

CCNA Essentials Syllabus

Module 1: Introduction 2 Hours - 6 Topics

- What is Networking? (Day 1)
- What is Internet? (Day 1)
- LAN, MAN, WAN, Topology (Day 1)
- Bits, Bytes and Octets (Day 1)
- What is Packet Tracer? (Day 1)
- Packet Tracer Installation (Day 1)

Module 2: OSI LAYER 2 Hours - 5 Topics

- What is OSI Layer (Day 2)
- Explain 7 layers (Day 2)
- Brief explanation for TCP Header (Day 2)
- Brief explanation for 3 way Handshake (Day 2)
- Comparison between OSI and TCP/IP Model (Day 2)

Module 3: Addresses 2 Hours - 9 Topics

- Introduction to IP and MAC Address (Day 3)
- Use of IP and MAC Address (Day 3)
- What is OUI and DI? (Day 3)
- IANA, ICANN (Day 3)
- IPv4(Classful Addressing) (Day 3)
- Class A,B,C,D,E (Day 3)
- Public IP Private IP (Day 3)
- Loopback Address and APIPA (Day 3)
- Default Subnet Mask (Day 3)

Module 4: IP Addressing(Subnetting) 2 Hours - 6 Topics

- What is Subnetting? (Day 4)
- What is FLSM and VLSM? (Day 4)
- What is Subnet Mask? (Day 4)
- What is CIDR? (Day 4)
- Calculate FLSM for Class C Address (Day 4)
- Calculate VLSM for 4-6 Network Requirement with variable Host (Day 4)

Module 5: Router, DHCP Configuration 2 Hours - 8 Topics

- How to use Packet Tracer? (Day 5)
- Network setup using 2 pc and switch (Day 5)

- Router Components and Different Modes (also talk about router memory and how router saves configurations) *(Day 5)*
- Router Configuration (including Router password set and bypass) *(Day 5)*
- Network setup using 2 pc, switch and router *(Day 5)*
- DHCP Configuration using 4pcs(Classful & Classless) *(Day 5)*
- What is Telnet, ssh, ftp/tftp *(Day 5)*
- Configure SSH with security in Router *(Day 5)*

Module 6: Switching Concept(VLAN) 2 Hours - 5 Topics

- What is Switching? (Explain ARP as well) *(Day 6)*
- What is VLAN? *(Day 6)*
- Different Modes(Access, Dynamic and Trunk) *(Day 6)*
- Configure VLAN (2-3 VLANS) *(Day 6)*
- Configure Intervlan Routing(Using Router with 2 interfaces, Router on Stick) *(Day 6)*

Module 7: Switching Concept(VTP) 2 Hours - 2 Topics

- What is VTP? *(Day 7)*
- Configure VTP(Server, Client, Transparent Mode) with 4 Switches *(Day 7)*

Module 8: Switch Security(Port Security, DHCP Snooping) 2 Hours - 4 Topics

- What is Port Security? *(Day 8)*
- Configure Port Security(Restrict, Protect, Shutdown Mode)(Sticky,Dynamic MAC Address, Maximum Address) *(Day 8)*
- What is DHCP Snooping? *(Day 8)*
- Configure DHCP Snooping with 2 Servers(DHCP Configured inside) and 4 PCs *(Day 8)*

Module 9: STP, RSTP 2 Hours

Module 10: IGP and EGP 2 Hours - 7 Topics

- What is Routing? (also discuss CDP, LLDP) *(Day 10)*
- What is IGP and EGP? *(Day 10)*
- Explain Different Vectors and Metrics *(Day 10)*
- Different protocols under IGP and EGP *(Day 10)*
- What is AS number and AD value? *(Day 10)*
- STATIC routing, Default Routing *(Day 10)*
- Dynamic Routing (Intro) *(Day 10)*

Module 11: OSPF v2 2 Hours - 5 Topics

- Configure and verify single area and Multi area OSPFv2 *(Day 11)*
- Neighbor adjacencies *(Day 11)*
- Point to point *(Day 11)*

- DR/BDR selection (Explanation) *(Day 11)*
- Router ID *(Day 11)*

Module 12: ACL 2 Hours - 4 Topics

- What is and use of ACL? *(Day 12)*
- What is Standard and Extended ACL? *(Day 12)*
- Standard(Name,Number) ACL Configuration with 2 Routers blocking/allowing a network/host for hosts/network *(Day 12)*
- Extended(Name,Number) ACL Configuration with 2 Routers blocking/allowing a network/hosts for ICMP, HTTP, HTTPS, FTP, TELNET *(Day 12)*

Module 13: NAT, PAT 2 Hours - 5 Topics

- What is NAT? Different Types of NAT *(Day 13)*
- Configure Static NAT (Only Inside Rule) with two router *(Day 13)*
- Configure Dynamic NAT (Only Inside Rule) with two router using Pool and Interface *(Day 13)*
- What is PAT? *(Day 13)*
- Configure PAT (Only Inside Rule) with two router using Pool and Interface *(Day 13)*

Module 14: Wireless 2 Hours - 3 Topics

- WLAN 4 way handshake *(Day 14)*
- Describe wireless security protocol (WPA,WPA2, WPA3) *(Day 14)*
- Configure and verify WLAN within the GUI using WPA2 PSK *(Day 14)*

Module 15: INTERNAL EXAM 2 Hours

Module 16: WAN 2 Hours - 3 Topics

- Explain Different WAN Technologies(Leased Line, Circuit Switching, Packet Switching) *(Day 16)*
- What is Point to Point and Multiaccess Link? *(Day 16)*
- Explain and Configure different Point to Point Link encapsulation technology(HDLC, PPP --> PAP, CHAP) *(Day 16)*

Module 17: IPV6 BASIC 2 Hours - 7 Topics

- Why IPv6? *(Day 17)*
- How to write IPv6 Address? *(Day 17)*
- Different Types of IPv6 Address(Unicast, Multicast, Anycast) *(Day 17)*
- Different Types of Unicast Address(Global Unicast, Unique local, link local) *(Day 17)*
- Configure and Verify IP address on Router with 2PCs *(Day 17)*
- Configure and Verify Static Autoconfig Address *(Day 17)*
- Configure and Verify Static Routing with 2 Routers *(Day 17)*

Module 18: AAA, TACACS+ and RADIUS 2 Hours - 3 Topics

- Define ICMP, DNS *(Day 18)*
- Explain AAA and the working *(Day 18)*
- Discuss the differences between TACACS+ and RADIUS *(Day 18)*

Module 19: SNMP, DMZ 2 Hours - 6 Topics

- What is SNMP? Different SNMP Version *(Day 19)*
- What is MIB,OID? What is SNMP Agent and Manager? *(Day 19)*
- Different SNMP Queries *(Day 19)*
- What is DMZ? Why is used? *(Day 19)*
- Discuss How DMZ are formed? *(Day 19)*
- Configure SNMP in Packetracer *(Day 19)*

Module 20: PROXY, VPN 2 Hours - 5 Topics

- What is Proxy? Why it is used? *(Day 20)*
- What is VPN? *(Day 20)*
- Different Types of VPN(Site-to-Site, Remote-access) *(Day 20)*
- Different VPN Technologies(GRE, DMVPN, IPSEC) *(Day 20)*
- Configure GRE in Packet tracer *(Day 20)*