

Course Details : Objectives

After taking this course, one should be able to:

- Identify the components of a computer network and describe their basic characteristics.
- Understand the model of host-to-host communication.
- Describe the features and functions of the Cisco Internetwork Operating System (IOS) software.
- Describe LANs and the role of switches within LANs.
- Describe Ethernet as the network access layer of TCP/IP and describe the operation of switches.
- Install a switch and perform the initial configuration.
- Describe the TCP/IP Internet layer, IPv4, its addressing scheme, and subnetting.
- Describe the TCP/IP Transport layer and Application layer.
- Explore functions of routing.
- Implement basic configuration on a Cisco router.
- Explain host-to-host communications across switches and routers.
- Identify & resolve common switched network issues and common problems associated with IPv4 addressing.
- Describe IPv6 main features, addresses, configure, and verify basic IPv6 connectivity.
- Describe the operation, benefits, and limitations of static routing.
- Describe, implement, verify Virtual Local Area Networks (VLANs) and trunks.
- Describe the application and configuration of inter-VLAN routing.
- Explain the basics of dynamic routing protocols, describe its components and terms of Open Shortest Path First (OSPF).
- Explain how Spanning Tree Protocol (STP) and Rapid Spanning Tree Protocol (RSTP) work.
- Configure link aggregation using Ether Channel.
- Describe the purpose of Layer 3 redundancy protocols.
- Describe basic WAN and VPN concepts.
- Describe the operation of Access Control Lists (ACLs) and their applications in the network.

- **Configure Internet access using Dynamic Host Configuration Protocol (DHCP) clients, explain and configure Network Address Translation (NAT) on Cisco routers.**
- **Describe basic Quality of Service (QoS) concepts.**
- **Describe the concepts of wireless networks, which types of wireless networks can be built, and how to use Wireless LAN Controllers (WLCs).**
- **Describe network, device architectures, and introduce virtualization.**
- **Introduce the concept of network programmability and Software-Defined Networking (SDN) and describe smart network management solutions such as Cisco DNA Centre, Software-Defined Access (SD-Access), and Software-Defined Wide Area Network (SD-WAN).**
- **Configure basic IOS system monitoring tools.**
- **Describe the management of Cisco devices.**
- **Describe the current security threat landscape.**
- **Describe threat defense technologies.**
- **Implement a basic security configuration of the device management plane.**
- **Implement basic steps to harden network devices.**