CCNA-1-2023

First Time in This Course

Welcome to the **Introduction to Networks (ITN) course**. This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple local area networks (LAN), perform basic configurations for routers and switches, and implement IP addressing schemes.

These course materials will assist you in developing the skills necessary to do the following:

- Explain the advances in modern network technologies.
- Implement initial settings including passwords, IP addressing, and default gateway parameters on a network switch and end devices.
- Explain how network protocols enable devices to access local and remote network resources.
- Explain how physical layer protocols, services, and network media support communications across data networks.
- Calculate numbers between decimal, binary, and hexadecimal systems.
- Explain how media access control in the data link layer supports communications across networks.
- Explain how Ethernet operates in a switched network.
- Explain how routers use network layer protocols and services to enable end-to-end connectivity.
- Explain how ARP and ND enable communication on a local area network.
- Implement initial settings on a router and end devices.
- Calculate an IPv4 subnetting scheme to efficiently segment your network.
- Implement an IPv6 addressing scheme.
- Use various tools to test network connectivity.
- Compare the operation of transport layer protocols in supporting end-to-end communication.
- providing support to end-user applications.
- dening features to enhance security.

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