# ITEC102 – INFORMATION TECHNOLOGIES

LECTURE 2 – INTERNET IN EDUCATION

EASTERN MEDITERRANEAN UNIVERSITY

SCHOOL OF COMPUTING AND TECHNOLOGY

# Learning Objectives

1. Discuss how the Internet evolved and what it is like today.
2. Identify the various types of individuals, companies, and organizations involved in the Internet community and explain their purposes.
3. Describe device and connection options for connecting to the Internet, as well as some considerations to keep in mind when selecting an ISP.
4. Understand how to search effectively for information on the Internet and how to cite Internet resources properly.
5. List several ways to communicate over the Internet, in addition to e-mail.
6. List several useful activities that can be performed via the Web.
7. Discuss censorship and privacy and how they are related to Internet use.

# Overview

This chapter covers:

- Types of computer networks,
- web browsers, search engines, and electronic mail service
- Internet working principle
- importance of internet in education
- distance education models
- distance education history

# Overview

- technologies used in distance education
- restrictions in distance education models
- electronic learning, safe internet usage
- ethics in information technologies and information about copyright
- computer-health relationship issues

# Type of Computer Networks

## What is Network?

- A network consist of two or more computers that are linked in order to share resources exchange files, or allow electronic comminications
- The computers on a network linked through cables, telephone lines, radio waves, satellites or infrared light beams

# Type of Computer Networks

## Types of Network

- **Local Area Network (LAN)**
  - A LAN is a network that is used for comminicating among computer devices with in an office building or home
  - LAN's enable the sharing of resources such as files or hardware devices that may be needed by multiple users
  - Is limited in size, typically spanning few hudred meters, no more than a mile
  - Is fast, with speed from 10Mbps to 10Gbps
  - Requires little wiring, typically a single cable connecting to each device

# Type of Computer Networks

- LAN's can be either wired or wireless. Twisted pair, Coaxial or fiber optic cable can be used in wired LAN's.
- Every LAN use protocol- a set of rules that govern how packets are configured and transmited
- Has lower coast compare to MAN's and WAN's
- Nodes in a LAN are linked together with a certain topology. These topology include Bus, Ring and Star

# Type of Computer Networks

## Metropolitan Area Network (MAN)

- A Metropolitan Area Network (MAN) is a larger computer network that usulaly spans cities or large campus
- A MAN is optimized for a larger geographical area than a LAN, ranging from several blacks of buildings to entire cities.
- A MAN might be owned and operated by a single organization, but is usually will be used  many individuals and organization
- A MAN ofen act as high speed network to allow sharing of reginal resources
- A MAN typically covers an area between 5 to 50 km diameter
- Examples of MAN: telephone company network that provides high speed DSL to consumers and cable TV network

# Type of Computer Networks

## Wide Area Network (WAN)

- WAN covers a lage geografic area such as country, continent or even whole of the world.
- A WAN is two or more LAN connected together. The LAN's can be many miles apart
- To cover great distances, WAN's may transmit data over leased high-speed telephone lines or wireles links such as satellites
- Multiple LAN's can be connected together using devices such as bridges, routers , or gateways which enable them to share data.
- The most popular WAN is Internet

# Type of Computer Networks

## Personal Area Network (PAN)

- A PAN is a network that is used for comminicating computer and computer devices in a close proximity of arround a few meters within a room
- It can be used for comminicating between the devices themselves, or connecting to a larger network such as the internet
- PAN's can be wired or wireless

# Web browser

**Web browser** programs are used to access the Internet.

For example, **Internet Explorer** is the default browser for **Windows** operating systems and **Mozilla Firefox** is the default browser for **Linux** operating systems.

Today, the **Google Chrome** web browser is also frequently used.



# Web browser

The Windows operating system is the most commonly used operating system in the world. The default web browser in this operating system is **Internet Explorer.**

There are many activities that can be done on the Internet using **Internet Explorer.**

With this program:

- Can be read news or newspaper
- Making airline and hotel reservation
- you can access detailed information about an area of interest,
- Shopping
- Playing games

# Web browser

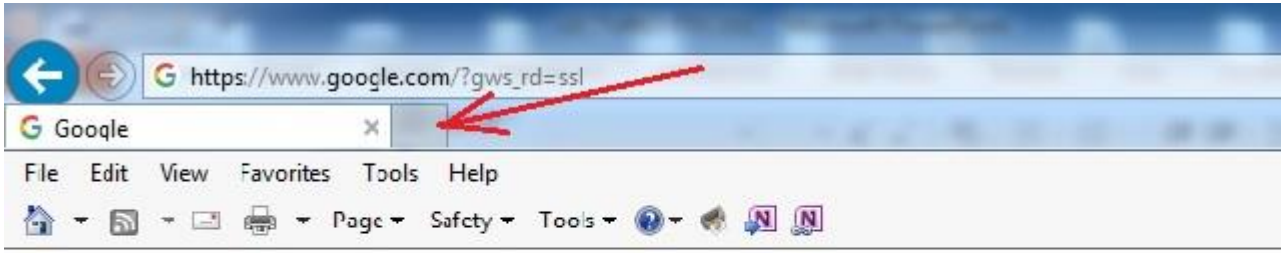
When the Internet Explorer program is run, web pages can be accessed using the address bar

# Web browser

It is possible to open **more than one web page** at the same time at the Internet Explorer program

To open a new page, you need to open a **new tab**.

This can be done quickly by clicking the mouse button shown in the picture below or by pressing the **CTRL + T** keys on the keyboard.

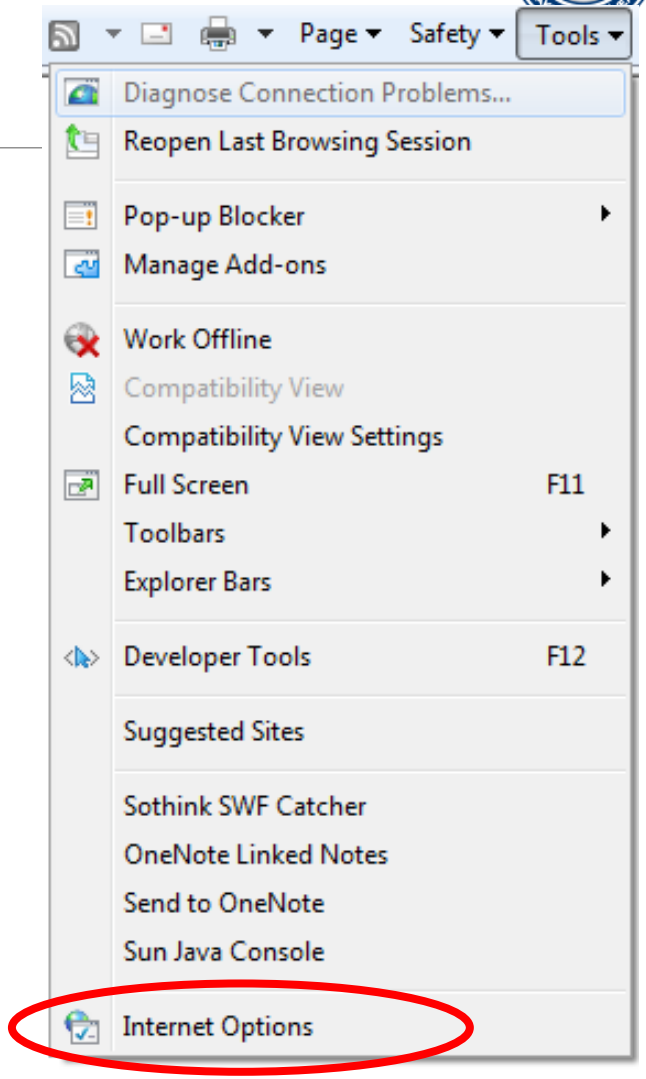


# Web browser

It is possible to set the **start page** with the Internet Explorer program.

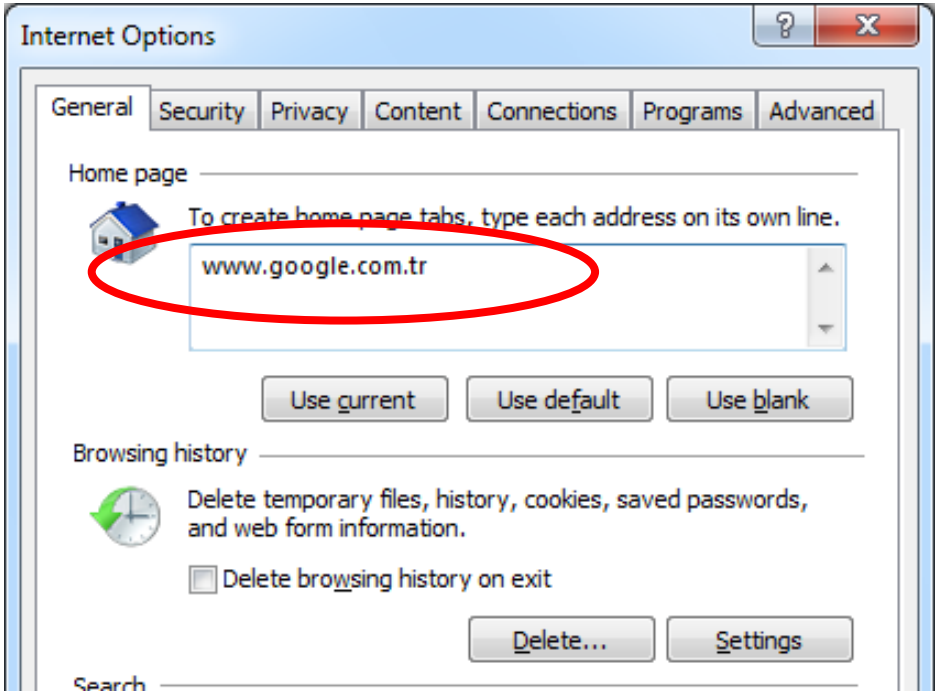
The Start page refers to the web page that is **automatically** opened when the Internet Explorer program is opened

For example, to set the start page to www.google.com, **Internet Options** should be opened from the **Tools** menu.



# Web browser

The address of the start page can be set in the **General** tab of the opened window.

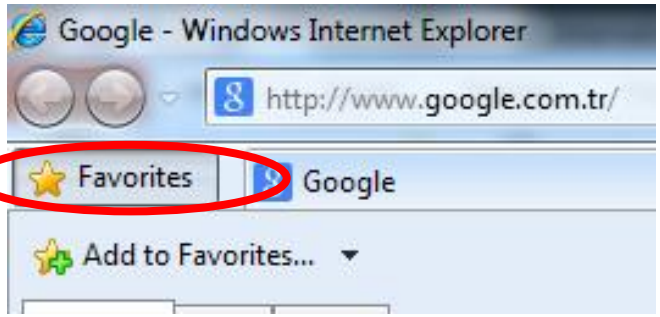


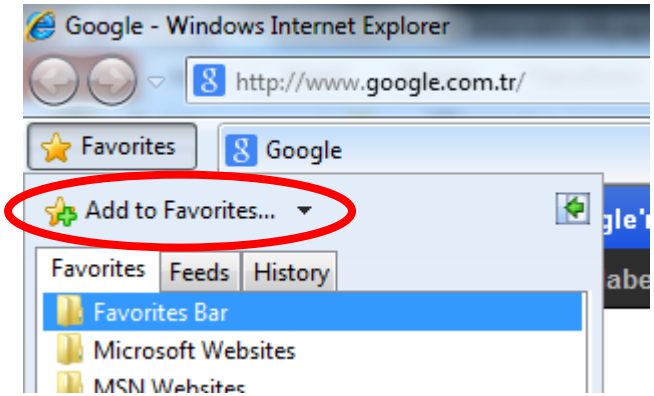
# Web browser

Frequently used websites in the Internet Explorer program can be added to the list of favorite sites. This makes accessing pages easier.

To add a page to favorites, the address of the web page must first be written in the address bar

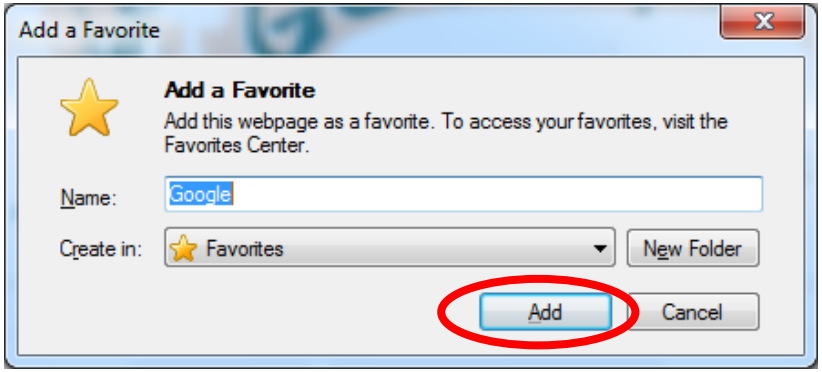
Then, after the **Favorites** button is clicked, the **Add to Favorites** should be selected from the pop-up window (new versions of Internet Explorer use only asterisks).



# Web browser

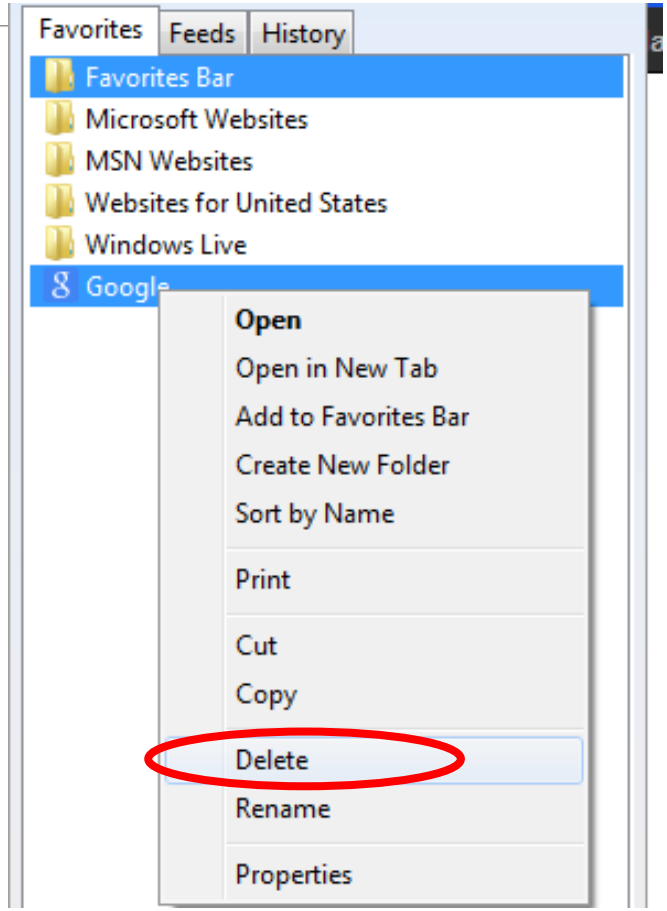
Finally, click the **Add** button from the window that appears on the screen.




All these operations can be done using the keyboard shortcut **CTRL + D** after writing the web address

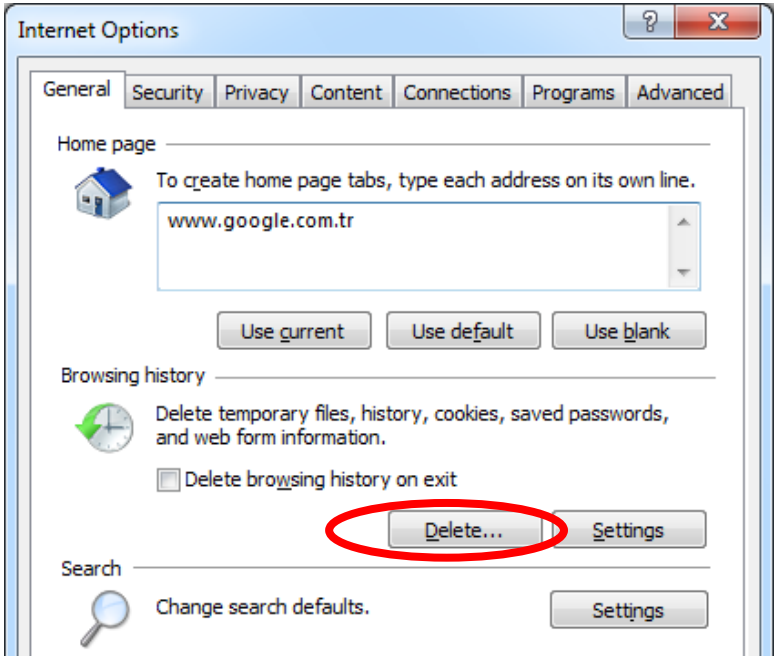
# Web browser

To delete a favorite address from the list of favorite sites, click on the Favorites button again and right click on the option you want to delete from the opened window and select Delete option



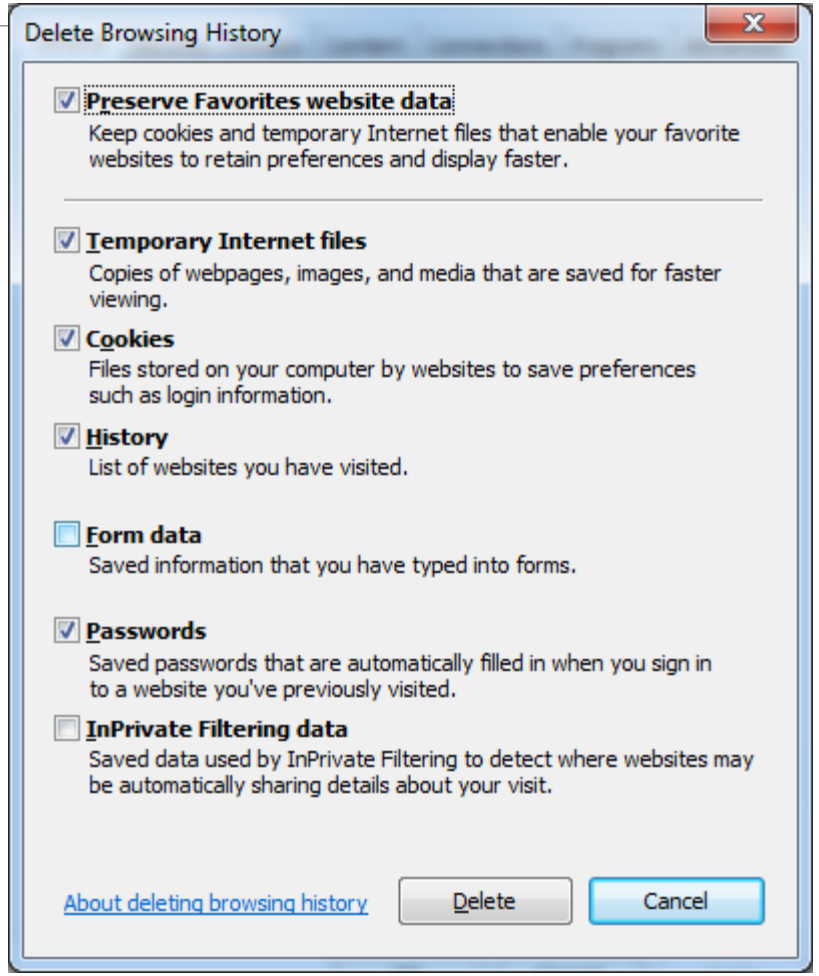
# Web browser

To delete visited addresses and web page information, click the Delete button on the page that opens after selecting Internet Options from the Tools menu.



# Web browser

In the pop-up window, you need to select the information you want to delete and click the Delete button again



# Web Browser

Things that can be done on internet

- Shopping
- Online Auction / Auctions
- Online Entertainment
- Online News and Information
- Online Banking

# Search Engines

The amount of information on the Internet is very high. Search engines are used to reach the desired knowledge more easily.

Search engines such as www.google.com, www.bing.com, www.yahoo.com, www.arabul.com, www.yandex.com can be given as an example.

# Search Engines

Writing words correctly when using search engines allows you to find the pages you seek more easily.

For example, if **computer networks** are to be written to the search engine, all sites that have both **computer** and **network** keywords will be displayed

If the same search is done as "**computer networks**" using **double quotation marks**, the pages where these two balances are passed together will be displayed. This will filter out the search results and make the search information more accessible

# Search Engines

The + and - sign can also be used to filter search results on search engines.

The - mark can be used if it is absolutely required that no result should appear in the search made

- Ex: computer-processor

The + mark can be used if it is absolutely necessary to find any result of the result of the search in the search made

- Ex: computer + motherboard

# Electronic Mail

One of the most commonly used methods for communicating via the Internet is the use of **electronic mail** (e-mail)

E-mail allows two or more users to communicate with each other in different areas over a computer network.

When sending e-mail, the sender and receiver do not have to use the computer at the same time

To use the e-mail service, you first need to have an e-mail address and an e-mail account. You also need to know the e-mail address of the person to whom you are sending the e-mail.

# Electronic Mail

E-mail is a very fast method of communication. The e-mail sent will be fulfilled within a few seconds under appropriate conditions.

The sender and the recipient do not need to be at the computer at the same time.

Microsoft Outlook is an example of an electronic mail program.

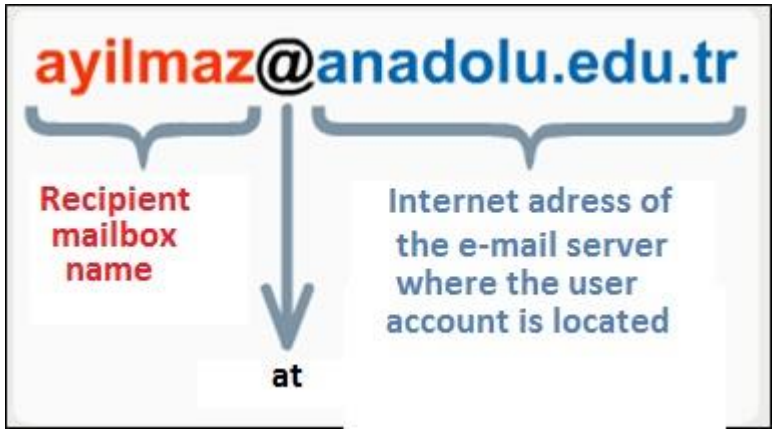
Today, e-mail accounts that are accessed using web browsers are also frequently used (Gmail, Yahoo mail, Outlook mail, Hotmail, ...).

# Electronic Mail

An e-mail address is an electronic text on which the recipient's name and address are located.

The e-mail address consists of two parts:

- internet address of computer called e-mail server
- the mailbox name of the recipient on the e-mail server



# Internet Working Principle

- Web pages can be visited using web browser programs
- The web pages are actually made up of the files on the server computers.
- Web browser programs send requests to the computers where these files are located and allow these files to be displayed on computer screens.
- The computers on the Internet use the IP address of the opposite computer to communicate.
  - For example, the Eastern Mediterranean University internet server's IP number is 193.140.41.90.

# Internet Working Principle

- However, the address used to reach this server is www.emu.edu.tr.
- The names of the servers on the Internet match the IP numbers.
- In web browser programs used on computers, a known web address is written on the address bar, not the IP number of the site.

# Internet Working Principle

- Translating web addresses name to IP address and from IP address to web adress name is done by a computer called **DNS server (Domain Name Server).**

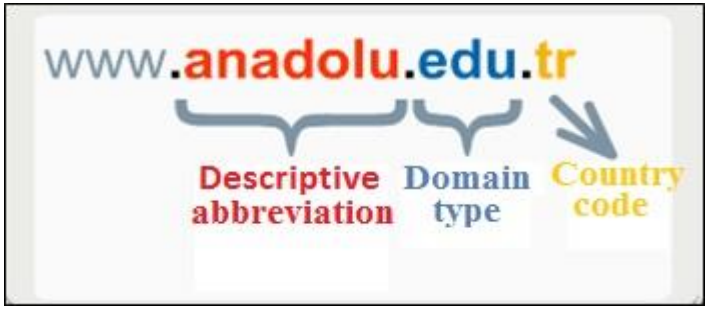
- Translating is performed by a software running on the DNS server.

- Each local area network can have one or more DNS servers.

# Internet Working Principle

Web addresses consist of three main parts separated by dot marks from each other

- The first part is used as a descriptive abbreviation.
- The second part is the domain name type.
  - For example: mil (military institutions), gov (state institutions), edu (educational institutions), net (internet network operating institutions), org (associations, NGOs), com (commercial institutions), ...
- The third part specifies the country code.
  - Ex tr (Turkey), UK (England), ru (Russia), ...



# Internet Working Principle

The language spoken on the Internet is the TCP / IP protocol.

Computers have driver software that allows the use of this language and is included in the operating system.

Drive software communicates with other computers via TCP / IP protocol over wired or wireless network connection cards.

# Internet Working Principle

The TCP / IP protocol consists of two parts:

- **IP (Internet protocol)** provides the necessary IP number when sending messages from one computer to another
- **TCP (Transmission control protocol)** divides a transmission from one computer to another into small packets that can be sent over the network.

# Internet in Education

- In schools, lessons are processed in *computerized environments*
- Today, using the internet makes it compulsory to use computers
- Electronic books and electronic lecture notes are used on internet
- Especially in universities there are wireless connection points. In this way, students can connect to this network to connect internet with their personal laptop or other smart devices

# Internet in Education

- Another example of the use of computers in education is *distance learning.*

- The most basic explanation is to use the communication technologies to ensure that students receive education independent of time and space.

- This facility is especially for those who have limited opportunities for training in places where they live, or for those who can not afford the time to work and personal development because they work.

# Internet in Education

Computer Classes

Wireless connection at campus

Distance Education

# Distance Education Models

## First Generation

- The Correspondence Model
  - Print based
  - Flexibility of Time, Place & Pace
  - Slow, interactive delivery
  - High Variable cost

# Distance Education Models

## Second Generation

- The Multimedia Model
  - Print, Audiotape, Videotape & Computer based
  - Flexibility of Time, Place & Pace
  - Better Materials
  - Medium  interactive delivery
  - High Variable cost

# Distance Education Models

## Third Generation

- The Tele-learning Model
  - Audio Conferencing
  - Video Conferencing
  - Broadcast TV/Radio
  - Flexibility of Time, Place & Pace
  - Better Materials
  - Limited Interactive delivery
  - High Variable cost

# Distance Education Models

## Fourth Generation

- The Flexible Learning Model
  - Interactive Multimedia (IMM) online
  - Internet-based access to WWW
  - Computer-mediated communication
  - Flexibility of Time, Place & Pace
  - Highly refined Materials
  - Advanced Interactive delivery
  - Low Variable cost

# Distance Education Models

## Fifth Generation

- The Intelligent  Flexible Learning Model
  - Interactive Multimedia (IMM) online
  - Internet-based access to WWW
  - Computer-mediated communication, using automated response
  - Campus portal access to institutional process & resources
  - Flexibility of Time, Place & Pace
  - Highly refined Materials
  - Advanced Interactive delivery, non-linear & collaborative.
  - Institutional Variable Costs Approaching Zero

# History of Distance Education

In the late 1800s, at the University of Chicago, the first major correspondence program in the United States was established in which the teacher and learner were at different locations

Before that time, particularly in preindustrial Europe, education had been available primarily to males in higher levels of society.

The most effective form of instruction in those days was to bring students together in one place and one time to learn from one of the masters.

That form of traditional educational remains the dominant model of learning today

# History of Distance Education

In 1982, the International Council for Correspondence Education changed its name to the International Council for Distance Education to reflect the developments in the field.

With the rapid growth of new technologies and the evolution of systems for delivering information, distance education, with its ideals of providing equality of access to education, became a reality

Today there are distance education courses offered by dozens of public and private organizations and institutions to school districts, universities, the military, and large corporations

# History of Distance Education

Direct satellite broadcasts are produced by more than 20 of the country's major universities to provide over 500 courses in engineering delivered live by satellite as part of the National Technological University (NTU).

What, exactly, are the prospects and promises of distance education? Desmond Keegan (Keegan, 1980) identified six key elements of distance education:

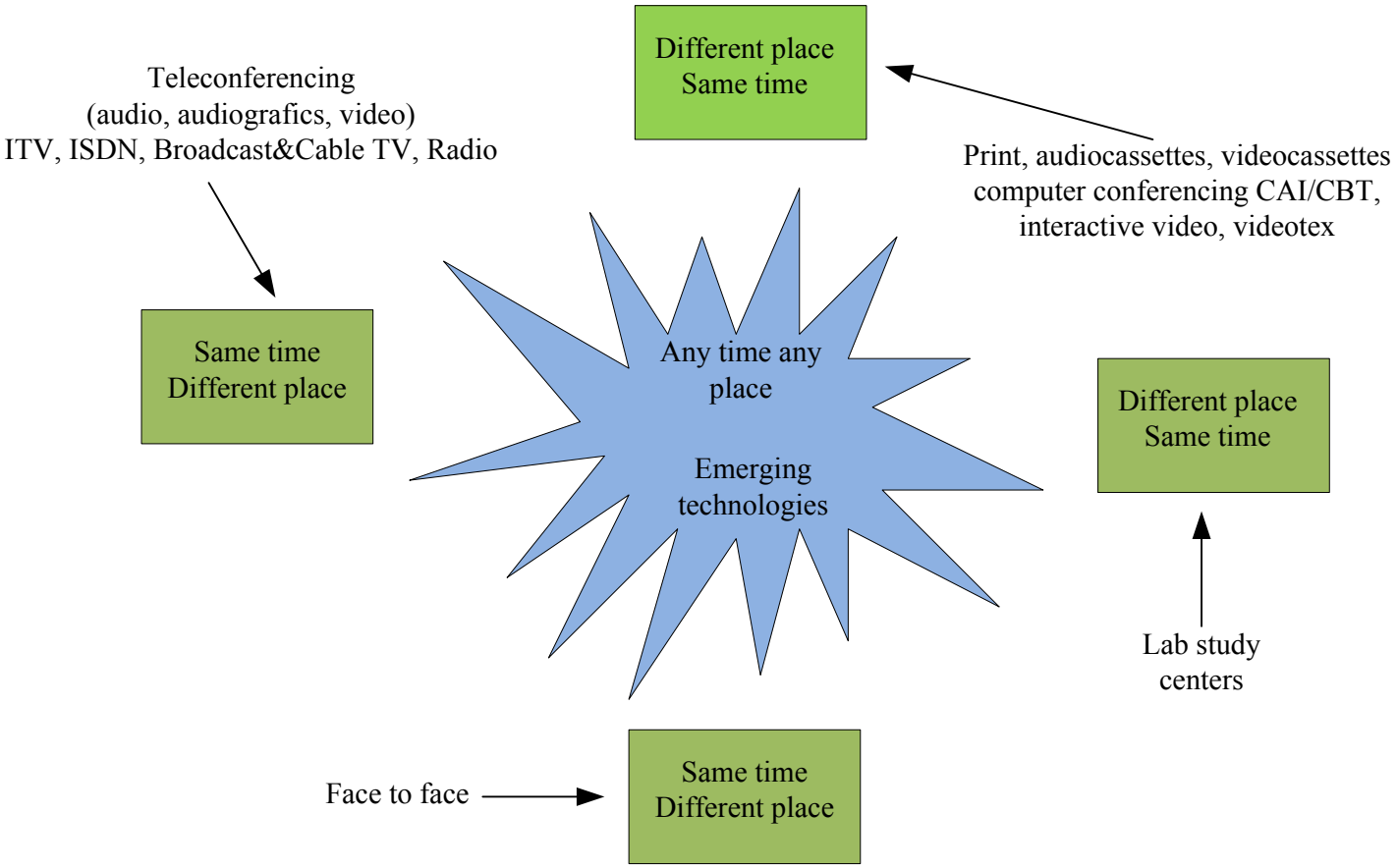
- Separation of teacher and learner
- Influence of an educational organization
- Use of media to link teacher and learner
- Two-way exchange of communication
- Learners as individuals rather than grouped
- Educators as an industrialized form

# Technologies used in distance education

We use the 4-square model to discuss the major distance education technologies. While this model was used it is noticed that it does not lend itself very well to discussing new and future developments in integrated telecommunications.

Since these integrated systems incorporate many of the features that is classified separately in the 4-square model, we have decided to describe new and future developments in a separate section titled "Future Directions and Emerging Technologies”.

# Technologies used in distance education



# Technologies used in distance education

**Same place/same time instruction**

- Same Time/Same Place group interaction is the most familiar format of face-to-face meetings.
- Certain objectives in distance education programs can only be met by meeting face-to-face.
- Basic technologies that facilitate a face-to-face meeting involve an overhead projector, a flip chart, electronic blackboard or a projection system that displays computer screens via a LCD monitor.
- The British Open University, which teaches entirely at a distance brings students on campus during the summer to participate in laboratory experiments

# Technologies used in distance education

**Same Time/Different Place Instruction**

- There are two kinds of Same Time/Different Place Instruction
  - a meeting through a telecommunications medium or teleconferencing where participants who are separated by geographic distance can interact with each other simultaneously
  - the use of non-interactive media such as open broadcast television and radio to instruct a vast number of students at the same time without the ability for the students to call back and interact with the originators of the program.

# Technologies used in distance education

- Teleconferencing can be classified into four separate categories depending on the technologies that they use:
  - audio teleconferencing
  - audiographics teleconferencing
  - video teleconferencing
  - computer conferencing

# Technologies used in distance education

## Different Time/Same Place Instruction

- This type of instruction usually takes place in a lab or study center where distance learners gather at different times to interact with instructors, tutors, and other students.

- Local study centers are used by major distance teaching universities such as the British Open University to support the distance learner by offering meetings with tutors, discussion with peer groups, and library facilities.

# Technologies used in ddistance education

**Different Time/ Different Place Instruction**

- The technologies used in this category are further classified as those that transmit one-way information such as print, audio- and videocassettes, and those that provide for interaction

- Technologies that provide for interaction are divided into two groups:
  - those that permit interaction between the instructor and the learner, and among groups of learners such as computer-mediated communication (CMC)
  - those that provide learner-machine interaction as in computer-assisted instruction (CAI)/ computer-based training (CBT) and interactive video and videotex

# Electronic learning

## What is e-learning?

- eLearning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom
- In most cases, it refers to a course, program or degree delivered completely online.
- There are many terms used to describe learning that is delivered online, via the internet, ranging from Distance Education, to computerized electronic learning, online learning, internet learning and many others.

# Electronic learning

- It is defined as eLearning as courses that are specifically delivered via the internet to somewhere other than the classroom where the professor is teaching
- It is not a course delivered via a DVD or CD-ROM, video tape or over a television channel.
- It is interactive in that you can also communicate with your teachers, professors or other students in your class.
- There is always a teacher or professor interacting /communicating with you and grading your participation, your assignments and your tests

# Safe Internet usage

## Censorship

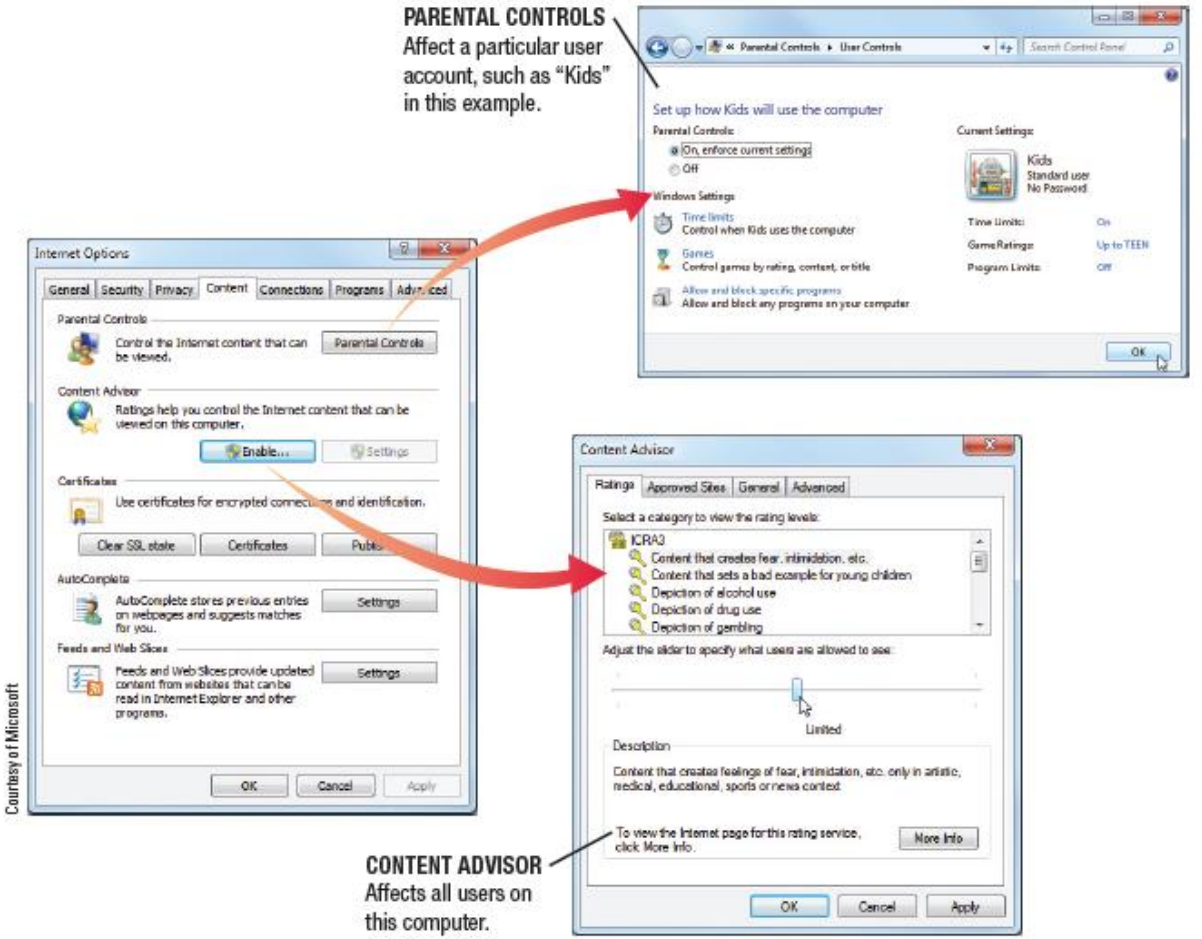
- Some countries block some Internet content
  - To hinder spread of information from political opposition
  - To filter out material determined to be offensive
  - To protect national security
- Some countries have attempted to regulate Internet content
  - Difficulty defining “patently offensive” and “indecent”
  - Difficult finding a fair balance between protection and censorship

# Safe Internet usage

- **Internet Filtering**
  - Using software or browser options to block access to particular Web pages or types of Web pages
  - Used by individuals, schools, employers, public computers, etc.
  - Can use browser settings or special filtering software

# Safe Internet usage

**FIGURE 3-32**
**Internet filtering.** Browser settings can be changed to deny access to Web pages with objectionable content.

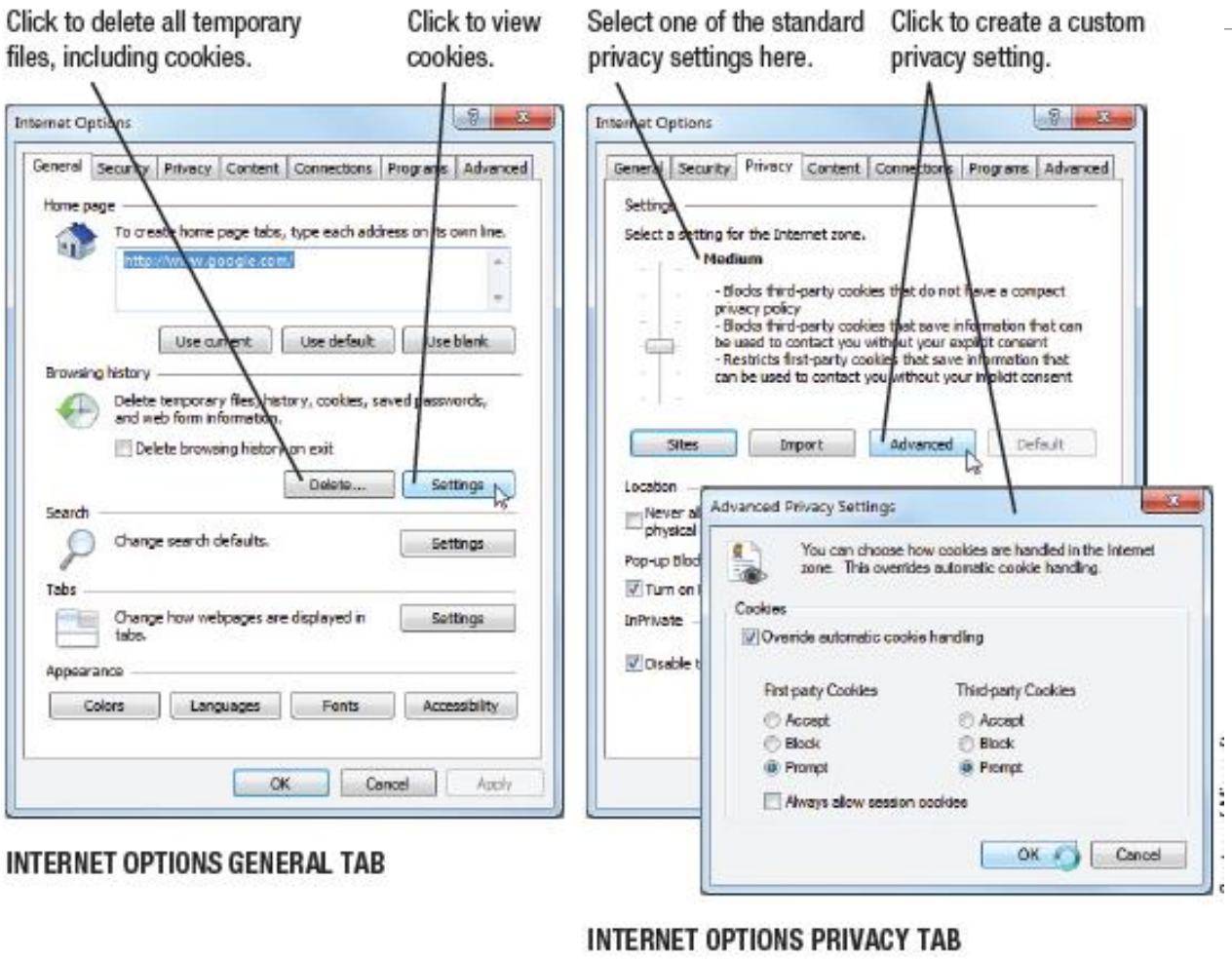


# Safe Internet usage

## Web Browsing Privacy

- Encompasses what information about individuals is available, how it is used, and by whom
- Cookies
  - Small files stored on the user's hard drive by a Web server
  - Used to identify return visitors and their preferences
  - Can be used to track Web activity
  - Cookie information can be personally identifiable or non-personally identifiable
  - Cookie data can be viewed or deleted
  - Cookie settings can be changed and software can be used to manage cookies

# Safe Internet usage




INTERNET OPTIONS GENERAL TAB

INTERNET OPTIONS PRIVACY TAB

**FIGURE 3-33**
Browser cookie management in Internet Explorer.

Courtesy of Microsoft

# Safe Internet usage

- Spyware and Adware
  - Spyware
    - Software installed without users knowledge that transmits data secretly through the user's Internet connection
    - Sometimes used by advertisers to gather marketing information
    - Used by criminals to gather personal data stored on your computer
    - Can be blocked and/or removed using security software

# Censorship and Privacy Issues

- Adware
  - Software supported by onscreen advertising
  - Often included in free programs
  - Does not gather information
  - Is not installed without user's consent

## E-Mail Privacy

- Privacy of the e-mail messages you send and receive
- Only encrypted e-mail can be transmitted privately
- Employers and ISPs have access to e-mails sent through those organizations
- Businesses and ISPs typically archive e-mail messages

# Censorship and Privacy Issues

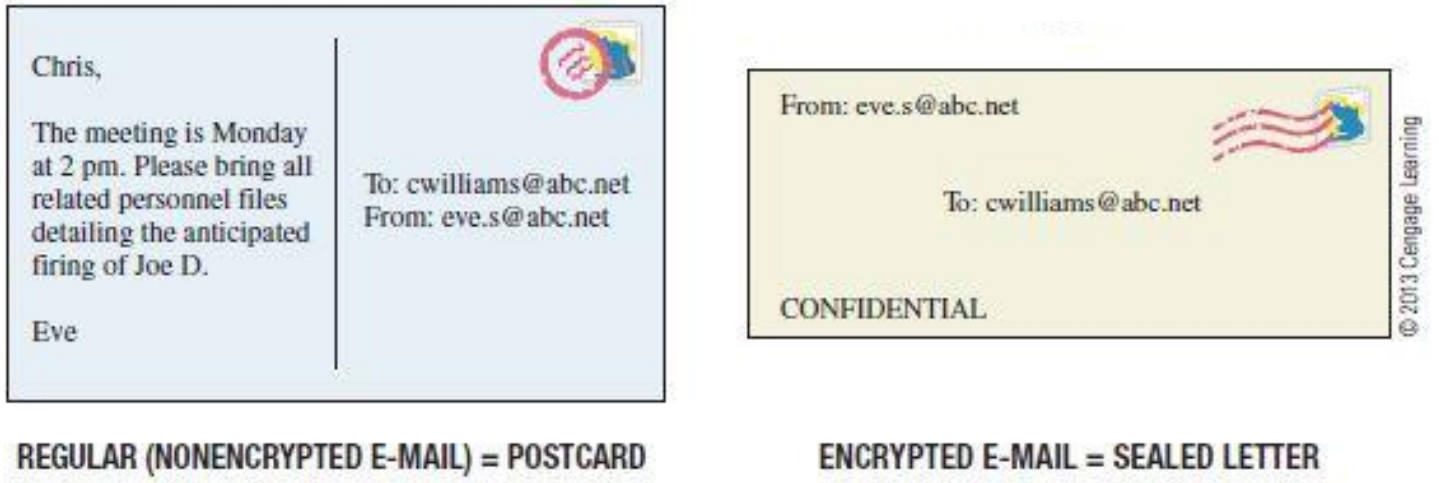



**FIGURE 3-35**
You cannot assume e-mail messages are private, unless they are encrypted.

# Computers and Health

## Physical Health

- Repetitive Stress Injuries(RSI)
  - Carpal tunnel syndrome (CTS) (keyboard use)
  - DeQuervain's tendonitis
- Computer Vision Syndrome (CVS)
- Backaches
- Heat from laptops
- Noise-induced hearing loss
  - 60/60 rule
- Phone and texting-related car accidents
- Possible radiation risks from wireless devices

Courtesy of Aegis

**FIGURE 7-1**
**DriveAssist.** This product restricts usage of a mobile phone when the car is in motion.

# Computers and Health

- What is Ergonomics?
  - The science of fitting a work environment to the people who work there
    - Designing a safe and effective work space
    - Properly adjusting furniture and hardware
    - Using ergonomic hardware
  - Proper work environments can prevent many physical problems

# Computers and Health

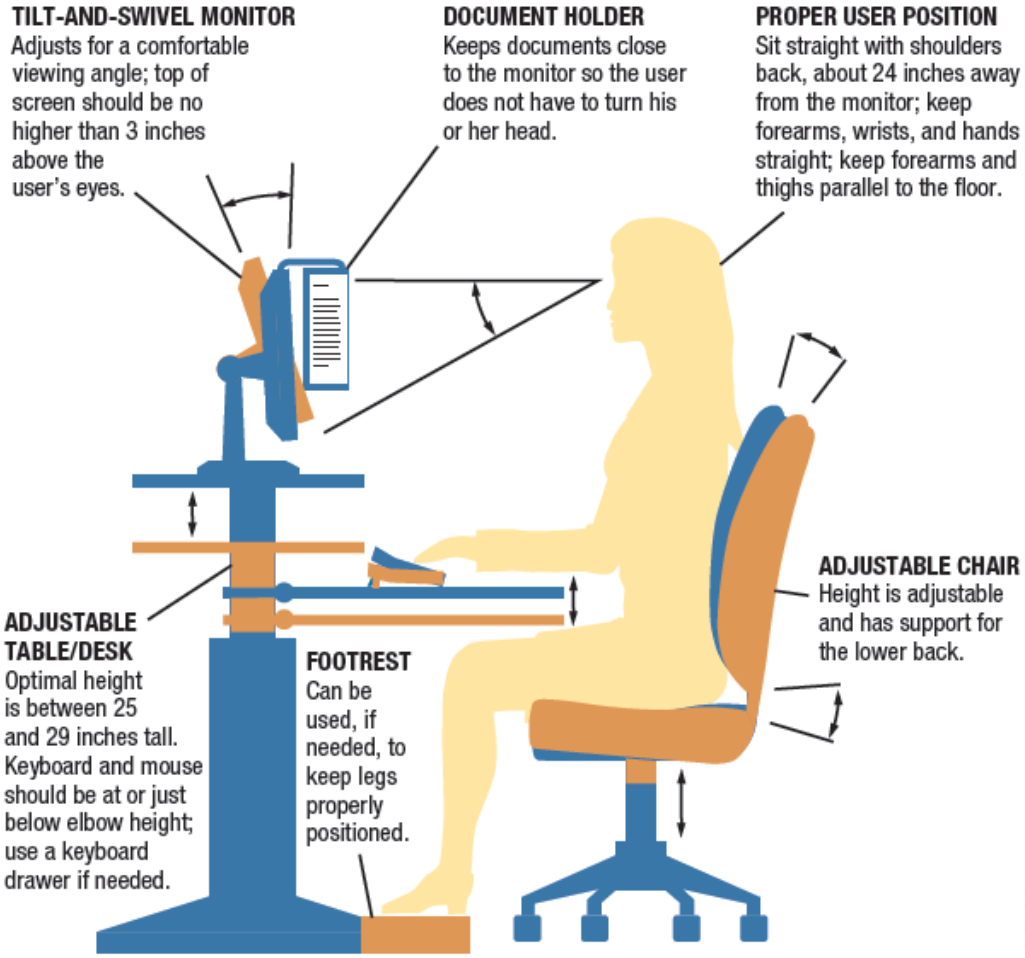



**FIGURE 7-2**
**Workspace design.**
Shown here are some guidelines for designing an ergonomic workspace.

# Computers and Health


**DOCKING STATIONS**
Contain a variety of ports; when the portable computer is connected to the docking station, the devices attached to these ports can be used.


**NOTEBOOK STANDS**
Elevate a notebook's display screen; if the notebook stand does not contain USB ports, devices will connect directly to the notebook stand.

**FIGURE 7-3**
Docking stations and notebook stands.

# Computers and Health

| OCCASIONAL USERS | FULL-TIME USERS |
|---|---|
| Sit with the computer on a table and position it for comfortable wrist posture. If no table is available, use a laptop desk or notebook cooling stand to protect your legs from the computer's heat. | Sit with the computer on a desk or table and position it for comfortable wrist posture if you won't be using a separate keyboard and mouse. |
| Adjust the screen to a comfortable position, so you can see the screen as straight on as possible. If you have a portable notebook stand, use it to elevate the display screen for easier viewing. | Elevate the computer so the screen is at the proper height, or connect the computer to a stand-alone monitor instead of using the computer's built-in display; consider using a docking station or notebook stand. |
| Bring a travel keyboard and mouse to use with the computer, whenever possible. | Use a separate keyboard and mouse, either attached directly to the computer or to a docking station or notebook stand. |
| When purchasing a portable computer, pay close attention to the total weight of the system (computer, power supply, additional hardware, etc.) if you will be using the computer primarily while traveling; purchase a lightweight system to avoid neck and shoulder injuries when carrying the computer from one location to another. | When purchasing a portable computer, pay close attention to the size and clarity of the monitor, unless you will be using a separate stand-alone monitor, and pay close attention to the keyboard design, unless you will be using a separate keyboard. |

**FIGURE 7-4**
Ergonomic tips for portable computer users.

# Computers and Health

- Ergonomic Hardware
  - A variety of devices available that are designed to avoid physical problems due to the use of a computer
    - Ergonomic keyboards and trackballs
    - Document holders
    - Antiglare screens
    - Keyboard drawers
    - Wrist supports
    - Computer gloves

# Computers and Health

**FIGURE 7-5**

Ergonomic hardware.

DOCUMENT HOLDERS

TRACKBALLS

ERGONOMIC KEYBOARDS

ANTIGLARE SCREENS

KEYBOARD DRAWERS

WRIST SUPPORTS

COMPUTER GLOVES

Courtesy of Kensington Computer Products Group; Courtesy Kinesis Corporation; Courtesy of Brown Medical Industries, Inc.

# Computers and Health

- Good User Habits and Precautions
  - Finger and wrist exercises
  - Frequent breaks in typing
  - Good posture
  - Relaxation or stress breaks
  - Rotate tasks
  - Close curtains and blinds to reduce glare
  - Computer glasses to combat eyestrain

# Intellectual Property Rights

## Intellectual Property Rights

- Legal rights to which creators of original creative works are entitled
  - Indicates who has the right to use, perform, or display a creative work and what can legally be done with that work
- Copyrights
  - Form of protection available to the creator of original artistic or literary works

# Intellectual Property Rights

- Can be registered with U.S. Copyright Office


**FIGURE 6-1**
**Copyright statements.**
Statements such as these are often included on books, Web sites, and other copyrighted works.

# Intellectual Property Rights

- Once a copyrighted item is purchased, the material cannot be legally duplicated or portrayed as your own creation
- **Digital Watermarks**
  - Subtle alteration of digital content that is not noticeable but that can identify the copyright holder
- **Digital Rights Management (DRM) Software**
  - Controls use of the copyrighted work
  - Can limit who can view, print, or copy a document
  - Can control use of downloaded content (number of devices a file can be copied to, expiration of VOD movie, etc.)

# Intellectual Property Rights

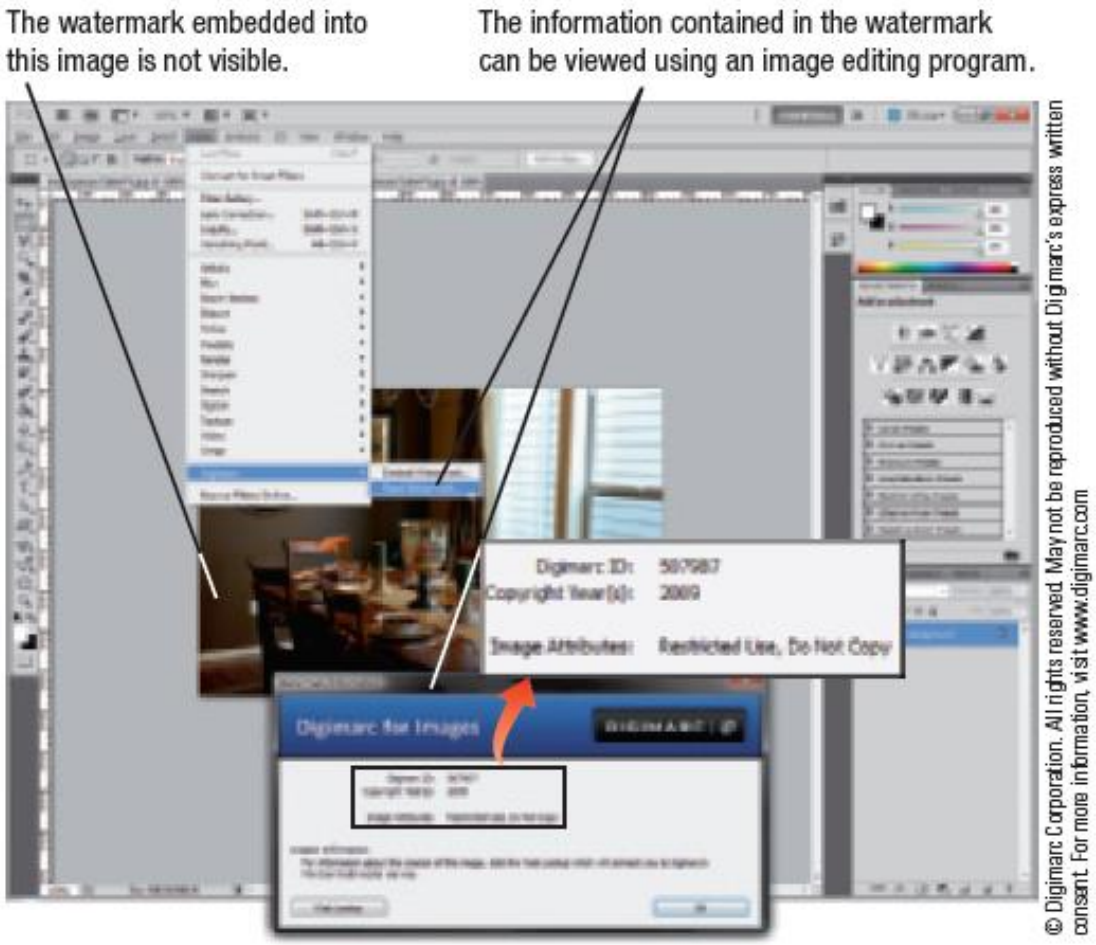



**FIGURE 6-2**
Digital watermarks.

# Ethics

- Overall standards of moral conduct
- Can vary with individual and religious beliefs, country, race, or culture
- **Personal Ethics**
  - Guide an individual's personal behavior
- **Business Ethics**
  - Guide a business's policies, decisions, and actions
- **Computer Ethics**
  - Concern moral conduct related to computer use
- Individuals and businesses need to make ethical decisions every day

# Ethics

## Ethical Use of Copyrighted Material

- Books and Web-based Articles
  - Plagiarism
    - Presenting someone else's work as your own
    - Violation of the copyright law and an unethical act
    - Need to properly credit sources to avoid plagiarism
  - Colleges and universities have strict consequences for plagiarism
  - Online tests for plagiarism are available and widely used by schools