Cisco Certified Network Associate

SAI TECHNO LAB

ADDRESS: SB-16, Shree Residency Complex, Bomikhal, Near Durga Mandap, Bhubaneswar

STL SAITECHNOLAB

Duraton-2month **Fees: 9999/-**

Cisco Certified Network Associate (CCNA)-R&S

The CCNA (Cisco certified network associate) is meant for engineers looking to get a foothold in networking. This forms the base of the Cisco training pyramid and offers different specializations for network engineers. The basic CCNA course is **CCNA** - **Routingand Switching**. We also offer the **CCNA Security** and the **CCNA Voice** both of whichrequire the CCNA Routing and Switching as a prerequisite.
The CCNA course is taught by world class instructors in state of the art classrooms with labs equipped with cutting edge infrastructure, including high end routers, switches and servers..

Operation of IP Data Networks

- Functions of Routers, Switches, Bridges and Hubs
- OSI and TCP/IP models
- Data flow between two hosts across a network

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

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
- Configure and verify OSPF (single area)
- Benefit of single area
- Neighbor adjacencies
- OSPF states, Multi area
- Configure OSPF v2 & OSPF v3
- Router ID, Passive interface, LSA types
- Configure and verify EIGRP (single AS)
- Feasible Distance / Feasible Successors
- Administrative distance

- Feasibility condition
- Metric composition
- Router ID, Auto summary, Path selection
- Load balancing (Equal & Unequal)
- Passive interface
- InterVLAN routing (Router on a stick)
- sub interfaces, encapsulation
- Configure SVI interfaces

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 (VRRP, HSRP & GLBP)
- Configure and verify Syslog
- Describe SNMP v2 & v3

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
- Global unicast
- Multicast
- Link local
- Unique local
- eui 64
- auto configuration

Network Device Security

- Configure and verify network device security
  - Enable secret vs enable
  - Disable telnet
  - SSH / VTYs
  - Physical security
  - Service password
- Configure and verify Switch Port Security
  - Sticky MAC / MAC address limitation
  - Static / dynamic
  - Violation modes (Err disable/Shutdown)
  - Protect restrict
  - Err disable recovery

Troubleshooting

- Troubleshoot and Resolve VLAN problems
  - Identify that VLANs are configured
  - port membership correct
  - IP address configured
- Troubleshoot and Resolve trunking problems
  - 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 EIGRP problems
- Neighbor adjancies
- AS number
- Load balancing

- Troubleshoot and Resolve interVLAN
- Connectivity
- Encapsulation
- Subnet, Native VLAN
- Port mode trunk status

- Troubleshoot and Resolve ACL issues
- Statistics, Permitted networks, Direction

- Troubleshoot and Resolve WAN implementation issues
- Serial interfaces, PPP, Frame relay

- Monitor NetFlow statistics

- Troubleshoot etherchannel problems

WAN Technologies

- Identify different WAN Technologies
- Metro Ethernet, VSAT, Cellular 3G & 4G
- ISDN, DSL, Frame relay, MPLS, VPN & Cable

- Configure and verify Frame Relay on Cisco routers