Systems & Network Training

# LINX accredited Internet Technician II

A 5 day Hands on training course

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

## Description

An intensive hands on IP routing course leading to LINX Accredited Internet Technician stage 2 focusing on routing in an IP environment. The course concentrates on OSPF and IS-IS but also covers BGP and MPLS. Hands on sessions are used to reinforce the theory rather than teach specific manufacturer equipment.

**A multiple choice exam, leading to the LAIT II certification, is available after the course. The exam consists of 60 questions and lasts 2.0 hours.**

## Key outcomes

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

- ✔ Calculate subnet numbers in seconds.
- ✔ Configure and troubleshoot static routes.
- ✔ Explain how OSPF works.
- ✔ Build resilient networks with VRRP and OSPF.
- ✔ Implement and troubleshoot OSPF, IS-IS, simple BGP and simple MPLS.
- ✔ Evaluate and choose appropriate routing protocols for particular scenarios.

## 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**
LAIT I attendance and 55%+ exam score.
OR LAIT I exam only and pass (70%+).
OR CCNA and take LAIT I exam on this course.

**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 |

# LINX accredited Internet Technician II

## Course content

**Basic routing**
Review of LAIT I routing, reading routing tables. Hands on: Setting up a routed network.

**Static routes**
Why use static routes? Default routes. Hands on: Configuring static routes.

**First hop redundancy**
Default gateways, VRRP/HSRP/GLBP. Load sharing, critical IP addresses. Hands on: VRRP.

**Basic OSPF**
What is OSPF? Process IDs, passive interfaces. Hands on: Simple OSPF.

**Subnetting**
Bit boundary subnetting, calculating network numbers. Exercise: Subnetting.

**OSPF overview**
Metrics, convergence, DV vs. Link state, IGPs, classless, OSPF features, load sharing, OSPF authentication. Hands on: OSPF features.

**OSPF within an area**
How OSPF works, LSAs, LSDB, router IDs, hellos, configuring hellos, exchange protocol. Hands on: Investigating OSPF structures.

**OSPF areas**
Scalability, why areas? Area IDs, area 0, ABRs, ABR resilience, areas & LSDBs & LSAs, virtual links. Hands on: Multi area OSPF.

**Redistribution**
Multiple routing protocols, common scenarios, routing distance, External LSAs, E1 and E2. Type 4 LSAs. OSPF and default routes. Hands on: Configuring static route redistribution.

**Route aggregation**
Route summarisation. How to aggregate, CIDR, ASBR summarisation. Hands on: OSPF address summarisation.

**OSPF packet formats**
OSPF packets, protocol stack, packet flows, OSPF headers, neighbours, neighbour states, DRs, adjacencies, BDRs, DR election. Hands on: Analysing OSPF packets, troubleshooting. OSPF

**OSPF stub areas**
LSA types, area types, area architecture, stub areas, default routes, benefits & disadvantages of stub areas, TSSAs, NSSAs, Type 7 LSAs. Hands on: Stub and TSSA configuration.

**IS-IS**
End systems, Intermediate systems, how IS-IS works, IS-IS router ID, Level 1, Level 2, IS-IS hierarchy. Hands on: Configuring IS-IS, troubleshooting IS-IS.

**The Internet**
Autonomous systems, Peering, transit, looking glasses. Hands on: Internet routing tables.

**Basic BGP**
IGPs, EGPs, What's BGP? BGP RIB, in/out process, tables peers, adding routes. Hands on: Simple configuration and troubleshooting.

**Routing IPv6**
Multi protocol routing, IPv6 addressing, IPv6 routing tables, IPv6 static routes, OSPFv3, IS-IS and IPv6. Hands on: Routing IPv6.

**STP and L2 routing**
STP, RSTP, L2 IS-IS, Multi system link aggregation. Hands on: RSTP.

**MPLS**
Core MPLS, MPLS and the 7 layer model, MPLS protocol, MPLS standard, MPLS runs on routers, MPLS history, Why MPLS?. LSRs, PE and P router roles, FEC, swapping labels, MPLS packet format. Hands on: Enabling MPLS. Testing and troubleshooting of MPLS.

**Appendix:** EIGRP: How EIGRP works, DUAL.