

TECHNOLOGY TRACK

TT110, Introduction to Networks and Computer Hardware (INCH)

Who Should Attend

DCIO/Federal, CI investigators and prospective lab examiners.

Prerequisites

NONE

Duration

10 Days

Course Description

This course is a combination of lecture and hands-on practical exercises that introduce investigators and analysts to the fundamental computer and networking technologies related to computer crime investigations.

Objectives

- Identify the role of hardware components in computer systems
- Assemble computer and network components into a functional system
- Recognize and use major operating systems
- Perform basic troubleshooting of hardware and software
- Relate computer technologies to the type and location of potential evidence

Topics Covered

Computer Hardware

- Practice safety procedures when handling computer equipment
- Identify major computer components including Motherboards and buses
- Identify and explain MB types and components including chipsets, jumpers, and switches, power supply and connections
- Define Basic Input/Output System (BIOS)
- Explain the concept of Plug and Play (PnP)
- Recall CPU functions and memory

Data Storage Devices

- Explain how data is stored on a hard drive
- Identify components of the hard drive
- Explain the workings of a floppy drive
- Recognize various removable media

Input/Output Components

- Recognize basic input devices such as the keyboard, mouse, scanner and modem
- Explain how monitors and video display adapters work
- Identify the various input/output ports found on a PC
- Define interrupts, IRQs, direct memory access, and device drivers
- Recognize SCSI devices and connectors

Basic PC Troubleshooting

- Identify the source of boot problems
- Analyze and diagnose common hardware and software problems
- Perform system checks to correct malfunctions
- Handle basic computer repairs
- Perform a systematic build
- Perform regular maintenance and preventive measures

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Operating Systems

- Define the basic functionality of an OS
- Recognize the popular types of operating systems used today and identify their unique qualities

Windows XP Command Line

- Identify common command line commands
- Use various commands to view directories, navigate files, store data, retrieve and delete files
- Prepare a Linux boot CD in the command line environment

Virtualization

- Explain how virtualization works and identify virtualization solutions
- Implement VMware Products
- Recognize viruses in VMware

Windows 7

- Install and navigate Windows 7 and its components
- Identify and navigate Windows 7 networking capabilities
- Manage security in Windows 7
- Explain the Windows Registry

Windows 2008 Server

- Use basic Windows 2008 OS administrative tools
- Explore Active Directory
- Explain file access permissions and examine user accounts, groups, and organizational units
- Interpret and track security policies
- Use basic command line utilities

Networks, Connectivity and Protocols

- Explain network technologies
- Identify network configurations including LAN, WAN, and the Internet
- Explain the OSI model and how it standardizes network communications
- Name the differences between TCP/IP and the OSI model
- Explain common ports and their uses
- Identify the six main network models
- Describe common network topologies
- Identify network connection devices, their configurations and functions
- Recognize connection hardware and describe their characteristics

IP Addresses and Subnets

- Explain IP addresses and how they are constructed
- Name the classes of IP addresses and their characteristics
- Describe Domain Name Service functions
- Define subnetting and how subnet masking is used
- Name the types of firewalls used today and their characteristics

Linux

- Explain how to install Fedora 12 and navigate the Linux file system
- Use the Visual Editor (vi) to create and modify text files
- Use basic Linux commands
- Demonstrate how to use File Transfer Protocol (FTP) to connect to a remote system and to transfer files

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Preparation

To prepare for this course, we recommend the following review, reading, or research:

- Computer Hardware, specifically Disassembly/Reassembly
- Data Storage Components, specifically RAID and Partitioning a Hard Drive
- Input/Output Components, PC Troubleshooting
- Operating Systems
- Windows XP Command Line – Absolute vs. Relative paths, general navigation in command-line environment
- Virtualization
- Windows 7, Windows Server 2008, specifically how to navigate the ADUC and group policy
- Basic networks (specifically the OSI Model), Network Connectivity and Protocols
- IP Addresses, Subnets (specifically the concept of Subnetting)
- Linux – Directory Structure, Mounting, Device Naming Convention, FTP
- Review CompTIA A+ and Network+ material available on the Internet
- Read online/printed material introducing the Linux operating system

These topics may be found on the dcita.edu portal (<https://www.dcita.edu>), the internet, at Books 24/7, in your organization's technical library or at the public library. Instructions for D-Prep on the dcita.edu portal: log in. Under Online Courses, select DPrep Training; Course Name; Sort by Name Ascending.

INCH Grading Policy

In the INCH course, the student's progress is monitored through instructor observation during lecture, discussion and practical exercises as well as Knowledge and comprehensive Performance Tests. Minimum passing score on all DCITA tests is 70%.