Learning Alliance Corporation
EXCHANGING IDEAS, SHAPING FUTURES

7380 W. Sand Lake Rd #500
Orlando, FL 32819
PH: 407-964-33312 x700
www.mylearningalliance.com

Certified Broadband Digital Installer

Length: 80-hour program

Overview:

Broadband Digital Installer presents background information and installation practices pertaining to digital TV, Data over Cable Service Interface Specification (DOCSIS®) high-speed Internet, PacketCable™ telephone and home automation services for the connected home. Broadband professionals will be instructed on what is involved in certifying the reliability of the drop for digital TV, high-speed Internet and telephone service, as well as step-by-step installation procedures for each service. Because the DOCSIS and PacketCable technologies are unique to the broadband cable industry, the course provides extensive information about their origination and the advantages that each offers. The evolution of DOCSIS is detailed from its initial release through all versions including DOCSIS 3.1 and includes an explanation of what transpires in the background when a modem is being provisioned for service. Due to the rapid growth of and interest in home security and home automation within the broadband industry, this course covers the protocols that power the connected home as well as the connected home ecosystem.

Upon completing students will:

- receive an industry recognized NCTI certificate of graduation
- receive credit toward NCTI Master Technician Customer Premises certification
- earn three hours of college credit

Upon completing this course, students will be able to:

1. explain how the digital terminal adapter is used to deliver digital TV servicesrvices
2. list the features of the different versions of DOCSIS through DOCSIS 3.1
3. describe the initialization and authorization process of a DOCSIS cable modem
4. describe how cable modem data is transported in the broadband cable network
5. describe the steps required to certify the reliability of a customer's cable drop system for cable modem and telephone services
6. describe how packet switching compares to circuit switching technology
7. specify the techniques, precautions, standards, options, tools and materials used when installing unshielded twisted-pair cable
8. describe untwisted and twisted-pair cable, their color codes and their applications
9. describe the different categories and levels of twisted-pair cable
10. describe the different wiring configurations of twisted-pair cable at a jack and modular connector
11. compare the data rates of the different Wi-Fi® designations
12. describe how Multimedia over Coax Alliance (MoCA) is used in the home media network
13. describe home automation and its history
14. describe the differences between the ZigBee® and Z-Wave® communication process
15. identify and analyze different home automation platforms and their currently supported protocols
16. describe what must be considered during a cable telephone installation if the customer has a monitored alarm system

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Detailed Outline:

1. Installing Digital Television Services

Qualifying the signal for digital TV services; recognizing connection options, including direct, digital terminal adapter (DTA), digital set-top box (STB) and cable gateway and identifying consumer electronics in the home entertainment center

2. Introduction to DOCSIS

Detailing the origins of DOCSIS modems, the DOCSIS architecture, the DOCSIS equipment certification process; comparing DOCSIS to the OSI reference model; describing the different versions of DOCSIS, shared networks, DOCSIS transmissions, asymmetric data throughput and long-loop automatic gain control

3. DOCSIS Modem Operations

Obtaining DOCSIS single carrier RF operating parameters, obtaining DOCSIS 3.1 RF operating parameters, establishing an identity in the DOCSIS network and maintaining DOCSIS modem security

4. Installing a DOCSIS Modem

Qualify the cable drop for cable modem service, locating and activating the cable modem and educating the customer

5. Introducing VoIP

Exploring the world of VoIP, understanding cable telephony's evolution from constant bit rate (CBR) to VoIP and understanding how the PacketCable VoIP service differs from other VoIP services

6. Installing VoIP

Exploring VoIP pre-installation issues, installing the embedded multimedia terminal adaptor (EMTA) and connecting it into the customer's telephone network

7. Introducing Twisted-Pair Inside Wiring

Introducing the network interface device, untwisted and twisted-pair cables, twisted-pair cable hardware and routing topologies

8. Installing Twisted-Pair Inside Wiring

Pre-qualifying existing telephone and broadband services, describing twisted-pair installation tools, routing and attaching unshielded twisted-pair cable, adding a modular telephone jack, installing modular telephone line cord plugs and data plugs on unshielded twisted-pair cable.

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9. Installing the Home Media Network

Defining the media network and home automation protocols within the customer premises, introducing TV everywhere, discussing the Digital Living Network Alliance (DLNA), identifying the elements of the home media network, discussing Wi-Fi, HomePNA, HomePlug and MoCA technologies and defining the protocols that automate the Connected Home

10. Connected Home Transmission Technologies

Describing home automation and its history; identifying home automation protocols as well as the fundamental background of each, describing the communication process between the app, hub and home automation devices within the premises and describing home automation network topologies

11. Install VoIP in Homes with Electronic Security Systems

Understanding issues related to VoIP installations and electronic security system incompatibility, installing VoIP with a home security system and understanding VoIP problems with modem-type devices