IN723 Lesson Plan

# Details

## Course: IN723 Advanced Networking

## Lesson Title: OSPF Lessons 1 - 4

# Objectives

The students will understand, evaluate and implement hierarchical WAN design using multi area OSPF.

* Link state operation
* OSPF data structures (Adjacency table, LSDB, Route table)
* Metric
* OSPF state machine
* Single area configuration / operation
* Passive interface
* Network statement
* Auto Cost
* Interface Bandwidth
* Multi access BDR / DR - priority
* Default route propagation
* Authentication
* Troubleshooting
* Multi area basics - purpose
* LSA Types - where propagated
* Multi area OSPF config
* OSPF range (ABR summary)
* Stub Areas
* Summary-address (ASBR for externals)
* Redistribution generic & OSPF
* Mutual redistribution
* Distribute list
* Route-maps

# Resources

**OSPF Configuration Guide**

<http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_ospf/configuration/15-mt/iro-15-mt-book.html>

**OSPF Design Guide**

<http://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/7039-1.html>

**RFC 2328**

<https://www.ietf.org/rfc/rfc2328.txt>

**Redistribution**

<http://www.cisco.com/c/en/us/support/docs/ip/enhanced-interior-gateway-routing-protocol-eigrp/8606-redist.html>

<http://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/113339-ospf-connected-net.html>

**OSPF Authentication**

<http://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/13697-25.html>

**OSPF NSSA**

<http://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/6208-nssa.html>

# Readings / Video

Read the OSPF Design Guide above

Routing TCP/IP Vol 1 – Jeff Doyle

<http://proquestcombo.safaribooksonline.com/book/networking/tcp-ip/1587052024>

# Lesson Content / Labs

* Presentations

\IN723 Topic3 OSPF\IN723 OSPF Lesson 1 revision.pptx

\IN723 Topic3 OSPF\IN723 OSPF Lesson 2 multi-area.pptx

\IN723 Topic3 OSPF\IN723 OSPF Lesson 3 Stub Areas.pptx

\IN723 Topic3 OSPF\IN723 OSPF Lesson 4 Redistribution.pptx

* Labs

Lesson 1

8.2.4.5 basic OSPF

5.1.5.7 OSPF single area authentication (PT)

5.1.3.5 propagate a default route (PT)

Lesson 2

6.2.3.6 Configuring multi area OSPFv2 (PT)

6.2.3.8 Configuring multi area OSPFv2, area range / md5 authentication

Lesson 3

OSPF Stub Lab

OSPF L2 HSRP integrated lab

Lesson 4

OSPF Redistribution Lab