</li></ul>
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**7.2.Detailed Syllabus**

<b>Unit Name</b>	<b>Contents</b>	<b>Hrs.</b>
<b>Introduction to Computers and Operating Systems</b>	<ul style="list-style-type: none"> <li>• Personal Computer Hardware</li> <li>• Local and Network Applications</li> <li>• Classes of Computers</li> <li>• Computer System</li> <li>• Motherboard, CPU and RAM</li> <li>• RAM</li> <li>• Adapter Cards</li> <li>• Storage Devices</li> <li>• Peripheral Devices</li> <li>• Cases and Power Supply</li> <li>• Safety and Best Practices</li> <li>• Installing Components and Verifying Operations</li> <li>• Purpose of an Operating System</li> <li>• Operating System Requirements</li> <li>• OS Installation Methods</li> <li>• Prepare for OS Installation</li> </ul>	4
<b>Network Configuration with Windows and Linux And Basic Network and OSI Network Layer</b>	<ul style="list-style-type: none"> <li>• Configuring a Computer Network</li> <li>• Computer Naming</li> <li>• Network Name and Address Planning</li> <li>• Why and When to Apply Patches</li> <li>• Applying OS Patches</li> <li>• Application Patches and Updates</li> <li>• What is Network</li> <li>• Benefits of Network</li> <li>• Basic Network Components</li> <li>• Computer Roles in a Network</li> <li>• Peer to Peer Network</li> <li>• Network Topologies</li> </ul>	4
<b>Network Media and Devices And LAN Cables(Straight through cable and Cross Over Cable)</b>	<ul style="list-style-type: none"> <li>• Source Channel and Destination</li> <li>• Rules of Communication</li> <li>• Comparison</li> <li>• Rules of Communication</li> <li>• Message Encoding</li> <li>• Message Formatting</li> <li>• Importance of Protocols</li> <li>• Standardization of Protocols</li> <li>• ETHERNET CABLE</li> <li>• Category</li> <li>• Color Coding</li> <li>• How to wire</li> <li>• Straight Through</li> <li>• Crossover</li> </ul>	4

<p><b>Addressing the Network IPv4 and intro of IPv6</b></p>	<ul style="list-style-type: none"> <li>• Purpose of the IP Address</li> <li>• IP Address Structure</li> <li>• Parts of and IP Address</li> <li>• How IP Address and Subnet Mask Interact</li> <li>• IP Address Classes and Default Subnet Mask</li> <li>• Public and Private IP Addresses</li> <li>• Unicast, Broadcast and Multicast Address</li> <li>• How IP Addresses are Obtained</li> <li>• DHCP Servers</li> <li>• Configuring DHCP</li> <li>• Address Assignment</li> <li>• Network Address Translation</li> </ul>	<p>4</p>
<p><b>Network Services like DNS, DHCP, FTP, Telnet, HTTP, Mail</b></p>	<ul style="list-style-type: none"> <li>• Client Server Relationship</li> <li>• Role of Protocols in Client Sever Communication</li> <li>• TCP and UDP Transport Protocols</li> <li>• TCP IP Port Numbers</li> <li>• Domain Name Services (DNS)</li> <li>• Web Clients and Servers</li> <li>• FTP Clients and Servers</li> <li>• Email Client and Servers</li> <li>• Voice Clients and Servers</li> <li>• Port Numbers</li> <li>• Protocol Interaction</li> <li>• Protocol Operation of Sending and Receiving Message</li> <li>• Open System Interconnect Model</li> <li>• Open System Interconnection Model</li> </ul>	<p>4</p>
<p><b>Wireless Technologies Wireless Transmission, Microwave, Radio Waves and their respective connectors</b></p>	<ul style="list-style-type: none"> <li>• Wireless Technologies and Devices</li> <li>• Benefits and Limitations of Wireless Technology</li> <li>• Types of Wireless Technology and Their Boundaries</li> <li>• Wireless LAN Standards</li> <li>• Wireless LAN Components</li> <li>• WLANs and SSID</li> <li>• Wireless Channels</li> </ul>	<p>4</p>
<p><b>Configuration of Wireless router with WEP and WPA</b></p>	<ul style="list-style-type: none"> <li>• Configuring the Access Point</li> <li>• Configuring the Wireless Client</li> <li>• Why People Attack WLANs</li> <li>• Limiting Access to a WLAN</li> <li>• Authentication on WLAN</li> <li>• Encryption on a WLAN</li> <li>• Traffic Filtering on WLAN</li> <li>• Planning the WLAN</li> <li>• Installing and Securing the AP</li> <li>• Backing up and Restoring Configuration Files</li> </ul>	<p>4</p>

	<ul style="list-style-type: none"> <li>• Updating The Firmware</li> </ul>	
<b>Basic Network Security types of Attack and their remedies</b>	<ul style="list-style-type: none"> <li>• Risks of Network Intrusion</li> <li>• Sources of Network Intrusion</li> <li>• Social Engineering and Phishing</li> <li>• Viruses Worms and Trojan Horses</li> <li>• Denial of Service and Brute Force Attack</li> <li>• Spyware, Tracking Cookies, Adware and Pop-ups</li> <li>• Common Security Measures</li> <li>• Updates and Patches</li> <li>• Antivirus Software</li> <li>• Anti Spam</li> <li>• Anti Spyware</li> <li>• What is Firewall</li> <li>• Using a Firewall</li> <li>• Vulnerability Analysis</li> <li>• Best Practices</li> </ul>	4
<b>The Internet and its uses, Structure of Internet And Connecting to the internet through an ISP</b>	<ul style="list-style-type: none"> <li>• The Internet and Standards</li> <li>• ISP and ISP Services</li> <li>• Delivering Internet Services to End Users</li> <li>• Internet Hierarchy</li> <li>• Identifying the Structure of the Internet</li> <li>• ISP Requirements</li> <li>• Roles and Responsibilities within an ISP</li> </ul>	4
<b>Planning the addressing structure, Subnetting, Classful</b>	<ul style="list-style-type: none"> <li>• Review of IP Addresses</li> <li>• Subnetting a Network</li> <li>• Classful Subnetting</li> <li>• Custom Subnet Mask</li> <li>• Communicating Between Subnets</li> <li>• Basic Network Address Translation</li> <li>• IP NAT Issues</li> <li>• Static and Dynamic NAT</li> <li>• Port Bases Network Address Translation</li> <li>• IP NAT Issues</li> </ul>	4
<b>Configuring network devices, Outof-band, Inband</b>	<ul style="list-style-type: none"> <li>• Integrated Services Routers</li> <li>• Cisco IOS Software</li> <li>• Physical Setup of the ISR</li> <li>• In-band and Out-band Router Configuration</li> <li>• Cisco IOS Programs</li> <li>• Device Configuration Files</li> <li>• Document Your Router Configuration</li> <li>• Cisco SDM Express</li> <li>• SDM Express</li> <li>• DHCP</li> <li>• Configuring a Serial WAN Connection</li> <li>• HDLC</li> <li>• Frame Relay</li> <li>• PPP</li> </ul>	4

	<ul style="list-style-type: none"> <li>• Cisco SDM and SDM Express</li> <li>• Configuring Dynamic NAT using Cisco SDM</li> <li>• Command Line Interface and Modes</li> <li>• Using the Cisco IOS CLI</li> <li>• Using Show Commands</li> <li>• Basic Configuration</li> <li>• Configuring an Interface</li> <li>• Configuring Default Route</li> <li>• Configuring DHCP Services</li> </ul>	
<b>Switching in an enterprise Network(VLAN and VTP)</b>	<ul style="list-style-type: none"> <li>• Switching and Network Segmentation</li> <li>• Connecting Hosts Using a Hub or a Switch</li> <li>• Multilayer Switching</li> <li>• Types of Switching</li> <li>• Switch Security</li> <li>• Configuring VLANs</li> <li>• Virtual LAN</li> <li>• Static VLANs</li> <li>• Dynamic VLANs</li> <li>• Configuring a Virtual LAN</li> <li>• Identifying VLANs</li> <li>• Trunking and Inter-VLAN Routing</li> <li>• Extending VLANs Across Switches</li> <li>• Inter-VLAN Switching</li> <li>• Maintaining VLANs on an Enterprise LAN</li> <li>• VLAN Trunking Protocol (VTP)</li> <li>• What is VTP</li> <li>• VTP Components: VTP Domain</li> <li>• VTP Components: VTP Advertisements</li> <li>• VTP Components: VTP Modes</li> <li>• VTP Components: VTP Pruning</li> <li>• Default VTP Configuration</li> <li>• VTP Advertisements</li> <li>• VTP Message Contents</li> <li>• VTP Revision Number</li> <li>•</li> </ul>	4
<b>STP, InterVLAN Routing</b>	<ul style="list-style-type: none"> <li>• Spanning Tree Protocol</li> <li>• Root Bridges</li> <li>• Rapid Spanning Tree Protocol</li> <li>• Configure a VLAN Routing</li> </ul>	4
<b>Addressing in an enterprise Network (VLSM,CIDR ,NAT)</b>	<ul style="list-style-type: none"> <li>• Flat and Hierarchical Networks</li> <li>• Hierarchical Network Addressing</li> <li>• Using Subnetting to Structure the Network</li> <li>• Subnet Mask</li> <li>• Calculating Subnets Using Binary Representation</li> <li>• Basic Subnetting ProcessVariable Length Subnet Masks</li> <li>• Variable Length Subnet Masks</li> <li>• Implementing VLSM Addressing</li> <li>• Classful and Classless Routing</li> </ul>	4

	<ul style="list-style-type: none"> <li>• CIDR and Route Summarization</li> <li>• Calculating Route Summarization</li> <li>• Discontiguous Subnets</li> <li>• Private IP Address Space</li> <li>• Static and Dynamic NAT</li> </ul>	
<b>What is Routing, Types of Routing, Router as DHCP server</b>	<ul style="list-style-type: none"> <li>• Routing</li> <li>• Directly-Connected Routes</li> <li>• Dynamically-Updated Routes (Dynamic Routes)</li> <li>• Routing Protocols</li> <li>• Common Interior Routing Protocol</li> <li>• Configure &amp; Verify RIP</li> </ul>	4
<b>Configuration of Static Routing, Router as DHCP server</b>	<ul style="list-style-type: none"> <li>• Router Hardware</li> <li>• Basic Router CLI Show Commands</li> <li>• Switch Hardware</li> <li>• Basic Switch CLI Commands</li> <li>• Configuration Management:</li> </ul>	4
<b>Routing with Distance Vector Protocol</b>	<ul style="list-style-type: none"> <li>• Enterprise Networks</li> <li>• Enterprise topologies</li> <li>• Static &amp; dynamic Routing</li> <li>• Configuring Static Routes</li> <li>• Distance Vector Routing Protocols</li> <li>• Routing Information Protocol(RIP)</li> <li>• Enhanced Interior Routing Gateway Protocol</li> </ul>	4
<b>Routing with a link-state protocol</b>	<ul style="list-style-type: none"> <li>• Link State Protocol Operation</li> <li>• OSPF Metrics &amp; Convergence</li> <li>• OSPF Adjacencies &amp; Neighbors</li> <li>• Configuring OSPF Authentication</li> <li>• Configuring Basic OSPF in a Single Area</li> <li>• Verifying OSPF Operation</li> <li>• Configuring OSPF Authentication</li> <li>• Tuning OSPF Parameters</li> <li>• Limitations of OSPF</li> <li>• Using Multiple Protocols in the Enterprise</li> </ul>	4
<b>Filtering traffic using Access Control Lists</b>	<ul style="list-style-type: none"> <li>• Traffic Filtering</li> <li>• Access Control List(ACL)</li> <li>• Types &amp; usage of ACL</li> <li>• ACL Processing</li> <li>• ACL Wildcard Mask Purpose &amp; Structure</li> <li>• Analyzing the Effects of the wildcard Mask</li> <li>• Placing Standard &amp; Extended ACL</li> <li>• Configuring Numbered Extended ACL</li> <li>• Analysing Routers Log</li> </ul>	4

	<ul style="list-style-type: none"><li>• ACL Best Practices</li><li>•</li></ul>	
<b>Troubleshooting your Network, Configuration of VPN</b>	<ul style="list-style-type: none"><li>• Troubleshooting</li><li>• Gathering Information</li><li>• Approaches for Troubleshooting</li><li>• Detecting Physical Problems</li><li>• Software Utilities for Troubleshooting</li><li>• Troubleshooting using Nslookup</li><li>• Troubleshooting using Ping</li><li>• Troubleshooting using ipconfig</li><li>• Troubleshooting using Tracert</li><li>• Troubleshooting using Netstat</li><li>• Troubleshooting using Nslookup</li><li>• Troubleshooting Association &amp; Authentication in a WLAN</li><li>• Configuration of VPN</li></ul>	4

## **8. Reference Books/Study Material**

- PC Hardware: The Complete Reference
- Computer Networks(Andrew S. Tanenbaum)

## **9. Practical Assignments**

- Describe Generation of Computer
- What is Computer Hardware and Software
- Describe Operating System
- What is Primary Memory and Secondary Memory
- What is SMPS
- What is UPS
- Describe Sequence of Booting
- What is POST
- Write steps to Configure Network on Windows.
- Write steps to Configure Network on Linux.
- Identify Network Layers and its Working
- Identify Network Media(Guided Media and Unguided Media)
- Identify and make Straight cable and Cross over Cable and its uses.
- Identify IPv4 and IPv6 Addresses
- Difference between IPv4 and IPv6 Address.
- Configure DHCP with Network Simulation tool
- Configure DNS with Network Simulation tool
- Configure HTTP with Network Simulation tool
- Identify Wireless media and understand spectrum
- Property of various frequency band
- Configure Wireless Router/Access Point in open Mode
- Configure Wireless Router/Access Point in WEP/WPA Mode
- Identify Out-of-Band and In-Band Management
- Configure Switch/Router through Out-of-Band and In-Band Management through Network Simulation tool.
- Configure VLAN on Switch through Network Simulation tool.
- Configure VTP on Switch through Network Simulation tool.
- Configure STP on Switch through Network Simulation tool.
- Configure VLAN Routing on Switch through Network Simulation tool.
- Identify working of Router
- Type of Routing and its properties.
- Configure Router as DHCP Server
- Configure Static Routing through Network Simulation tool.
- Configure RIP through Network Simulation tool.
- Configure EIGRP through Network Simulation tool.
- Configure OSPF through Network Simulation tool.
- Configure BGP through Network Simulation tool.
- Configure Firewall through Network Simulation tool.
- Configure Standard Firewall through Network Simulation tool.
- Configure Extended Firewall through Network Simulation tool.
- Configure DMZ through Network Simulation tool.
- Identify problem of Network through Command(Ping, Tracert, ipconfig, Netstat, Nslookup)
- Configure VPN