


Introduction to Networking: Local Area Networks

OVERVIEW

Introduction to Networking: Local Area Networks explains the concepts, technologies and components used to build and maintain local area networks (LANs). Students completing this course will have a solid understanding of the fundamentals needed to build and maintain LANs. They will also be well prepared to operate the all-digital Internet Protocol (IP) networks being deployed by cable operators.

Students will learn about popular LAN protocols and concepts, including Ethernet, Token Ring and asynchronous transfer mode (ATM). This course also introduces the network operating systems most widely used in local area networks: Novell NetWare, Windows and Linux. Additionally, the course covers the principles of network design and the roles of hubs, switches and routers to optimize network traffic. Lessons also include information on the elements of wireless LAN technologies, Ethernet Data Link protocols, 10 Gigabit Ethernet, Virtual LANs (VLANs) and Layer 3 switching.

Delivery Options:

 Learning is a combination of online and textbook activities.

Completion Time:

Varies based on the student's self-study pace, however, the maximum time allowed is six months from enrollment.

BENEFITS

Upon completion students will:

- » understand how to build a small peer-to-peer network
- » correctly use the tools necessary to analyze and troubleshoot computer networks
- » identify and explain the purpose of the common types of networking devices
- » have a basic understanding of how the Internet works
- » earn three hours of college credit
- » describe what Internet protocols are and their roles in establishing local area networks

Ideal for:

Technical personnel supporting Internet-based services, including:

- » broadband technicians
- » network technicians
- » headend technicians
- » access bandwidth technicians
- » system technicians

COURSE OBJECTIVES

Upon completing this course, students will be able to:

1. explain the characteristics of the three types of physical media used in LANs (copper, fiber and wireless)
2. compare and contrast the operation of Ethernet, Token Ring, ATM and wireless networks

(Continued)

RELATED COURSES

Students completing this course should then enroll in:

- » Introduction to Networking: Wide Area Networks
- » Understanding Voice and Data Networks
- » Computers and Broadband Modems
- » Internetworking with TCP/IP

TRAINING FEATURES

- » Knowledge-based, broadband and job-specific content
- » Highly illustrated and easy to read course materials
- » Curriculum advising
- » 24/7 lesson feedback and progress monitoring at www.jonesncti.com
- » Online testing

Visit www.jonesncti.com/coursepolicy.htm for important information on computer hardware/software requirements and student-to-student transfer and extension limitations



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COURSE OBJECTIVES *(Continued)*

3. identify the different types of Ethernet networks and explain their relationship to each other
4. explain the basic approaches of traffic isolation and broadcast containment in Ethernet LANs, including Quality of Service (QoS)
5. identify the LAN architecture that best meets a user's requirements
6. identify the primary advantages of the client/server networking model
7. describe the key features and characteristics of Windows, Novell NetWare and Linux

COURSE OUTLINE

1. Review of LAN Fundamentals

Network classifications and topologies, programs, the OSI model and processes, protocols and layers

2. Connecting Computers

NICs, review of cable properties, WLANs, media selection and installation, and UTP patch cables and connectors

3. Ethernet LANs

Review of Ethernet, Ethernet frame format, fast Ethernet, gigabit Ethernet, 10 gigabit Ethernet, switched Ethernet configurations, VLANs and Layer 3 switches

4. ATM LANs

Introduction to ATM, ATM standards, interfaces and virtual circuits, ATM architecture, LAN emulation, ATM devices and ATM deployment

5. LAN Networking Software

Review of client/server and NOS fundamentals, RPCs, file servers, print servers, web servers, other common servers and backup and disaster prevention

6. The Novell Platform

NetWare 6.x Overview, NetWare 6.x Server and Novell eDirectory

7. Network OS Software – The 32-Bit Windows Family

The 32-Bit Windows OS Architecture

8. Linux

Linux Architecture and Linux features

9. Analysis of LANs

Overview of the network development process, working with binary and hexadecimal numbers, and LAN analysis and testing tools



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