



Title: IT: Basic Training

Date: August 26th, 2009/Wednesday
8:00a-12:00p

Location: Mid-State Technical College
Room A-237

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Description: IT: Basic Training session is designed for business and industry employees who have administrative duties, office management, or supervisory responsibilities with limited or entry level technology skills. The session will include sections on security, software, web development, and hardware/networking. The Hardware/Connectivity section will include terminology and a basic demonstration of various hardware components. It will also include a demonstration of digital data storage devices including flash drives and digital cameras. The Software section will focus on flexibility of digital documents with various file formats and licensing. The Security section will feature a Disaster Recovery Plan template and a discussion on the legal requirements of a business regarding security. In the Web Development section, attendees will create a basic web site and explore various development tools.

Introduction

Business Division Associate Dean
Coordinator for Marketing & Information Technology Programs
Adhoc Counselor (E-Commerce) & Author of “Business on the Web Series”
Small Business Development Center; University of Wisconsin-Stevens Point
Consultant
Competitive Edge Computer Consulting; Stevens Point, WI
Experience
25 Years Marketing & Computer Industries
Department Manager for growing Internet/E-Commerce Business
Co-developed and support POS program for group of radio stations

Hardware/Connectivity

What is a Computer? (Hardware Activity)

<http://www.kids-online.net/learn/click/table.html>

- Electronic device that accepts instructions to¹:
 - Accept input
 - Process data
 - Produce output
 - Store data
 - Communicate with other computers

Input Devices

- Allow computer users to control and send data to computer
- Two most common: keyboard and mouse
- Others: trackball, touchpad, scanner, microphone, digital cameras, etc

Output Devices

- Monitors
 - Use small dots of light called *pixels* to create detailed, colorful images
 - Number of pixels available is called the monitor's *resolution*
 - Typical resolution today is 800 x 600 or 1024 x 768 or 1280 x 1024 pixels
 - Connects to computer via a *graphics card* or *video display adapter*
 - LCD: liquid crystal display
 - Special, light display technology used in laptops and flat screen monitors
 - Size measured by diagonally measuring screen.
 - Most today are **at least** 15, 17 or 19 inches. Larger sizes becoming common
- Printers
 - Speed measured in *pages per minute (ppm)*
 - Laser
 - Uses copier-like technology to place toner on paper
 - High quality black and white output
 - Expensive color output
 - Ink-jet
 - Sprays small dots of liquid ink to form text and images
 - Inexpensive color printing
 - Photo quality images now possible

Processing Components

- Bits and Bytes
 - Computers can only process 1's and 0's
 - Each 1/0 is referred to as a *bit*
 - Bits are usually combined in groups of 8 to form *bytes*
 - One byte is roughly equivalent to one character
- Microprocessor
 - Also known as CPU: central processing unit
 - *Brain* of the computer
 - Executes instructions
 - Does calculations
 - Speed measured in MHz (megahertz) or GHz (gigahertz)
 - Hz - Cycles per second, where each cycle is roughly one instruction
 - Megahertz: millions of cycles (instructions) per second
 - Gigahertz: billions of cycles (instructions) per second
 - Typical today: 800 MHz – 4 GHz
- Memory
 - Often referred to as RAM: random access memory
 - **Temporary** storage of instructions and data
 - Everything the CPU needs must be stored in RAM first
 - Volatile: data/instructions only available while computer has power. Data/instructions lost when computer is turned off.
 - Computer memory is measured in **gigabytes** (GB) or **megabytes** (MB)
 - Giga means *billions*
 - Mega means *millions*
 - Typical RAM amount in a computer today: 512 MB, 1 GB or more
 - Cache (pronounced *cash*)
 - A small amount of high speed memory used to speed up the transfer of data from RAM to the CPU

Storage Devices

- Computers need storage devices in addition to RAM because RAM is temporary. These storage devices permanently store data.
- Files
 - Everything stored on a storage device is stored in a file
 - File is a named collection of data or instructions
 - Data files store data used by programs
 - Document files store *documents* created by other programs (including spreadsheets, pictures, databases, etc)
 - Executable files contain instructions, programs.
- Hard Drive
 - Built in to the main processor box (not portable)

- High speed. Typically, data can be found within 10 ms (milliseconds, 1000th of a second).
- High Capacity: most hard drives store **gigabytes** (billions of bytes) of data. Typically 80 - 500 GB.
- External hard drives that process with similar speeds can now be connected via USB
- CD-ROM
 - Portable, high capacity storage device (looks like a music CD)
 - 680 MB of storage per disk
 - CD-ROM is *read-only*; can't change or add to what's on the disk
 - Slower than hard drive: access time around 150 ms.
- CD-R, CD-RW
 - CD-R (recordable) can write your own data to the CD **once**
 - CD-RW (rewritable) can write, delete, change data on CD just like a hard drive (significantly slower than a hard drive though)
- DVD
 - Digital Versatile Disk (or Digital Video Disk)
 - Size of a CD with huge capacity (4.7 GB to 17GB)
 - Store entire movies, home movies or large software installations
 - DVD-RW can write, delete change data on DVD
- Flash Drive (aka Thumb/Pen Drive)
 - Small chip attached to a USB (Universal Serial Bus) connector
 - Chip stores data permanently, until you erase it.
 - Very portable (only about the size of a pack of gum)
 - USB ports (to plug flash drive into) available on most computers
 - Capacity: 256MB, 512MB, 1GB, 2GB, 4GB, 8 GB, 16GB, 32 GB, 64 GB
 - Typically, 1, 2 or 4 GB

Why Use a USB Flash Drive?

Practical applications of USB flash drives (also called jump drives, pen drives and thumb drives):

- **Synchronize Computers** – Applications allow you to sync computers. Whether you're a student, business personal, someone who enjoys traveling or anyone who uses multiple computers. Syncing computers save time and allow you to take your work with you.
- **Virtual Applications Platforms** – You can enjoy your preferences, favorites, email and more on any computer. None of your personal information is stored on the computer so when you're done, you won't leave a trace.
- **Carry Your Media** – You can take your photos, music and videos with you. Many photo labs accept USB drives for easy development.
- **Security** – USB flash drives can be password protected and the information encrypted. You can also use the drive as a key to your computer.

What to Look for in a USB Flash Drive

USB flash drives come in all shapes, sizes, storage capacities and prices. Before you purchase a thumb drive, assess your needs and wants. Then choose the drive that best fits your criteria. Below are the criteria TopTenREVIEWS used to evaluate USB Flash Drives.

- **Product Features** – USB flash drives should have practical features such as retractable USB connectors or swivel caps. The drive may also come with a lanyard or keychain or be water resistant.
- **Included Software** – Some jump drives come with preinstalled applications. Common software includes security programs, sync tools and virtual application platforms.
- **Value** – Flash drives vary a lot in price. The best drives for your money offer more storage for less money.
- **Support/Warranty** – Manufacturers should provide first-class customer service through online documentation like FAQs or a knowledgebase, and customers should be able to reach customer support by phone or email. A lifetime warranty ensures you'll have your drive for years to come.

Source: <http://usb-flash-drive-review.toptenreviews.com/>

- Flash Cards
 - Come in different forms
 - Most often used in digital cameras
 - SD (Secure Digital) most common
 - Compact Flash, Memory Stick, xD forms also common
 - Flash cards store memory like a flash drive, have a capacity
 - Capacity typically 1GB – 16GB
 - Many new computers come with flash card readers installed
 - Can also buy multiform (7 in 1) flash card readers that connect to USB port
- Floppy Disks
 - Portable and inexpensive
 - Low capacity: 1.44 MB
 - Because of low capacity, rarely used today

PC Component History (Intel Atom 270)

http://www.maximumpc.com/article/features/the_50_most_important_pc_components_modern_computing_era?page=0%2C6

Types of Networks (Lab Activity)

LAN

Local Area Networks or LANs are a network of computers that span a relatively small space. Most LANs are in an office or home, connecting a series of PCs together. Each computer on the network is called a node, has its own hardware and runs its own programs like any normal PC, but they can also access any other data or devices

connected to the LAN. Printers, modems and other devices can also be separate nodes on a LAN.

ETHERNET

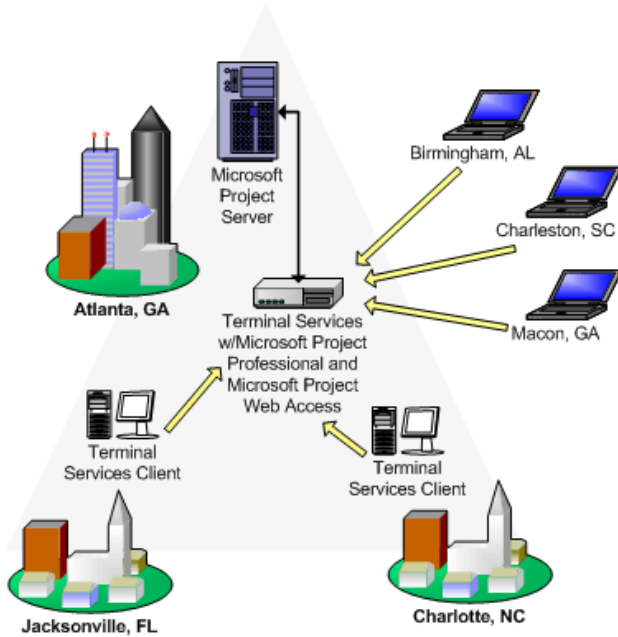
Ethernet is a type of LAN. It is more or less a LAN protocol developed by Xerox Corporation in 1976. The original supported transfer rates of 10 Mbps. A newer version of Ethernet, called 100Base-T (or Fast Ethernet), supports data transfer rates of 100 Mbps.



SimpleLAN.gif

WAN

Wide Area Network or WAN is a network that spans a larger area. It consists of two or more LANs connected to each other via telephone lines or some other means of connection.

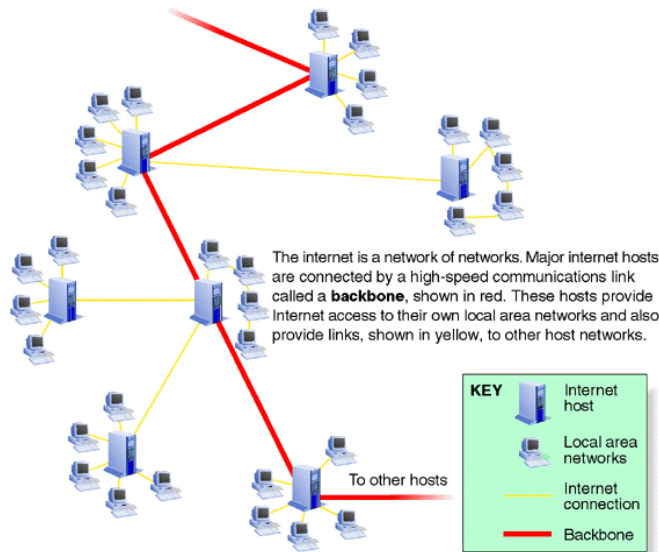


WAN.gif

INTERNET

The Internet is a system of linked networks that are worldwide in scope and facilitate data communication services such as remote login, file transfer, electronic mail, the World Wide Web and newsgroups. With the meteoric rise in demand for connectivity, the Internet has become a communications highway for millions of users.

Network of Networks



Internet.GIF

Network Architecture

Peer-to-Peer Network

With this networking configuration, there is no server, and computers simply connect with each other in a workgroup to share files, printers, and Internet access. This is most commonly found in home configurations, and is only practical for workgroups of a dozen or less computers.

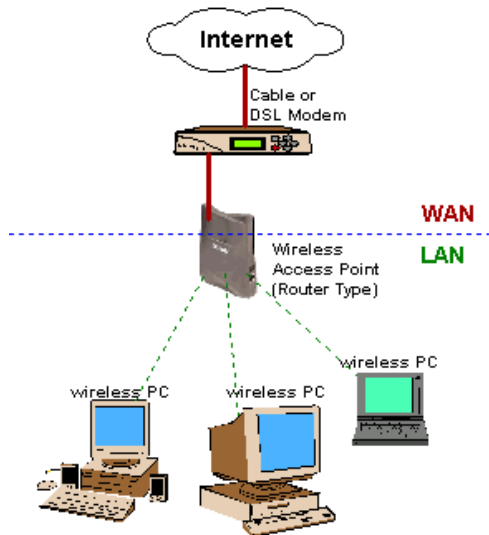
Client/Server Network

Typically this network consists of one PC designated as the server and other PCs connected to the server using the central data stored on the server. The server provides more security, preventing the client PCs from accessing one and other. The server typically can provide access to a central printer and Internet access, (including e-mail), and file sharing. This is most commonly found in corporate configurations, where network security is essential.

Source: <http://freepctech.com/pc/002/networks004.shtml>

Wireless Network¹

- Standard for home networking
- Offered free by my restaurants, bars, hotels, etc.
- Being implemented by many businesses
- Now available through cell phone companies
- Requirements
 - Wireless access point, aka *router*
 - Usually connected to the Internet
 - May include *ports* to allow wired computers to communicate with wireless devices
 - Wireless NIC for computers (or printers)
- Standards
 - 802.11b (11 Mbps-*megabits per second*) (older technology)
 - 802.11g (54 Mbps) (current, most common technology)
 - 802.11n (108 Mbps)
 - New standard, not yet approved
 - MIMO (multi-in, multi-out) multiple antennas
 - Many *pre-N* devices being sold
 - All standards compatible with each other
 - Devices communicate at the SLOWEST common speed



<http://www.homenethelp.com/web/diagram/share-wireless-ap.asp>

About.com

<http://compnetworking.about.com/od/homenetworking/ig/Home-Network-Diagrams/Wi-Fi-Router-Network-Diagram.htm>

Software

Software¹

- Instructions that tell computer what to do
- Binary communication (on & off switches processing millions of commands)
- Key to a computer's versatility—allows you to customize your computer to do the work you need it to do
- Two major categories: Systems Software and Application Software

Systems Software

- Often called an *operating system*
- Controls basic input and output (listens to keyboard, mouse; talks to printers, and storage devices)
- Allocates system resources (lets programs share RAM)
- Manages storage space
- Most computers use the latest version of *Windows* (98, 2000, ME, XP, Vista, Windows 7)
 - Linux is another operating system gaining popularity

Application Software

- Allows you to use your computer for a specific purpose
- Word processing (Office Suite)
- Email programs
- Games
- Internet browsers
- Drawing programs

- Virus scanning software

Software Licensing

Licensing/Copyright (End User License Agreement)

Is it legal because you can?

Read/understand Software Licensing

Single Installation

Main & Backup Installation

Network Installation

Business Software Alliance (<http://www.bsa.org>)

Business Software Alliance Mission: "to promote conditions in which the information technology (IT) industry can thrive and contribute to the prosperity, security, and quality of life of all people"

BSA Handout

Key Members of the Business Software Alliance:

<http://www.bsa.org/country/BSA%20and%20Members/Our%20Members.aspx>

Software Flexibility

Investment/Creativity/Flexibility

Open Office

<http://www.openoffice.org/>

Portable apps

<http://portableapps.com/>

<http://portableapps.com/suite>

File Format Creativity

Open Office/Microsoft Office Word Processing Demo

PDF Graphic Conversion Demo

Adobe Reader

Microsoft Paint

Microsoft Office Picture Manager

Useful Commands (Copy & Paste)

Ctrl & Print Screen (captures entire screen)

Alt & Print Screen (captures active screen)

Right Click on web graphic (captures web graphic)

Configuration

Configuration/Customization/Personalization

MS Office 2007

Office Button

Word Options

MS Office 2003

Tools Command

Options Command

Physical Impact of Hardware/Software (Computer Use)

Ergonomics:

<http://www.cdc.gov/od/ohs/Ergonomics/compergo.htm>

Security

Sixty Second Quiz (Activity/Discussion) (60 Second Quiz Handout)

Hacker/Cracker/Script Kiddies (break in because I can/break in & vandalize)

Passwords (dictionary attack) (Bad: fido; Good: f1D0; Best: f!D@98)

Social Engineering (Jim Rockford)

Logic Bomb/Active Content (Ballistic Simulator/steganography)

<http://www.ipli.com/cannon.htm>

Wardriver (wireless access search, then Warchalk the access area)

Keystroke Logger (Flash Drive)

Phishing (email)

Spoofing (is the site really who you think they are?)

Pharming (bank & credit union sites requesting info)

PDA (network access)

Shredder (strip vs cross-cut)

Sniffer Program (like phone tapping)

ATM (physical security)

Cookies (malicious or vanilla wafer)

Worm Infection (worm not attached & self-executing)

Email (attachment)

Mailbox (red flag)

Spyware (monitor your web activity)

Credit Card Transactions

Considering the four “types” of credit card transactions who has control?

Convenience Store

Restaurant

Phone Fax

Online

Is there an audit trail?

Have you been authenticated?

Has the order been processed as desired?

Is the transaction confidential?

Is it really you?

Password Management

10 Rules for Creating a Hacker-Resistant Password

Passwords are frequently the only thing protecting our private information from prying eyes. Many web sites that store your personal information (for example web mail, photo or document storage sites, and money management sites) require just a user name and password for protection. Some sites, such as online banking and brokerage accounts, may provide additional protection through “secret questions” or additional authentication techniques.

Password-protected web sites are becoming more vulnerable because often people use the same passwords on numerous sites. One study by Sophos, a security firm, found that more than 30% of users recycle the same password for every site that they access. In one recent well-publicized account, a hacker infiltrated a Twitter employee’s account to access confidential business documents. Twitter did not blame the dubious practice of storing confidential information online. Instead, they stressed the importance of maintaining adequate security including *strong passwords*.

A strong password can help individuals protect themselves against hackers, identity theft and other privacy invasions. The strength of a password is a measurement of its effectiveness in resisting guessing and attacks. It estimates how many trials an attacker who does not have direct access to the password would need, on average, to correctly guess it. The strength of a password is a function of its length, complexity, and randomness.

Want to develop tough-to-crack passwords that resist infiltration? Follow these 10 rules:

1. **Avoid using dictionary words.** These passwords are easy for hackers to figure out using an electronic dictionary.
2. **Don’t use personal information.** Any part of your name, birthday, Social Security number, or similar information for your loved ones is a bad password choice.
3. **Avoid common sequences,** such as numbers or letters in sequential order or repetitive numbers or letters.
4. If the web site supports it, try to **use special characters,** such as \$, #, and &. Most passwords are case sensitive, so use a mixture of upper case and lower case letters, as well as numbers.
5. Passwords become harder to crack with each character that you add, so **longer passwords are better than shorter ones.** A brute-force attack can easily defeat a password with seven or fewer characters. Microsoft has an online password strength checker at www.microsoft.com/protect/yourself/password/checker.mspx
6. To help you easily remember your password, consider **using the first letter from each word in a sentence, a phrase, a poem, or a song title** as a password. Be sure to add in numbers and/or special characters.
7. **Create different passwords for different accounts and applications.** That way, if one password is breached, your other accounts won’t be put at risk too. Do not use the same or variations of the same password for different applications.

8. Despite admonitions to the contrary, one easy way to remember your passwords is to **write them down and keep them in a securely locked place**. Never leave them on a Post-It note on your monitor, in an address book, in a desk drawer, or under your keyboard or mouse pad (or any other obvious place).
9. **Consider using a secure password manager.** The Firefox browser has a password manager already built in. The Firefox password manager and 4 others are reviewed at <http://lifehacker.com/5042616/five-best-password-managers>.
10. **If you have already established a password that is not strong, change it!** Web sites have a variety of procedures that govern how you can change your password. Look for a link (such as "my account") somewhere on the site's homepage that goes to an area of the site that allows password and account management.

The back door to your password. Many sites offer a password reset or recovery system if you should happen to forget your password. While a useful feature, this may offer an additional opportunity to compromise your password. Be cautious when you choose the site security questions and answers that will be used to authenticate you if you forget your password. Be sure that you don't pick a question which can be answered by others. Many times, answers to these questions (such as a pet's name or where you went to high school) can be ascertained by others through social networking or other simple research tools. In fact, this was the method recently used to infiltrate the Twitter employee's account.

'Til Death Do Us Part. While the integrity of your passwords is important to maintain your privacy, it's important to consider what can happen when you die. You may have bank statements, bills, and other important papers that are only accessible online. Your heirs may not be able to access this information without a potentially lengthy and costly court proceeding ordering the web site to release the information. You may wish to provide a list of important passwords that will be needed after your death to your attorney or another trusted individual.

Additional resources. Once you have established strong passwords (and site security questions), make sure that they do not get compromised by spyware or phishing (see <http://www.privacyrights.org/fs/fs18-cyb.htm#Illegal>). For additional information on protecting your privacy online, see our online privacy guide at <http://www.privacyrights.org/fs/fs18-cyb.htm>.

Source: <http://www.privacyrights.org/ar/alertstrongpasswords.htm>

Review: Password management eases with Net storage

- By PETER SVENSSON, AP Technology Writer - Wed Aug 12, 2009 4:24PM EDT

NEW YORK -

Do you use your kids' names? Your pet's? Your favorite color? We all use some dumb passwords that are too easy to guess.

Worse, we use the same ones for lots of Web sites. So if one site gets compromised, or an employee there is dishonest, someone could start trying out that password on other sites

where you have accounts, like Amazon or PayPal, and you've got trouble.

Browsers help out a bit by offering to remember your passwords, but that does little good if you are on a different computer or want to try a different browser.

The rescue comes from password-management programs. A couple of them have recently taken a big step forward in ease of use, by storing your login information online so that you can access them from multiple computers. Online storage does raise some questions about security, but it also makes these little-known programs worth another look.

On the Net:

<http://www.roboform.com>

<http://www.lastpass.com>

Source:

http://tech.yahoo.com/news/ap/20090812/ap_on_hi_te/us_tec_digital_life_tech_test_password_managers_2

The Law

Small Business Vulnerabilities - The Facts (Better Business Bureau)
<http://www.bbb.org/securityandprivacy/facts.asp>

FCRA (Fair Credit Reporting Act)

Promote accuracy and ensure the privacy of the information used in consumer reports. Contact the CRAs (Credit Reporting Agencies) listed in the Yellow Pages under "credit" or "credit rating and reporting." Because more than one CRA may have a file on you, call each until you locate all the agencies maintaining your file. The three major national credit bureaus are <https://www.annualcreditreport.com/cra/index.jsp>:

- **Equifax**
P.O. Box 740241
Atlanta, GA 30374-0241
(800) 685-1111.
- **Experian**
P.O. Box 2104
Allen, TX 75013
(888) EXPERIAN (888-397-3742).
- **Trans Union**
P.O. Box 1000
Chester, PA 19022
(800) 916-8800.

Other Options

Lifelock (ss#)

<http://www.lifelock.com/lifelock-for-people>

Free Credit Report.com (guitar)

<http://www.freecreditreport.com/>

FACTA (Fair & Accurate Credit Transaction Act of 2003)

Amended FCRA to prevent identity theft, improve resolution of consumer disputes, improve accuracy of consumer records, make improvements in the use of, and consumer access to, credit information, and for other purposes. (alerts, truncated numbers, disclosure, opt-out)

Disposal Rule

(6/1/05) Guidelines for disposing of Consumer Report Information

HIPPA (Health Insurance Portability and Accountability Act 1996)

This law outlines the procedures and requirements healthcare enterprises must enact for safeguarding personal and health information whether it paper or electronic format.

SARBOX (Sarbanes-Oxley Act of 2002) (Corporate Reporting)

With recent corporate corruption and fraud cases, this law includes strict reporting requirements and internal controls for the corporate officers, auditors and attorneys of publicly traded companies. Willfully and knowingly falsifying a financial report can lead to fines up to 5 million dollars and a 20 year prison sentence.

GLBA (Gramm-Leach-Bliley Act) (Private Data Protection)

Passed in 1999, this law protects private data by requiring banks and financial institutions to alert customers of their policies and practices in the use and disclosure of customer information. This also includes paper and electronically stored information.

Identity Theft and Assumption Deterrence Act

Enacted in 1998 this law makes it a Federal offense to knowingly transfer or use, without authority, a means of identification of another person with the intent to commit or to aid any unlawful activity that constitutes a violation of Federal law, or that constitutes a felony under any applicable State or local law.

USA Patriot Act (2001)

Passed shortly after 9/11 this act broadens surveillance opportunities to law enforcement agencies. This law may affect businesses because of potential requests for documentation from a company. With a court order or subpoena you could be required to release information like email or telephone communication records.

COPPA (Children's Online Privacy Protection Act of 1998)

This law requires online services and websites designed for children under the age of 13 obtain parental consent before the collection, use, disclosure or display of the child's personal information.

FERPA (Family Educational Rights and Privacy Act of 1974)

This act protects the privacy of educational records, establishes the rights of students to inspect and review their educational records, and provides guidelines for the correction of inaccurate or misleading data through informal and formal hearings.

Security Plan

Federal Trade Commission Video

<http://www.ftc.gov/bcp/edu/multimedia/interactive/infosecurity/index.html>

Security Plan Preparation

Security Policy

Secrecy/Integrity/Availability/Key Mgmt/Nonrepudiation/Authentication

Risk Assessment

Asset Identification

Threat & Vulnerability Assessment

Reduce Risk

User Responsibilities

Password Policy

- E-mail Policy
- Internet Use Policy
- HR Procedures
 - Hiring
 - Education
 - Termination
- Business Continuity Plan
 - Incident Response Team
 - Gather & Handle Evidence
 - Disclose Attack
 - Disaster Recovery Plan
 - Data Backup
 - Backup Sites
- Customer Privacy Policy
 - Communicate Data Sharing Policy
 - Data to be collected
 - Distribution and management of the data

Security Plan Guideline Documents

- Security & Privacy Made Simpler - Better Business Bureau
<http://www.bbb.org/us/storage/16/documents/SecurityPrivacyMadeSimple.r.pdf>
- Security Guide for Small Business - Microsoft
<http://www.microsoft.com/smallbusiness/support/security-toolkit-pdf.msp>

Corporate Engagement – Better Business Bureau

- <http://www.bbb.org/us/corporate-engagement/security/>

Data Breaches – Examples from Privacy Rights Clearinghouse

- <http://www.privacyrights.org/ar/ChronDataBreaches.htm#2009>

Employee Privacy in the Workplace

- <http://www.privacyrights.org/fs/fs7-work.htm>

Web Development

HTML (Demo/Lab)

- HTML Handout

Web Development Tools

Microsoft Expression Web 3 (\$300.00)

http://www.microsoft.com/expression/products/Web_Overview.aspx



Adobe Dreamweaver CS4 (\$400.00)

<http://www.cdwg.com/shop/products/default.aspx?EDC=1556253>



Intuit Web Site Creator (\$100.00)

<http://www.bestbuy.com/site/olspage.jsp?skuId=9027778&st=web&lp=5&type=product&cp=1&id=1218010172342>



Online Web Tools

Homestead Online Website Development (Intuit)

http://www.homestead.com/?s_cid=GC184560&pd=t

<http://www.intuit.com/website-building-software/>

Flash Drive/Archive Web

Save/Backup class files

Sources:

Website references listed in content

¹Volker Gaul, Information Technology Instructor, Mid-State Technical College

<http://www.volkergaul.com/MSTC/Courses/WindowsOps/Instructors%20Notes/0%20-%20Terminology%20Outline.pdf>