



# Network Security Expert

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This course is mapped to the Network Security Expert (NSE) Certification Exam of US-Council.

Training can be taken from anywhere in the world through our Authorized Training Partners or through Online Training offering at the link below:

<http://us-council.com/training.php>

This is a comprehensive course which covers the nitty gritty of network security. It is a vendor independent course, designed to make the security engineer aware of how exactly security can be built into an organization's network. It gives an in depth understanding of the underlying protocols and mechanisms of network security. The Network Security Engineer would be able to configure firewalls, security policies, NAT, VPNs, IPS/IDS, content security, etc. at the end of this course, irrespective of the vendor, with very little additional platform specific training.

## **INTRODUCTION TO NETWORKING**

- OSI Model
- IP addressing
- Subnetting

## **NETWORKING DEVICES**

- Switches
- Routers
- Access points

## **NETWORKING PROTOCOLS**

- HTTP
- HTTPS
- FTP
- DHCP
- Domain Naming System
- Telnet
- SSH
- NTP
- Syslog

## **ROUTING AND ROUTING PROTOCOLS**

- Static Routing
- Default Routing
- Dynamic Routing Protocols

## **TROUBLESHOOTING NETWORKS**

- ICMP
- SNMP
- Ping
- Trace route
- Sniffers
- Protocol Analysis
- Wireshark
- Syslog analysis

## **NETWORK SECURITY**

- Layer 1 Security
- Layer 2 Security
  - Vlans
  - Port security
  - Wireless Security
- Layer 3 security
  - Routers with Access lists
  - Securing Routers
- Device - Role based access
- NTP
- Log management and log analyses

## **FIREWALL**

- Types of firewalls
  - Packet filtering
  - Proxy server
  - Stateful inspection
- Designing Security with Firewalls
  - Routed mode
  - Transparent / Bridge mode.
- NAT
  - Static NAT
  - Dynamic NAT
  - PAT

## **SECURITY POLICY**

## **APPLICATION SECURITY**

## **CONTENT / WEB SECURITY**

- URL filtering
- Blacklists and white lists
- Keyword filtering
- Category based filtering

## **AUTHENTICATION**

- RADIUS
- Kerberos
- LDAP

## **VIRTUAL PRIVATE NETWORKS**

- Encryption Algorithms
- Symmetric and Asymmetric cryptography
- Public / Private key Infrastructure (PKI)
- Hash Algorithms
- GRE
- IPSEC
  - ISAKMP/IKE
  - Phase 1 Negotiations
  - Phase 2 Negotiations
  - Main mode and aggressive mode
  - Diffie Hellman Algorithm
  - IPSec SAs and IKE SAs
  - Site to site VPNs
  - Remote access VPNs
  - Troubleshooting VPNs
- SSL

## **INTRUSION DETECTION / INTRUSION PREVENTION SYSTEMS**

- IPS/IDS Signatures
- Custom Signatures
- Fine tuning of Signatures
- Snort

## **HOST SECURITY**

- OS hardening
- Patch management