



Lesson Plans

Microsoft's Administering Windows XP Professional

(Exam 70-270)

Table of Contents

Table of Contents	2
Course Overview	3
Section 0-1: Introduction to Administering XP	5
Section 1-1: User Accounts and Preferences	6
Section 1-2: Managing Users	7
Section 1-3: Managing Groups	8
Section 1-4: User Profiles	9
Section 1-5: Group Policy	10
Section 2-1: Installing Devices	12
Section 2-2: Drivers	14
Section 2-3: Managing Devices	15
Section 2-4: Hardware Profiles	16
Section 3-1: Network Connections	17
Section 3-2: TCP/IP	18
Section 3-3: Name Resolution	20
Section 3-4: Dial-up and Direct Connections	21
Section 3-5: Internet Connections	22
Section 3-6: ICS and ICF	23
Section 3-7: Remote Services	24
Section 4-1: File Systems	25
Section 4-2: Partitions and Volumes	26
Section 4-3: Additional Configuration	28
Section 5-1: Compression, Encryption, and Quotas	29
Section 5-2: NTFS Permissions	30
Section 5-3: Shared Folders	31
Section 5-4: Offline Files	33
Section 5-5: Internet Information Services	34
Section 6-1: Installing Printers	35
Section 6-2: Printing Management	36
Section 6-3: Advanced Configuration and Troubleshooting	37
Section 6-4: Faxing	38
Section 7-1: IE Resource Access	39
Section 8-1: Applications and Processes	40
Section 8-2: System Performance	42
Section 8-3: Backup and Recovery	43
Section 9-1: Group Policy	44
Section 9-2: Auditing	46
Section 9-3: Security Templates	47
Section 9-4: IE Security	48
Section 10-1: Installing and Upgrading Windows	49
Section 10-2: Advanced Installation	50

Course Overview

0.0 Introduction to Administering XP

Introduction to Administering XP gives students a look at the XP interface along with a number of important system tools. Students also get a brief look at Active Directory and Group Policy.

1.0 Users and Groups

Users and Groups covers the basic principles involved in managing users. Students learn best-practice skills for organizing users into groups with common needs as well as how to customize Windows XP according to individual needs.

2.0 Installing Hardware

Installing hardware covers hardware usage and management. Students learn how to work with Plug and Play and legacy devices as well as how to allocate system resources among devices, enable devices, disable devices, and troubleshoot devices. Students also learn how to work with drivers by getting driver updates, manually installing driver, and configuring driver signing.

3.0 Networking

Networking covers the principles of networking from TCP/IP configuration to dial-up connections using VPN and other security measures.

4.0 Disk Management

Disk Management covers file system configuration as well as best-practice skills for hard disk organization and maintenance.

5.0 Managing Files

Managing Files covers the features of the NTFS file system. Students learn how to encrypt and compress files as well as how to impose disk quotas for efficient hard disk use.

6.0 Printers

Printers covers basic printing concepts as well as advanced configurations like network and Internet printing.

7.0 IE Resource Access

IE Resource Access explains how to access resource through IE using custom URLs.

8.0 System Optimization

System Optimization explains how to monitor and allocate system resources for maximum system efficiency. Students learn how to use System Monitor to isolate and correct system bottlenecks. Students also learn how to start and stop services. Finally, students learn the principles and practices of system backup and restore procedures.

9.0 System Security

System Security explains how to use Group Policy, auditing, and security templates to ensure system integrity.

10.0 Installation

Installation covers the steps for performing a variety of installations from attended installations from CD-ROM to using an installation image on an RIS server.

Section 0-1: Introduction to Administering XP

Preparation

This section introduces the Windows XP operating system and system tools. You should prepare a Windows XP Professional computer for demonstrations throughout the course. Use this section to introduce XP. You can also use the time to figure out each student's computer competency level. Find out why the students are taking the course, and what other interests in IT they might have.

Windows XP Professional Objectives

501. Configure and manage user profiles and desktop settings.

Vocabulary: Group Policy, Active Directory, Workgroup, Domain

Focus Questions:

- What are the features of Windows XP?
- What is the difference between a domain and a workgroup?
- What is Active Directory?
- What are Group Policies used for?

Time

About 30 minutes

Lecture Tips

- Briefly cover the features of the Windows XP operating system.
- Introduce Group Policy Concepts
- Remind students of basic networking components (this should be review).

Lab/Activity

- Make the Administrative Tools available from the Control Panel

Section 1-1: User Accounts and Preferences

Preparation

This section introduces user accounts, customization options, and accessibility options.

Windows XP Professional Objectives

501. Configure and manage user profiles and desktop settings.

502. Configure support for multiple languages or multiple locations.

- Enable multiple-language support.
- Configure multiple-language support for users.
- Configure local settings.
- Configure Windows XP Professional for multiple locations.

Vocabulary: User preferences, Regional options, Languages, Accessibility features

Focus Questions:

- What does the security identifier (SID) do?
- What regional and language options does Windows XP support?
- How are accessibility options similar to (or different from) preferences set through other Control Panel applets?

Time

About 20 minutes

Lecture Tips

- The most effective way to present all of the available user options is to take a tour of a user's properties on the instructor computer.

Lab/Activity

- Configure multi-language access
- Set accessibility options

Section 1-2: Managing Users

Preparation

This section introduces user account management practices. Create several user accounts with different configurations to demonstrate how to add, delete, modify, and configure user accounts.

Windows XP Professional Objectives

501. Configure and manage user profiles and desktop settings.

703. Configure, manage, and troubleshoot local user and group accounts.

Vocabulary: Built-in user account, Default user account, Predefined user account

Focus Questions:

- What information do you need to create a new user account?
- What is the difference between a local user account and a domain user account?
- When should you disable a user account rather than deleting it?

Time

About 1 hour

Lecture Tips

- Start with the focus questions.
- Students should understand local and domain user accounts.
- Explain the best principles of account management, like password complexity and duration, recycling user accounts, and disabling unused user accounts.

Lab/Activity

- Create user accounts
- Create passwords and password hints
- Reset passwords
- Change user account types
- Enable Fast User Switching
- Enable a user account
- Unlock a user account

Section 1-3: Managing Groups

Preparation

This section teaches students how to manage resources by organizing users into groups with similar requirements. Create a group so that you can demonstrate group management tasks, like adding and deleting members.

Windows XP Professional Objectives

703. Configure, manage, and troubleshoot local user and group accounts.

- Configure, manage, and troubleshoot user and group rights.

Vocabulary: Built-in groups, Implicit groups, Everyone Group, Network Group, Interactive Group

Focus Questions:

- What is the difference between domain and local groups?
- What rights does each built-in (default) group have?
- How does the system use implicit groups for allowing and controlling system access?

Time

About 30 minutes

Lecture Tips

- Students should understand local and domain groups.
- Show students how to create a group.
- The group strategies are the suggested approach to group nesting and assigning permissions. There are often other ways to accomplish the same task. On the exam, students need to know both the suggested (best) approach and approaches that work even if they are not best.
- Students often confuse rights, privileges, and permissions. Open the local security policy and take a look at user rights. Explain user rights. Introduce the concept of permissions.

Lab/Activity

- Modify group membership
- Add a user to a local group
- Create a local group and add members

Section 1-4: User Profiles

Preparation

This section introduces user profiles. Create a shared folder on the instructor's computer that can be used for roaming profiles.

Windows XP Professional Objectives

501. Configure and manage user profiles and desktop settings

Vocabulary: User profile, roaming profile, folder redirection

Focus Questions:

- Where are user profiles stored? How does the system automatically create and manage user profiles?
- What is the purpose of each type of user profile?
- What are the requirements for redirecting folders?

Time

About 30 minutes

Lecture Tips

- Every Windows 2000 user has a user profile. Don't confuse this with hardware profiles.
- Why would you want to redirect My Documents to the network? (This is not obvious, and students often don't make the connection between roaming profiles and document redirection.)
 - My Documents can be very large. When you set up a roaming profile, My Documents is part of that profile and is stored on the server with the profile.
 - When you log on to a new computer, My Documents is downloaded. This can cause a **lot** of network traffic.
 - Redirect My Documents to a network share to prevent this problem.
- Folder Redirection is done with Group Policy. Open a GPO and show students the appropriate settings. Group Policy is covered extensively in the next section.

Lab/Activity

- Configure a user path profile

Section 1-5: Group Policy

Preparation

This section introduces group policy. If your computer environment permits, create a couple example policies to show students during class.

Windows XP Professional Objectives

702. Configure, manage, and troubleshoot security configuration and local security policy.

703. Configure, manage, and troubleshoot local user and group accounts.

- Configure, manage, and troubleshoot account settings.
- Configure, manage, and troubleshoot account policy.
- Configure, manage, and troubleshoot user and group rights.

Vocabulary: Administrative templates, User rights

Focus Questions:

- What is the difference between Group Policy and a user profile?
- What are user rights?
- How can you use Group Policy to customize the desktop or control actions users can perform?

Time

About 45 minutes

Lecture Tips

- Explain the differences between local group policy and Active Directory group policy.
 - All Windows XP computers have a local policy. In a workgroup environment, this is the only type of policy available.
 - AD-based policies are only available if you are running Active Directory. They are stored on domain controllers, and may be linked to sites, domains, and OUs. In a domain environment, the user or computer may be affected by multiple policies.
- The order of policy application is very important (local, site, domain, OU). By default, if a setting is configured by multiple policies, the last setting applied is the effective setting.
- Block Policy Inheritance and No Override are used to change the default behavior when there are multiple policies.

Lab/Activity

- Change user rights
- Customize the Start menu
- Prevent Control Panel access

- Customize display settings
- Force classic style

Section 2-1: Installing Devices

Preparation

This section introduces device installation. If you have access to a USB port and a USB device (e.g., a printer), use it to show the students Plug and Play installation.

Windows XP Professional Objectives

301. Implementing, Managing, Monitoring, and Troubleshooting Hardware Devices and Drivers

- Install, configure, and manage DVD and CD-ROM devices.

304. Implement, manage, and troubleshoot input and output (I/O) devices.

- Monitor, configure, and troubleshoot I/O devices, such as printers, scanners, multimedia devices, mouse, keyboard, and smart card reader.
- Monitor, configure, and troubleshoot multimedia hardware, such as cameras.
- Install, configure, and manage Infrared Data Association (IrDA) devices.
- Install, configure, and manage wireless devices.
- Install, configure, and manage USB devices.
- Install, configure, and manage hand held devices.
- Install, configure, and manage network adapters.
- Install, configure, and manage modems.

Vocabulary: IDE, SCSI, USB, Firewire, wireless, parallel, serial

Focus Questions:

- What may you be required to do manually when installing legacy devices?
- What are the indications that a device has not been properly installed?
- What special considerations exist for installing the following types of hardware: parallel, serial, IDE, SCSI, USB, Firewire, wireless?

Time

About 30 minutes

Lecture Tips

- Show students how to open Device Manager and look at device properties.
- Windows Update is a great tool, however, as an Administrator, you may want to block access to this site. This is done with Group Policy.
 - Demonstrate the GPO creation.
 - Create the GPO and link it to an OU containing some user accounts.
Explain that you don't want to link it to the domain, because this would affect all users, including administrators.

Lab/Activity

- Enable and disable devices

- Install a Plug and Play device
- Remove a device

Section 2-2: Drivers

Preparation

This section introduces drivers. If possible, download a Windows update with new drivers to show the students how to install it.

Windows XP Professional Objectives

305. Manage and troubleshoot drivers and driver signing

Vocabulary: Windows update, Driver signing, Driver rollback, Unsigned drivers

Focus Questions:

- What Windows features help protect system integrity?
- How do you recover a system that has a corrupt driver installed?
- How can you protect a system against unsigned drivers?
- How do you ensure the integrity of existing drivers?

Time

About 30 minutes

Lecture Tips

- Most Windows 2000 installations automatically detect the majority of devices and correctly install drivers. However, you may still need to install the occasional driver manually. You can't rely on Plug-and-Play for everything.
- Driver signing is a great idea because it helps you ensure that your drivers are well tested. In practice, there are a lot of devices that don't have signed drivers. This will cause problems if you decide to block unsigned drivers.

Lab/Activity

- Update a driver
- Configure driver signing

Section 2-3: Managing Devices

Preparation

This section introduces device management practices. Set up a monitor with an 800 x 600 display setting to demonstrate how to adjust the monitor to achieve a more viewable picture.

Windows XP Professional Objectives

302. Implement, manage, and troubleshoot display devices.

- Configure multiple-display support.
- Install, configure, and troubleshoot a video adapter.

303. Configure Advanced Configuration Power Interface (ACPI).

306. Monitor and configure multiprocessor computers.

Vocabulary: Video card, Display applet, Multiple processor support, Device Manager, Hardware abstraction layer (HAL), APM, ACPI, Hibernation, Stand-by

Focus Questions:

- How do the following settings affect how graphics are displayed: color depth, screen size, refresh rate?
- What are the requirements for using multiple monitors?
- What is the HAL and how does it affect multiple processors and power management?
- What conditions must be met to use ACPI?

Time

About 30 minutes

Lecture Tips

- Installation of a single monitor is pretty straightforward. Tie this back to Device Manager.
- Open Display Properties and give show the students the display settings.
- Installing multiple monitors is more complicated. Make sure the adapters are supported.
- Stress troubleshooting. This is the most important aspect for the Professional exam.

Lab/Activity

- Configure display properties
- Configure power settings

Section 2-4: Hardware Profiles

Preparation

This section introduces hardware profiles. If possible, show students how to shut down a computer in hibernation and stand-by modes.

Windows XP Professional Objectives

402. Manage, monitor, and optimize system performance for mobile users.

Vocabulary: Docked, Undocked, Power state

Focus Questions:

- How can hardware profiles simplify device management?
- Why don't laptop users typically need to create multiple hardware profiles?
- Under which conditions should a hardware profile be used?

Time

About 30 minutes

Lecture Tips

- A hardware profile is not the same as a user profile. Hardware profiles tell the computer which devices to start when you boot the computer.
 - Show students how to configure a hardware profile.
- Explain the different power states.
 - Show students the difference between a computer coming out of hibernation mode and standby mode.

Lab/Activity

- Create hardware profiles

Section 3-1: Network Connections

Preparation

This section introduces network connections. Locate your network settings to show the client services and properties.

Windows XP Professional Objectives

602. Connect to computers by using dial-up networking.

Vocabulary: Network components, Clients, Protocols, Services, TCP/IP, NWLink, IPX/SPX, QoS Scheduler, Service Advertising Protocol (SAP), File and Printer Sharing, Client Service for NetWare, Client for Microsoft Networks, Network Monitor Driver

Focus Questions:

- What is the function of each networking component?
- What is a binding?
- What is the networking provider order and print order?

Time

About 45 minutes

Lecture Tips

- Start with an examination of LAN connection properties and discuss the protocols you are running.

Lab/Activity

- Install a client
- Install a networking service
- Uninstall a network component
- Configure the provider and print order

Section 3-2: TCP/IP

Preparation

This section covers TCP/IP configuration and troubleshooting. If student understanding is deficient, or it has been a while since they worked with TCP/IP, consider adding a TCP/IP review day to your lecture schedule.

To determine if you need an IP addressing review, hand out a brief quiz a few class periods in advance of this one. Students should be able to:

- Identify the class of an IP address.
- Identify default subnet masks.
- Given an IP address and subnet mask, identify the host and network address.
- Give IP addresses and subnet masks and determine if two IP addresses are on the same subnet.
- Identify the correct default gateway for a subnet.

Windows XP Professional Objectives

601. Configure and troubleshoot the TCP/IP protocol.

Vocabulary: TCP/IP, subnet mask, IP address, host name, DNS server, WINS server, MAC address, APIPA, Automatic IP Addressing, default gateway, DHCP, Dynamic Host Configuration Protocol, alternate IP address

Focus Questions:

- How does the subnet mask work together with the IP address to identify network and host addresses?
- What are the default subnet masks for each IP address class?
- What does the default gateway do?
- Under which conditions will an XP system use APIPA for its IP address?
- What is the role of ARP in correlating MAC addresses with IP addresses?

Time

About 1 hour

Lecture Tips

- Troubleshooting tip: If you see an IP address starting with 169.254.x.y, the address was obtained by APIPA. That means the client was unable to contact a DHCP server, so it made up its own address.

- Demonstrate the troubleshooting tools. Point out the `/?` Syntax available for most command line commands.
 - `command /?` usually brings up a syntax help screen.

Lab/Activity

- Configure TCP/IP settings
- Configure a client for DHCP
- Configure an alternate IP address

Section 3-3: Name Resolution

Preparation

This section covers name resolution with DNS and WINS. Students need to understand these services for the exam.

Windows XP Professional Objectives

601. Configure and troubleshoot the TCP/IP protocol.

Vocabulary: Name resolution, DNS, WINS, IP address, Local machine

Focus Questions:

- When should you use NetBIOS or DNS names?
- What is the role of DNS and WINS servers in name resolution?
- What are the steps of DNS name resolution?

Time

About 30 hour

Lecture Tips

- Active Directory requires DNS for name resolution. Clients use DNS to locate the AD server for logon authentication. If the client is not configured with the proper DNS address, the client can't connect to the domain.

Lab/Activity

- Configure DNS server addresses
- Configure WINS server addresses

Section 3-4: Dial-up and Direct Connections

Preparation

This section introduces dial-up connections and direct connections. Configure a dial-up connection before class. Use it as an example when you discuss connection properties.

Windows XP Professional Objectives

602. Connect to computers by using dial-up networking.

- Create a dial-up connection to connect to a remote access server.
- Connect to the Internet by using dial-up networking.

Vocabulary: ISDN, Callback security, Multi-link, EAP, CHAP, MS-CHAP, PAP, Authentication protocol

Focus Questions:

- What authentication protocols are supported by Windows XP?
- How does an ISDN modem differ from a standard modem?
- How does the callback option increase dial-up connection security?
- Why can users benefit from configuring a multilink connection?
- What is the difference between a dial-up connection and a direct connection?

Time

About 30 hour

Lecture Tips

- Stress the focus on the client in this section. What are different ways for the client to use dial-up connections?
- Show students the properties of a dial-up connection. Point out the Advanced Security settings. The dial-up connection **must** use a protocol supported by the server.

Lab/Activity

- Create a dial-up connection
- Create a direct connection (Guest)
- Create a direct connection (Host)

Section 3-5: Internet Connections

Preparation

This section covers dial-up connections to the Internet. Create a VPN diagram to hand out or draw on the board.

Windows XP Professional Objectives

602. Connect to computers by using dial-up networking.

- Connect to computers by using a virtual private network (VPN) connection.
- Connect to the Internet by using dial-up networking.

603. Connect to resources by using Internet Explorer.

Vocabulary: VPN, tunneling protocols, L2TP, PPTP, MPPE, IPsec

Focus Questions:

- How does a VPN create a secure network connection?
- What is the role of the tunneling protocol in creating a VPN connection?
- What are the differences between PPTP and L2TP?

Time

About 30 hour

Lecture Tips

- Authentication methods are configured on both the client and the server. For a successful connection, the client and server need to be using a common protocol.
- Use your VPN diagram to help students understand the process. How is the VPN server connected to the Internet? How does the client connect to the Internet? Point out that the client and server could actually be communicating with NWLink. The data between the client and server is encapsulated and sent over the Internet.

Lab/Activity

- Create a dial-up connection to the Internet
- Create a VPN connection

Section 3-6: ICS and ICF

Preparation

This section introduces the Internet Connection Firewall and Internet Connection Sharing. Create a dial-up connection with the firewall active to show the students. Also, prepare an example ICS diagram to hand out in class or present on the board. Show a few computers connected by a hub once computer has a modem connection to an ISP.

Windows XP Professional Objectives

602. Connect to computers by using dial-up networking.

- Configure and troubleshoot Internet Connection Sharing (ICS).

606. Configure, manage, and troubleshoot an Internet Connection Firewall (ICF).

Vocabulary: ICF, ICS, Ports, HTTP, HTTPS, Remote Desktop

Focus Questions:

- How can multiple computers share a single Internet connection?
- What are the TCP/IP settings of an ICS system?
- What is a firewall and how does it protect your computer?
- What are the port numbers for common TCP/IP services?
- What ports would you want to enable after configuring an ICF? Why?

Time

About 30 hour

Lecture Tips

- Show students the properties of a dial-up connection. Point out the ICF option and its settings.
- ICS is very handy in a small home office network. It is not intended for use in any reasonably large business.
- Present the ICS diagram. Walk through the network configuration. What is the IP address of the NIC in the ICS computer? What is the IP address of the modem in this computer? Where is the DNS server for the ICS computer? What are the IP addresses of the other computers? Their subnet masks? What is their default gateway? Their DNS server?
- Don't use ICS if your network is already running DHCP or DNS.
- Show students how to enable ICS and ICF.

Lab/Activity

- Share an Internet connection
- Enable ICF for a connection
- Add and open a port in ICF

Section 3-7: Remote Services

Preparation

This section introduces Remote Assistance and Remote Desktop. Familiarize yourself with the remote services settings and configurations so that you can show the students how to use the services.

Windows XP Professional Objectives

605. Configure, manage, and troubleshoot Remote Desktop and Remote Assistance.

Vocabulary: Remote desktop, Remote assistance

Focus Questions:

- How does the Remote Assistance process work?
- What problems can arise during a Remote Assistance session?
- What operating systems support Remote Assistance and Remote Desktop (either as clients or servers)?
- How does a user retain control of a Remote Assistant session?
- What port must be opened to allow Remote Desktop to run through the firewall?

Time

About 30 hour

Lecture Tips

- Diagram the Remote Assistance process. Who has responsibility for sensitive data? How can it be protected? Explain that the person who sent the invitation can terminate the connection at any time for any reason.
- Discuss the difference between Remote Assistance and Remote Desktop.
- Discuss the uses Remote Desktop. What are its advantages? What are its disadvantages?

Lab/Activity

- Enable Remote Desktop through ICF

Section 4-1: File Systems

Preparation

This section introduces FAT, FAT32, and NTFS. If possible, prepare disk drives with each type of file system. Show the compression, quota, and permissions settings in the Local Disk Properties dialog box of the NTFS volume.

Windows XP Professional Objectives

204. Configure and manage file systems.

- Convert from one file system to another file system.
- Configure NTFS, FAT32, or FAT file systems.

Vocabulary: FAT, FAT32, NTFS, Convert.exe, Format, Quota, Encryption, Permissions, Clusters

Focus Questions:

- What advantages does NTFS have over FAT and FAT32?
- What file systems are supported by which Windows operating systems?

Time

About 45 minutes

Lecture Tips

- Explain FAT, FAT32, and NTFS. Emphasize the features of NTFS.
- Explain how to use the Convert command to implement an NTFS file system. Make sure to explain that Convert works only one way. It does not convert NTFS to FAT or FAT32.
- Discuss cluster size. How does cluster size affect the file system decision? (Large clusters are better for large files and programs, but large clusters leave a lot of *slack* space—unused disk space—when working with large numbers of smaller files.)
- Introduce NTFS permissions. Cover the basic permissions. (Permissions are covered in-depth in section 5-2.)
- Introduce the concept of dual booting. Explain how a system can use multiple operating and file systems.

Lab/Activity

- Format a Drive
- Convert a Drive

Section 4-2: Partitions and Volumes

Preparation

This section covers disk management. Prepare a basic disk and show the options for converting it and managing it in Disk Management.

Windows XP Professional Objectives

204. Configure and manage file systems.

- Convert from one file system to another file system.
- Configure NTFS, FAT32, or FAT file systems.

Vocabulary: Disk, Basic disk, Dynamic disk, Volume, Partition, Simple volume, Extended volume, Spanned volume, Striped volume, RAID volume, Mirrored volume

Focus Questions:

- What type of disk uses volumes?
- How does a spanned volume work?
- What is the purpose of a striped volume?
- What must you do first before extending a volume or creating a spanned or mirrored volume?

Time

About 1½ hours

Lecture Tips

- Demonstrate Disk Management. Convert a basic disk to a dynamic disk. Create some partitions.
- Stress the slightly different vocabulary used with basic and dynamic disks. Understanding the vocabulary can give the student big hints to the correct solution on the certification exams.
- Explain fault tolerance. What exchanges do you make to achieve fault tolerance? Which disk configurations are fault tolerant? (Spanned volumes and striped volumes improve performance, but they're not fault tolerant. Mirrored and RAID volumes, but these disk types are only supported on server versions of Windows.)

Lab/Activity

- Create a primary partition
- Create a logical drive
- Convert a disk to dynamic
- Convert a disk to basic
- Create a simple volume
- Create a spanned volume
- Create a striped volume

- Extend an existing volume

Section 4-3: Additional Configuration

Preparation

This section covers additional disk management practices. If possible, prepare a dual boot system with multiple file systems. Prepare a few ARC path examples to present in class.

Windows XP Professional Objectives

201. Monitor, manage, and troubleshoot access to files and folders.

- Optimize access to files and folders.

301. Implement, manage, and troubleshoot disk devices.

- Monitor and configure disks.
- Monitor, configure, and troubleshoot volumes.

Vocabulary: Volume mount point, ARC path, Boot.ini, SCSI, Rdisk

Focus Questions:

- What are the requirements for a volume mount point?
- What are the advantages of a multiboot system?
- How does the system use the ARC path in the Boot.ini file to locate the operating system at startup?

Time

About 45 minutes

Lecture Tips

- Explain how to use volume mount points to manage disk space.
- When explaining ARC paths, open boot.ini on the instructor computer and show the ARC path.
- Show how to select an operating system on a dual booting computer.

Lab/Activity

- Configure disks for multiboot

Section 5-1: Compression, Encryption, and Quotas

Preparation

This section covers the compression, encryption, and quota features of the NTFS file system. Prepare some folders and files for use during the lecture.

Windows XP Professional Objectives

201. Monitor, manage, and troubleshoot access to files and folders.

- Configure, manage, and troubleshoot file compression.

701. Configure, manage, and troubleshoot Encrypting File System (EFS)

Vocabulary: Compression, Zipped files, Compact.exe, Encryption, EFS, Recovery agent, Disk quotas, Fsutil, Secret key encryption, Public key encryption

Focus Questions:

- What is the difference between compressed and zipped files?
- What happens to a compressed file when it is moved to a FAT partition?
- What happens to a compressed file when it is copied?
- What can't you do with a compressed file?
- What happens when you move an unencrypted file to an encrypted folder on the same partition?
- What happens when you move an encrypted file to a compressed folder?
- Where do you set a quota?
- What do you have to do before deleting a quota entry for a user?

Time

About 1 hour

Lecture Tips

- Data compression and EFS encryption are mutually exclusive. You can compress the file or encrypt it, but not both.
- Demonstrate compressing and encrypting files and folders.
- Show students how to set a default quota and how to set individual quotas.
- If you don't want to use the same disk quota for all users, quotas are set on a per user basis. That means you can't assign a quota to members of a group. For more sophisticated quota management, consider third party solutions.

Lab/Activity

- Compress a drive
- Compress a file or folder
- Encrypt a file or folder

Section 5-2: NTFS Permissions

Preparation

This section covers NTFS Permissions. Prepare some NTFS permissions examples to present on the board.

Windows XP Professional Objectives

201. Monitor, manage, and troubleshoot access to files and folders.

- Control access to files and folders by using permissions.

Vocabulary: NTFS permissions, Full control, Modify, Read, Write, List folder contents, Read and Execute, Allow, Deny, File ownership

Focus Questions:

- What type of access does each NTFS permission allow?
- How do Allow and Deny permissions work together?
- By default, what NTFS permissions are assigned when adding a user or group to the ACL?
- How should you assign permissions?
- What are inherited permissions?
- How does the difference between assigned and effective permissions affect user actions?

Time

About 1 hour

Lecture Tips

- Students are often confused when multiple NTFS permissions apply. Present your examples and have students work through them.
- Demonstrate setting NTFS permissions on files and folders. Show how deny overrides allow.
- Discuss how file ownership affects permissions.
- When discussing how copy and move effect NTFS permissions, point out that there is only one case where NTFS permissions are retained – when you move a file or folder within an NTFS partition. (Of course, when you copy or move to FAT you lose NTFS permissions.)

Lab/Activity

- Configure NTFS permissions

Section 5-3: Shared Folders

Preparation

This section covers shared folder management. Prepare some combined NTFS and share permission examples to present on the board.

Windows XP Professional Objectives

201. Monitor, manage, and troubleshoot access to files and folders.

- Optimize access to files and folders.

202. Manage and troubleshoot access to shared folders.

- Create and remove shared folders.
- Control access to shared folders by using permissions.

Vocabulary: Read, Change, Full Control, Shared folders, Administrative share, Share permissions, UNC path

Focus Questions:

- What is the purpose of a shared folder?
- What are the characteristics of an administrative share?
- What are the differences between share permissions and NTFS permissions?
- When share permissions and NTFS permissions are set on a folder, which set of permissions will apply to a user who accessed the folder?

Time

About 1½ hours

Lecture Tips

- The basic concept of shared folders is usually pretty straightforward. Show the students how to share a folder and then take a look at the properties.
- Combining share and NTFS permissions is a difficult topic. Do plenty of examples. Stress the three-step approach.
 - Calculate the effective share permission – **least** restrictive but Deny overrides.
 - Calculate the effective NTFS permission – **least** restrictive combination but Deny overrides.
 - Then compare the permissions calculated in the first two steps and take the **most** restrictive.

Lab/Activity

- Share a folder
- Share a folder with a new name
- Configure user limits
- Map a drive to a shared folder

- Access a shared folder

Section 5-4: Offline Files

Preparation

This section covers relevant to mobile computers. Set up a share on the instructor's server that will be available for offline files.

Windows XP Professional Objectives

205. Manage and troubleshoot access to and synchronization of offline files.

Vocabulary: Offline files, file caching

Focus Questions:

- Why would you choose manual caching over automatic caching?
- How do you ensure that files in the share are kept current?
- How can you protect offline files?
- What XP feature will prohibit use of offline files?

Time

About 30 minutes

Lecture Tips

- Troubleshooting tip: Make sure you have enabled offline support on the file server that is hosting the share containing the files that clients want to use offline.
- Open Folder Options and show students the Offline Files tab. Demonstrate automatic synchronization.

Lab/Activity

- Configure shared folder cache settings
- Disable offline caching for a shared folder

Section 5-5: Internet Information Services

Preparation

This section introduces the use of Internet Information Services on a Windows XP Professional computer. Install IIS on the instructor machine. Share a Web folder to show how to access content through Internet Explorer.

Windows XP Professional Objectives

202. Manage and troubleshoot access to shared folders.

- Manage and troubleshoot Web server resources.

604. Configure, manage, and implement Internet Information Services (IIS).

Vocabulary: Active Desktop, Internet Printing

Focus Questions:

- What services can you use IIS to enable?
- Where is Web content stored?
- What is a virtual directory?
- How can you access a Web share folder?

Time

About 30 minutes

Lecture Tips

- Use your IIS installation to demonstrate Web site and Web server properties.
- Discuss changes made to the system during IIS installation (`\inetpub\wwwroot`).
- Create a share in the `\inetpub\wwwroot` folder. Have the students access the share through Internet Explorer.

Lab/Activity

- Install IIS and manage Web content and directories

Section 6-1: Installing Printers

Preparation

This section covers printer installation. Be familiar with the print terms and their meanings.

Windows XP Professional Objectives

203. Connect to local and network print devices.

- Manage printers and print jobs.
- Connect to an Internet printer.
- Connect to a local print device.

Vocabulary: Printer, Print device, Print queue, Print server, Print driver, Printer port, Lpd, Lpr, Lpq

Focus Questions:

- What is the difference between a print device and a printer?
- What is the function of the print server?
- When configuring a printer, what port would you select for each of the following configurations:
 - To connect to a network-attached printer through its IP address.
 - To connect to a printer connected to the parallel port.
 - To connect to a printer connected to another Windows computer.
- How does Windows XP support UNIX printers and clients?
- What is the role of LPR, LPD, and LPQ in printing?

Time

About 45 minutes

Lecture Tips

- Make sure you go over the printing terms. Microsoft uses terms differently than the common usage.
- Demonstrate the Add Printer wizard.
- Install printers on student computers fairly early in the lecture. Students can look at the different properties and configurations on their own computers.

Lab/Activity

- Install a Plug and Play printer
- Manually install a printer
- Configure a network interface printer
- Create a custom TCP/IP port
- Add a network printer
- UNIX printing

Section 6-2: Printing Management

Preparation

This section covers print management tasks. Install printers in various configurations to show how to manage print jobs under varying conditions.

Windows XP Professional Objectives

203. Connect to local and network print devices.

- Manage printers and print jobs.
- Control access to printers by using permissions.

Vocabulary: Job priority, Notification, Spooling

Focus Questions:

- What do the printer permissions allow?
- Where do you manage print drivers and print spools?
- Where do you enable or disable printer notification?
- What management tasks must be performed in the print queue?

Time

About 45 minutes

Lecture Tips

- Discuss printer sharing and configuring security through permissions.
- Explain the printer permissions. What does each permission allow or prohibit?
- Discuss print spooling. What is it? How is it managed?

Lab/Activity

- Install a Plug and Play printer
- Manually install a printer
- Configure a network interface printer
- Create a custom TCP/IP port
- Add a network printer
- UNIX printing

Section 6-3: Advanced Configuration and Troubleshooting

Preparation

This section covers advanced print management tasks like print job priority, printer pooling, and print job redirection.

Windows XP Professional Objectives

203. Connect to local and network print devices.

- Manage printers and print jobs.
- Control access to printers by using permissions.

Vocabulary: Priority, Availability, Printer pooling, Time restrictions

Focus Questions:

- Why would you use print pooling?
- How can multiple printers represent a single print device?

Time

About 45 minutes

Lecture Tips

- Show the students how to create a printer pool.
- To demonstrate how job priorities work, create two printers for the same print device. Configure one printer so that everyone can print. Give it a low priority. Create a Management group. Configure the second printer so that only members of Management can print. Give it a high priority.
- Discuss the steps for diagnosing print problems. What are common print problems? How can they be resolved?

Lab/Activity

- Configure printer pooling
- Configure printer availability
- Set printer priorities
- Redirect print jobs to another local printer
- Redirect print jobs to a shared printer

Section 6-4: Faxing

Preparation

This section covers fax configuration, use, and troubleshooting. If possible, install a fax machine on the instructor's local machine.

Windows XP Professional Objectives

203. Connect to local and network print devices.

Vocabulary: TSID, CSID, Routing, Fax console

Focus Questions:

- What are the steps for setting up fax services on a system?
- What is the TSID and the CSID?
- Why might a fax device not answer incoming faxes?

Time

About 30 minutes

Lecture Tips

- Show the Fax Configuration wizard. Discuss the information you must supply.
- Discuss the steps for sending a fax. How do they differ from printing?

Lab/Activity

- Configure fax information

Section 7-1: IE Resource Access

Preparation

This section covers resource access through Internet Explorer. Diagram some custom URL examples and have students identify what each element means.

Windows XP Professional Objectives

203. Connect to local and network print devices.

Vocabulary: FTP, HTTPS, SSL, URL, Custom port

Focus Questions:

- What types of resources can be accessed through Internet Explorer?
- What is the syntax for an SSL connection?
- How do you supply the user name and password for an FTP site requiring both for access?

Time

About 30 minutes

Lecture Tips

- Discuss the advantages of accessing resources through Internet Explorer.
- Discuss the various ways to authenticate to a secure Web-based resources.

Lab/Activity

- Identify custom URLs

Section 8-1: Applications and Processes

Preparation

This section covers system optimization through efficient application and process management. Use Task Scheduler to schedule a task to run automatically (disk defragmenter, for example). If possible, copy an installation package to a share on the instructor's computer. Collect examples of MSI, MST and MSP files. Windows 2000 Office and XP Office both have Windows installer packages. Typically, the Resource Kit for these products have tools for creating MST files, and MSP files (patches) can be downloaded from the Microsoft Web site.

Windows XP Professional Objectives

401. Monitor, optimize, and troubleshoot performance of the Windows XP Professional desktop.

- Optimize and troubleshoot application performance.
- Configure, manage, and troubleshoot Scheduled Tasks.

503. Manage applications by using Windows Installer packages.

Vocabulary: Compatibility, Ntvdm, 16-bit, Task Manager, Tskill, Tasklist, Task Scheduler .Msp, .Msi, .Mst, .Zap, Transform, Assign, Publish

Focus Questions:

- How does Windows use the WOW and NTVDM to run 16-bit applications?
- How can you control the speed at which a process gets to the processor?
- What are the ways you can run an application automatically when the system starts?
- What is each type of installation file used for?

Time

About 1½ hrs.

Lecture Tips

- Show the students Task Scheduler and the scheduled task. Open the task. Explore the advanced settings.
- Open Task Manager and explore the tasks currently running on the system. Show the students the resources that each task is consuming.
- Open the Services MMC. Show students the different states for each service (i.e., started, stopped, paused). Open the properties of a task. Explore the settings, including the Startup type options.
- Students need to understand the different types of files used with Windows installer packages. If you have access to a Windows installer package, point out the different files. If you are using Office, create a transform file with the Custom Installation Wizard.

Lab/Activity

- Restart a service
- Change the service startup type
- Modify the service logon account
- Configure service recovery options

Section 8-2: System Performance

Preparation

This section covers system optimization through resource management.

Windows XP Professional Objectives

401. Monitor, optimize, and troubleshoot performance of the Windows XP Professional desktop.

- Optimize and troubleshoot memory performance.
- Optimize and troubleshoot processor utilization.
- Optimize and troubleshoot disk performance.

402. Manage, monitor, and optimize system performance for mobile users.

Vocabulary: Fragmentation, Defragment, Event, Paging file, Bottlenecks, Counters, Objects

Focus Questions:

- How does disk defragmentation improve system performance?
- What is the page file?
- What bottlenecks can monitoring major system objects reveal?
- What is the purpose of hibernation on a mobile system?

Time

About 45 minutes

Lecture Tips

- Open the System Monitor (in the Performance MMC). Show the students how to observe and interpret the resource usage.
- Open Event Viewer. Show students the various events that occur within the system. Explore some event properties to diagnose problems or get more information.
- Shut a computer down in hibernate mode. Start it back up. Shut the computer down in Standby mode. Start it back up. Discuss the differences with the students.

Lab/Activity

- Clear and save an event log
- Configure event log properties
- Reset event log properties

Section 8-3: Backup and Recovery

Preparation

This section introduces the methods for preserving data and restoring data after a system failure.

Windows XP Professional Objectives

301. Implement, manage, and troubleshoot disk devices.

- Monitor and configure removable media, such as tape devices.

403. Restore and back up the operating system, System State data, and user data.

- Recover System State data and user data by using Windows Backup.
- Troubleshoot system restoration by starting in safe mode.
- Recover System State data and user data by using the Recovery Console.

Vocabulary: Backup, Full, Incremental, Differential, Copy, Archive bit, Media pool, Removable storage, Operators group, Media modes, Bi-directional control, System failure, Safe mode, Driver rollback, Recovery console, System restore

Focus Questions:

- When should you back up system state data?
- What actions do each of the different types of backups perform?
- Which backup types are typically combined to form a backup strategy?
- Which strategy backs up data the fastest? Which restores data the fastest?
- Why should you periodically test your backups?

Time

About 30 minutes

Lecture Tips

- As you explain the different backup methods, discuss the local backup techniques. Do you use Windows backup or third party software? Why? What is your backup strategy?
- Demonstrate Windows Backup.

Lab/Activity

- Backup and restore data

Section 9-1: Group Policy

Preparation

This section introduces system security by covering the use of Group Policy. If your computer environment permits, create a couple example policies to show students during class.

Windows XP Professional Objectives

702. Configure, manage, and troubleshoot security configuration and local security policy.

703. Configure, manage, and troubleshoot local user and group accounts.

- Configure, manage, and troubleshoot account settings.
- Configure, manage, and troubleshoot account policy.
- Troubleshoot cache credentials.

Vocabulary: Account, Password, Cache, Reversible encryption, Security

Focus Questions:

- GPOs can be linked to which objects?
- How are GPO settings inherited in Active Directory?
- When multiple GPOs apply to a single object, which settings get applied?
- How do the password policy settings function to secure a system?

Time

About 45 minutes

Lecture Tips

- Stress the difference between a local policy and an Active Directory-based policy.
 - All Windows XP Professional computers have a local policy. In a workgroup environment, this is the only type of policy available.
 - Active Directory-based policies are only available if you are running Active Directory. They are stored on domain controllers, and may be linked to sites, domains, and OUs. In a domain environment, the user or computer may be affected by multiple policies.
- The order of policy application is very important (local, site, domain, OU). By default, if a setting is configured by multiple policies, the last setting applied is the effective setting.
- Block Policy Inheritance and No Override are used to change the default behavior when there are multiple policies.

Lab/Activity

- Configure password restrictions
- Configure account lockout restrictions
- Prevent automatic account unlock

- Hide the last user logon name

Section 9-2: Auditing

Preparation

This section covers auditing as a means to achieve system security.

Windows XP Professional Objectives

703. Configure, manage, and troubleshoot local user and group accounts.

- Configure, manage, and troubleshoot auditing.

Vocabulary: GPO, Security log, Event viewer, Events

Focus Questions:

- Why should you limit the events you audit?
- What events can you track in each of the audit categories?

Time

About 45 minutes

Lecture Tips

- Show students how to create an audit policy.
 - Most audit events only require that you turn auditing on. However, their auditing file and printer access requires more work. You have to turn auditing on **and** select the files, folders, or printers that you want to monitor.
 - Show students how to enable file and printer auditing.

Lab/Activity

- Enable auditing
- Audit unsuccessful logons

Section 9-3: Security Templates

Preparation

This section covers the use of security templates to secure a system. Become familiar with the Security Configuration and Analysis tool.

Windows XP Professional Objectives

702. Configure, manage, and troubleshoot security configuration and local security policy.

Vocabulary: Basic, Securews, Hisecurews, Compatws, Secedit

Focus Questions:

- What are the naming conventions for the different types of security templates?
- What is the command and syntax to analyze security templates?

Time

About 45 minutes

Lecture Tips

- Discuss the use of security templates in establishing a consistent pattern of security policy enforcement.
- Explain the use of the predefined security templates. How does a predefined template make system security easier?
- Use the Security Configuration and Analysis tool to examine one of your own templates. Discuss the results with the students.

Lab/Activity

- Enable auditing
- Audit unsuccessful logons

Section 9-4: IE Security

Preparation

This section covers ways to secure Internet Explorer. Familiarize yourself with the IE security options, especially zones, cookies, and certificates.

Windows XP Professional Objectives

704. Configure, manage, and troubleshoot Internet Explorer security settings.

Vocabulary: Cookie, Security zone, Internet zones, Trusted sites, Restricted sites, Certificate Authority (CA), Root CA, Trusted Root, Certificates, IE

Focus Questions:

- What types of sites do you find in the different security zones?
- How do the different privacy settings for cookies affect Web browsing?
- What types of certificates does IE keep track of?

Time

About 45 minutes

Lecture Tips

- Discuss the different security zones. How does this division help establish safe security practices for IE?
- Explain the purpose of cookies. Discuss with the students why companies might want to restrict cookies from being set against IE in their organization.
- Certificates confirm the identities of entities on the Internet. Explain how to use certificates. Discuss how students can verify the validity of certificates.

Lab/Activity

- Add a trusted site
- Add a restricted site
- Modify intranet zone membership
- Customize zone settings
- Change the cookie level
- Customize cookie handling
- Customize advanced browser settings
- Improve browser performance
- Configure browser security

Section 10-1: Installing and Upgrading Windows

Preparation

This section covers Windows XP Professional installations and upgrades. Ideally, students will practice a few installations of their own. This may not be practical during lab as it typically takes well over 30 minutes to complete an installation.

Windows XP Professional Objectives

101. Perform and troubleshoot an attended installation of Windows XP Professional.

103. Upgrade from a previous version of Windows to Windows XP Professional.

- Prepare a computer to meet upgrade requirements.
- Migrate existing user environments to a new installation.

104. Perform post-installation updates and product activation.

Vocabulary: Installation, Winnt.exe, Winnt32.exe, Activation, System requirements, Upgrade, Checkupgradeonly, Files and Settings Transfer Wizard, Loadstate, Scanstate

Focus Questions:

- Which Windows operating systems provide an upgrade path to XP?
- What steps can you take to preserve system settings for an upgrade?
- What switches allow you to use update files during an installation?

Time

About 1 hour

Lecture Tips

- When discussing preparation, stress the importance of “pre-qualifying” the computers. In a business environment, you don’t want to start a large rollout and then discover that some of the computers are incompatible with Windows XP Professional.
- Introduce basic installation methods: CD-based, network installations, disk duplication, and RIS. Stress that installations may be attended, or unattended, but also stress that this section focuses on attended installations.
- If possible, have the students install Windows XP Professional as you discuss the installation process.
- Final thought for network and CD-based installations – How do you start the installation? You can boot with the CD or boot with the startup floppy disks. For over the network, you need to connect to the share and then run Winnt or Winnt32.

Lab/Activity

- Transfer files and settings

Section 10-2: Advanced Installation

Preparation

This section covers Windows XP Professional automated and network installations. Familiarize yourself with Setup Manager.

Windows XP Professional Objectives

102. Perform and troubleshoot an unattended installation of Windows XP Professional.

- Install Windows XP Professional by using Remote Installation Services (RIS).
- Install Windows XP Professional by using the System Preparation Tool.
- Create unattended answer files by using Setup Manager to automate the installation of Windows XP Professional.

105. Troubleshoot failed installations.

Vocabulary: RIS, Rbfg, Riprep Sysprep.exe, Setupcl.exe, Sysprep.inf, Unattend, Image, Debug, Sfc, Revert, Uninstall, Spuninst

Focus Questions:

- What types of files do you need for an unattended installation?
- What services must an RIS server run to perform a remote installation?

Time

About 45 minutes

Lecture Tips

- While your students watch, create an Unattend.txt file using Setup Manager.
- Discuss the requirements for running an RIS server.
- Explain the Debug command and each of its switches. Discuss other troubleshooting tools, and the types of errors users may encounter during installation.

Lab/Activity

- Unattended installation preparation
- Troubleshoot installation problems