CCNA Essentials & Ethical Hacking Combo Syllabus

Course Details - CCNA Essentials

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)**

Addresses   2 Hours - 9 Topics

- **Introduction to IP and MAC Address (Day 2)**
- **Use of IP and MAC Address (Day 2)**
- **What is OUI and DI? (Day 2)**
- **IANA, ICANN (Day 2)**
- **IPv4(Classful Addressing) (Day 2)**
- **Class A,B,C,D,E (Day 2)**
- **Public IP Private IP (Day 2)**
- **Loopback Address and APIPA (Day 2)**
- **Default Subnet Mask (Day 2)**

IP Addressing(Subnetting)   2 Hours - 6 Topics

- **What is Subnetting? (Day 3)**
- **What is FLSM and VLSM? (Day 3)t**
- **What is Subnet Mask? (Day 3)**
- **What is CIDR? (Day 3)**
- **Calculate FLSM for Class C Address (Day 3)**
- **Calculate VLSM for 4-6 Network Requirement with variable Host (Day 3)**

OSI LAYER   2 Hours - 5 Topics

- **What is OSI Layer (Day 4)**
- **Explain 7 layers (Day 4)**
- **Brief explanation for 3 way Handshake (Day 4)**
- **Brief explanation for TCP Header (Day 4)**
- **Comparison between OSI and TCP/IP Model (Day 4)**

ICMP, ARP, DNS

2 Hours - 2 Topics

- Define ICMP, ARP, DNS (Day 5)
- Explain the uses and working of ICMP, ARP, DNS (Day 5)

Router, DHCP Configuration

2 Hours - 6 Topics

- How to use Packet Tracer? (Day 6)
- Network setup using 2 pc and switch (Day 6)
- Router Components and Different Modes (Day 6)
- Router Configuration (Day 6)
- Network setup using 2 pc, switch and router (Day 6)
- DHCP Configuration using 4pcs(Classful & Classless) (Day 6)

IGP and EGP

2 Hours - 5 Topics

- What is Routing? (Day 7)
- What is IGP and EGP? (Day 7)
- Explain Different Vectors and Metrics (Day 7)
- Different protocols under IGP and EGP (Day 7)
- What is AS number and AD value? (Day 7)

Static, Default Routing (Classful and Classless)

2 Hours - 4 Topics

- What is Static Routing? (Day 8)
- Static Routing Configuration using 2 and 3 Routers (Day 8)
- What is Default Routing? (Day 8)
- Default Routing Configuration using 2 and 3 Routers (Day 8)

OSPF Single Area

2 Hours - 4 Topics

- Explain OSPF, AD Value, Cost (Day 9)
- Explain Process ID, Wild Card Bits, Area (Day 9)
- 7 stages of Establishment (Day 9)
- OSPF Single Area Configuration using 2-3 routers (Day 9)

EIGRP

2 Hours - 3 Topics

- Explain EIGRP, Cost, Metrics (Day 10)
- 5 Stages of Establishment (Day 10)
- Configure EIGRP using 2-3 routers (Day 10)

ACL

2 Hours - 5 Topics

- What is and use of ACL? (Day 11)
- What is Standard and Extended ACL? (Day 11)

- **Standard(Name,Number) ACL Configuration with 2 Routers (Day 11)**
- **Extended(Name,Number) ACL Configuration with 2 Routers (Day 11)**
- **Extended(Name,Number) ACL Configuration with 2 Routers blocking/allowing a network/hosts for ICMP,HTTP,HTTPS,FTP,TELNET (Day 11)**

NAT, PAT   2 Hours - 5 Topics

- **What is NAT? Different Types of NAT (Day 12)**
- **Configure Static NAT (Only Inside Rule) with two router (Day 12)**
- **Configure Dynamic NAT (Only Inside Rule) with two router using Pool and Interface (Day 12)**
- **What is PAT? (Day 12)**
- **Configure PAT (Only Inside Rule) with two router using Pool and Interface (Day 12)**

Switching Concept(VLAN)   2 Hours - 5 Topics

- **What is Switching? (Day 13)**
- **What is VLAN? (Day 13)**
- **Different Modes(Access, Dynamic and Trunk) (Day 13)**
- **Configure VLAN (2-3 VLANS) (Day 13)**
- **Configure Intervlan Routing(Using Router with 2 interfaces, Router on Stick) (Day 13)**

Switching Concept(VTP)   2 Hours - 3 Topics

- **What is VTP? (Day 14)**
- **Configure VTP(Server, Client, Transparent Mode) with 4 Switches (Day 14)**
- **STP, RSTP (Day 14)**

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

- **What is Port Security? (Day 15)**
- **Configure Port Security(Restrict, Protect, Shutdown Mode) (Sticky, Dynamic MAC Address, Maximum Address) (Day 15)**
- **What is DHCP Snooping? (Day 15)**
- **Configure DHCP Snooping with 2 Servers (DHCP Configured inside) and 4 PCs (Day 15)**

WAN   2 Hours - 4 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)**

- **Explain Multiaccess Link (Frame Relay) (Day 16)**

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)**

AAA, TACACS+, RADIUS	2 Hours - 2 Topics

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

SNMP, DMZ	2 Hours - 5 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)**

PROXY, VPN	2 Hours - 4 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)**

Course Details - Ethical Hacking

Module 1:	2 Hours - 3 Topics

- **Introduction: (Day 1)**
  - What is Ethical Hacking
  - What are the different types of hackers
  - Five phases of hacking
  - Scope of Ethical Hacking
- **Brush up Linux (Optional) (Day 1)**
- **Brush up networking (Optional) (Day 1)**

Module 2:	2 Hours - 3 Topics

- **Information Gathering: (Day 2)**
  - Passive Information Gathering
  - Active Information Gathering
  - Five phases of hacking
  - Scope of Ethical Hacking
- **Brush up Linux (Optional) (Day 2)**
- **Brush up networking (Optional) (Day 2)**

Module 3:	2 Hours - 1 Topic

- **Scanning (Day 3)**

Module 4:	2 Hours - 1 Topic

- **System Hacking: (Day 4)**
  - Introduction to Metasploit Framework
  - Exploit MS17-010 Vulnerability
  - Reverse TCP Connection

Module 5:	2 Hours - 1 Topic

- **System Hacking (Cont.): (Day 5)**
  - Privilege Escalation using post exploit bypassuac and getsystem
  - Reverse connection in different network using port forwarding
  - Android hacking using reverse TCP connection

Module 6:	2 Hours - 1 Topic

- **System Hacking (Cont) (Day 6)**
  - Show software based vulnerabilities (Badblue/iceblaster)

Module 7:	2 Hours - 1 Topic

- **System Hacking (cont) (Day 7)**
  - Introduction to Active Directory
  - Explain OU, DC, TREE, FOREST
  - Explain LDAP
  - Explain how AD works
  - Explain smb share
  - Explain SPN

Module 8:	2 Hours - 1 Topic

- **System Hacking (cont) (Day 8)**
  - Introduction to Kerberos
  - Explain how Kerberos works (Authentication Server, Ticket Granting Server, TGT etc)
  - Explain Kerberoasting attack
  - Mention
  - ASREPROASTING
  - Golden Ticket

Module 9:	2 Hours - 1 Topic

- **System Hacking (Cont.): (Day 9)**
  - Malware (Different types of Malware, Virus and Trojan)
  - AV bypass

Module 10:	2 Hours - 2 Topics

- **Sniffing using Wireshark (Day 10)**
- **Man In the Middle Attack using the concept of ARP poisoning (Day 10)**

Module 11:	2 Hours - 2 Topics

- **Cryptography (Day 11)**
  - Symmetric Encryption Algorithm
  - Asymmetric Encryption Algorithm
  - Hash Algorithm
- **Steganography (Day 11)**

Module 12:	2 Hours - 1 Topic

- **Wireless Attacks (Day 12)**
  - Explain WiFi attacks (Deauth packets)
  - Explain WiFi 4 way handshake
  - Explain the attack scenario and procedure
  - Explain fake access point attacks

Module 13:   2 Hours - 1 Topic

- **Website Attacks (Day 13)**

Module 14:   2 Hours - 1 Topic

- **Website Attacks(cont) (Day 14)**
  - **Explain XSS attacks**
  - **Explain different types of XSS attacks**
  - **Prevention**

Module 15:   2 Hours - 1 Topic

- **Website Attacks(cont) (Day 15)**
  - **Explain sql injection attacks**
  - **Explain different kinds of sql injection attacks**
    - **error based**
    - **boolean based**
    - **union based**
    - **Mention: blind/time based**
  - **Prevention**

Module 16:   2 Hours - 1 Topic

- **Website Attacks (cont) (Day 16)**
  - **Explain CSRF attacks and prevention**
  - **Explain cookie stealing, session hijacking**
  - **Show a login brute force example**
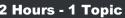 - **Talk about how to prevent such attacks**

Module 17:   2 Hours - 1 Topic

- **Website Attacks (cont) (Day 17)**
  - **Show data tampering attacks**
  - **Phishing Attack**
  - **File upload vulnerability**

Module 18:   2 Hours - 1 Topic

- **IOT Hacking (cont) (Day 18)**
  - **Explain various attack vectors in IOT hacking**

Module 19:   2 Hours - 2 Topics

- **DOS and DDOS attacks (Day 19)**
- **Cloud based attacks: (Day 19)**

○ Explain cloud based attacks vectors

Module 20:	2 Hours - 2 Topics

- IDS (Day 20)
- IPS (Day 20)