CCIE-EI Bootcamp

Training handbook and labs covering the following technologies for each participant.

Day 1

- **Layer 2 Technologies**
  - Switching
  - VLAN
  - Trunking
  - Port-Channels
  - STP [CSTP, PVSTP+, Rapid-STP, MSTP]
- Interior Gateway Protocol (IGP)
  - Open Shortest Path First (OSPF)
    - Basic Initialization [Network Statement, DR/BDR Election]
    - Authentication [Clear Text, MD5]
    - LSA Types
    - Filtering [Prefix-Lists]
    - Manual Summarization
    - Area Types
    - Virtual Links

Day 2

- Interior Gateway Protocol (IGP)
  - Enhanced Interior Gateway Routing Protocol (EIGRP)
    - Basic Initialization [Network Statement, AutoSummary, Passive-Interfaces]
    - Authentication [MD5]
    - Filtering [ACL, Prefix-Lists]
    - Manual Summarization
    - Unequal Cost Load Balancing
    - Leak Maps
    - Named-Mode EIGRP
- Border Gateway Protocol (BGP)
  - BGP Fundamentals
  - Route-Reflector
  - Authentication
  - Advanced BGP Features
  - Filtering

Day 3

- BGP Contd.
    - Summarization and Aggregation
    - Confederations
    - Conditional Advertisement
    - BGP Multipath
    - Dynamic Neighbors
- IPv6
    - Addressing
    - OSPFv3
    - EIGRP v6
    - Tunnel
        - 6 to 4 Tunnels

Day 4

- **Virtual Private Networks [VPNs]**
    - GRE/ GRE Over IPSec
    - M-GRE
    - DMVPN
    - Flex VPN
- Multi-Protocol Label Switching (MPLS)
    - MPLS Fundamentals
    - Control Plane and Data Plane

Day 5

- Multi-Protocol Label Switching (MPLS)
    - VRF
    - Route Distinguisher and Route-Target
    - Inter-VRF Communication
    - MPLS L3 VPNs
- Master-Lab – 1 (Based on all the topics covered till day 5)

Day 6

- Software Defined WAN (SD-WAN)
    - Designing SD-WAN Solution
    - SD-WAN Controllers
    - SD-WAN Control Plane
    - Onboarding new edge routers
    - WAN Edge Deployment
    - Orchestration with Zero-touch provisioning / Plug-n-Play
    - Configuration template
    - Centralized policies

Day 7

- Security
    - Zone-Based Firewall
    - Basic AAA Services
    - Port Security
    - DHCP Security
    - VLAN ACLs

- Quality of Service (QoS)
    - Policing
    - Shaping
    - CB-WFQ
    - CB-LLQ
    - Nesting Class-Maps

Day 8

- Software Defined Access (SDA)
    - Designing SDA Solution Concept
    - SDA Deployment
    - Cisco Catalyst Centre device discovery and device management
    - Add edge node devices to an existing fabric
    - Host onboarding (wired endpoints only)
    - Segmentation
    - Assurance

Day 9

- IP Services
    - FHRP [HSRP, VRRP]
    - IP SLA
    - NTP
    - DHCP
    - NAT
- Multicast Routing
    - Overview
    - PIM Dense Mode
    - PIM Sparse Mode
    - Static RP
    - Auto RP
    - BSR
    - MSDP

Day 10

- Automation and Programmability
    - Python Fundamentals (optional)
    - Data Formats
    - Automating Network Devices using Python
    - Working with APIs using Python (vManage)
- Master Lab 2