

## Objectives – Theory Outline

- Examining Cisco Enterprise Network Architecture.
- Understanding Cisco Switching Paths.
- Implementing Campus LAN Connectivity.
- Building Redundant Switched Topology.
- Implementing Layer 2 Port Aggregation.
- Understanding EIGRP.
- Implementing OSPF.
- Optimizing OSPF.
- Exploring EBGP.
- Implementing Network Redundancy.
- Implementing NAT.
- Introducing Virtualization Protocols and Techniques.
- Understanding Virtual Private Networks and Interfaces.
- Understanding Wireless Principles.
- Examining Wireless Deployment Options.
- Understanding Wireless Roaming and Location Services.
- Examining Wireless AP Operation.
- Understanding Wireless Client Authentication.
- Troubleshooting Wireless Client Connectivity.
- Introducing Multicast Protocols.
- Introducing QoS.
- Implementing Network Services.
- Using Network Analysis Tools.
- Implementing Infrastructure Security.
- Implementing Secure Access Control.
- Understanding Enterprise Network Security Architecture.
- Exploring Automation and Assurance Using Cisco DNA Center.
- Examining the Cisco SD-Access Solution.
- Understanding the Working Principles of the Cisco SD-WAN Solution.
- Understanding the Basics of Python Programming.

## Lab outline

- Investigate the CAM
- Analyze Cisco Express Forwarding
- Troubleshoot VLAN and Trunk Issues
- Tuning Spanning Tree Protocol (STP) and Configuring Rapid Spanning Tree Protocol (RSTP)
- Configure Multiple Spanning Tree Protocol
- Troubleshoot EtherChannel
- Implement Multi-area OSPF
- Implement OSPF Tuning
- Apply OSPF Optimization
- Implement OSPFv3
- Configure and Verify Single-Homed EBGP
- Implementing Hot Standby Routing Protocol (HSRP)
- Configure Virtual Router Redundancy Protocol (VRRP)
- Implement NAT
- Configure and Verify Virtual Routing and Forwarding (VRF)
- Configure and Verify a Generic Routing Encapsulation (GRE) Tunnel
- Configure Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels
- Configure Wireless Client Authentication in a Centralized Deployment
- Troubleshoot Wireless Client Connectivity Issues
- Configure Syslog
- Configure and Verify Flexible NetFlow
- Configuring Cisco IOS Embedded Event Manager (EEM)
- Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug
- Configure and Verify Cisco IP SLAs
- Configure Standard and Extended ACLs
- Configure Control Plane Policing
- Implement Local and Server-Based AAA
- Writing and Troubleshooting Python Scripts
- Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
- Use NETCONF Via SSH
- Use RESTCONF with Cisco IOS XE Software