

# Networking with CISCO tools

## Description

Networking Essentials covers basic networking concepts within the context of the networks you encounter every day. In this course, students will develop hands-on networking skills and understand the role networks play in our lives. This course introduces students to networking careers and prepares them for further study. Learn how to plan and install a network using real equipment and connect it to the Internet. Practice verifying and troubleshooting network and Internet connectivity. Learn how to recognize and mitigate security threats to a home network. Configure common Internet applications, set up sharing between computers, and configure basic IP services. Get immediate feedback on your work through built-in quizzes and tests. Connect with the global Cisco Networking Academy community.

## Expectations and Goals

- Understand state-of-the-art in network.
- Protocols, architectures, and applications.
- Process of networking research.
- Focus on network-to-application layer.
- Protocol rules and algorithms, tradeoffs, rationale.
- Routing, transport, DNS resolution.
- Network extensions and next generation architecture Wireless, mobile, sensor.
- Packet traces.

## Prerequisites

- Basic Computer Knowledge.
- Basic Hardware Knowledge.

## Course Schedule

Module	Topic
<b>Module 1</b>	<b>Operation of IP Data Networks</b> Recognize the purpose and functions of various network devices such as Routers, Switches, Bridges and Hubs. Select the components required to meet a given network specification. Identify common applications and their impact on the network. Describe the purpose and basic operation of the protocols in the OSI and TCP/IP models. Predict the data flow between two hosts across a network. Identify the appropriate media, cables, ports and connectors to connect network devices to other network devices and hosts  <b>LAN Switching Technologies</b> Verify network status and switch operation using basic utilities such as ping, telnet and ssh. Describe how VLANs create logically separate networks and need for routing between them Explain network segments and basic. The need for routing between them Explain network segmentation and basic traffic management concepts Configure and verify VLANs.
<b>Module 2</b>	<b>IP Addressing (IPv4/IPv6)</b> Describe the operation and necessity of using private and public IP address for IPv4 addressing. Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/WAN environment. Identify the appropriate IPv6 addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment.
<b>Module 3</b>	<b>Routing Technologies</b> IOS commands to review basic router information and network connectivity.

	<p>Configure and verify routing configuration for a static or default.  Differentiate methods of routing and routing protocols.  Configure and verify OSPF (single area).</p>
<b>Module 4</b>	<p><b>IP Services</b>  Configure and verify DHCP (IOS Router).  Configuring router interfaces to use DHCP.  DHCP options.  Excluded addresses.</p>
<b>Module 5</b>	<p>Network Device Security  Device password security.  Enable secret VS enable.  Transport  Disable telnet  SSH  Physical security  Service password</p>
<b>Module 6</b>	Project work and documentation