Systems & Network Training

LINX Accredited Internet Technician I

A 5 day Hands on training course

Save on expenses. This course is also available on your premises.

Description

An intensive hands on IP foundation leading to LINX Accredited Internet Technician stage 1. The course focuses on all parts of TCP/IP including layers 4 to 7 on end stations as well as layer 3 on routers. The TCP/IP protocols are also studied to enable delegates to be able to troubleshoot TCP/IP using Wireshark. Hands on sessions are used to reinforce the theory rather than teach specific manufacturer equipment.
A multiple choice exam, leading to the LAIT I certification, is available after the course. The exam consists of 40 questions and lasts 1.5 hours.

Key outcomes

By the end of the course delegates will be able to:

- ✔ Use ping, traceroute and other tools to diagnose faults on a network.
- ✔ Configure IP on PCs and routers.
- ✔ Plan IP addresses and subnets.
- ✔ Analyse IP and TCP packets using an analyser.
- ✔ Troubleshoot TCP/IP.

Training approach

This structured course uses Instructor Led Training to provide the best possible learning experience. Small class sizes ensure students benefit from our engaging and interactive style of teaching with delegates encouraged to ask questions throughout the course. Quizzes follow each major section allowing checking of learning. Hands on sessions are used throughout to allow delegates to consolidate their new skills.

Details

Who will benefit?
Network Engineers.

Prerequisites
None.

Duration: 5 days

Customer rating: ★★★★★

Generic training	Small class sizes	Hands On training	Our courseware	Customise your course
Generic training complements product specific courses covering the complete picture of all relevant devices including the protocols “on the wire”.	We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.	The majority of our courses use hands on sessions to reinforce the theory.	We write our own courses; courseware does not just consist of slides and our slides are diagrams not bullet point text.	Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.
“*Friendly environment with expert teaching that teaches the why before the how.*” G.C. Fasthosts	*“Excellent course. The small class size was a great benefit...”* M.B. IBM	*“Not many courses have practice added to it. Normally just the theoretical stuff is covered.”* J.W. Vodafone	*“Comprehensive materials that made the course easy to follow and will be used as a reference point.”* V.B. Rockwell Collins	*“I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on.”* S.R. Qinetiq

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Course content

What is TCP/IP?
TCP and IP are protocols, 7 layer model, network layers, hardware/software layers, internetworking, protocols, What is IP? What is TCP? The internet, The IAB, RFCs.

Ping and Wireshark
Host configuration, IP addresses, subnet masks, default gateways, ping. Hands on: Base configuration. Testing with ping. Analysing packets with Wireshark.

Switches and Wireshark
Switches versus hubs, layer 2 forwarding table, flooding, broadcasts. Hands on: Building a switched based network.

Configuring network devices
Configuration options, console port, putty, telnet. Hands on: Configuring switches, telnet.

IP
IP packet format, protocol field, TTL, DiffServ, fragments, ICMP. Hands on: IP packet analysis.

IP addressing
32 bits, dotted decimal, rules, networks, role of subnet masks, simple subnetting, prefix notation. Broadcasts, special use addresses. Hands on: Planning and implementing addressing.

IP and the lower layers
ARP, media not supporting ARP. Hands on: ARP.

Routing
What are routers? What routers do, default gateways, routing and addressing, routing tables, ways to update routing tables. Hands on: Building a routed network, traceroute.

Routing protocols
IGPs and EGPs, RIP, RIPv2, Why not to use RIP, OSPF, OSPF metrics, convergence, distance vector protocols, link state protocols. Hands on: OSPF, analysing routing tables, loopbacks.

Network simulators
Network simulators, EVE-NG, GNS3, CML. Hands on: Using EVE-NG.

Subnetting
Subnetting to the bit level, ranges, how prefixes are used. Hands on: Subnetting.

VLANS and IP addressing
What are VLANs, tagging, 802.1Q, Inter VLAN routing. Hands on: Inter VLAN routing.

TCP and UDP
Layer 4, port numbers, client ports, broadcasts multicasts and layer 4, UDP header, TCP header, connections, ACK, sliding windows, options, connection states. Sockets. Hands on: Analysing TCP packets.

IPv4 address configuration
Private addresses, NAT, NAPT, dynamic addressing, DHCP, link local addresses. Hands on: DHCP, NAT.

IPv6
What is IPv6, 128 bit addresses, address formats, IPv6 address allocation, header format, migration, dual stack, tunnelling, NAT64, DNS64. Hands on: IPv6 setup troubleshooting.

IPv6 address configuration
Static addressing, EUI-64 addresses, IPv6 address order, SLAAC, DHCPv6. Hands on: SLAAC.

Applications
Clients, servers, HTTP, Email, resource sharing, VoIP, video, terminal emulation, remote desktop. Network management and SNMP. Hands on: Servers, TFTP, VoIP packet analysis.

DNS
Names and addresses, hosts file, how DNS works. FQDNs, DNS client configuration. Hands on: Troubleshooting DNS.

Security
Firewalls, firewall architectures, DMZ, how firewalls work, proxy servers, filtering, ACLs, IDS, VPNs, authentication, encryption, tunnels, secure protocols. Hands on: Firewalls, SSH

Troubleshooting
Methods, tools. Using the 7 layer model. Troubleshooting toolkits. Hands on: Fixing the network.