FUNDAMENTALS OF WEB DESIGN

CWDSA CERTIFICATION

The following are my notes from the Cisco Networking Academy Fundamentals of Web Design Curriculum Version 1.1. They have not yet been proofread or reviewed for technical accuracy. Email suggestions for improvement are welcome to kyleshumaker@yahoo.com. These notes have been provided to you free of charge, and in return I ask that you do not redistribute them without prior permission. Any reproduction of the following materials without the copyright in the footer is a violation of United States' copyright laws. Thanks for your cooperation, and feel free to give people my URL http://www.kyle.bizhosting.com/Cisco/

Kyle P. Shumaker, CWDSA, CCNA, A+, Net+
Eastern High School Cisco Networking Academy

Early Internet Developments
– Department of Defense (helped fund and develop the Internet)
– Domain Name System (DNS) - maps easy to remember names with IP add.
– NNTP (Network News Transfer Protocol)

Hypertext Transfer Protocol (HTTP) provides rules and specifications for transferring files over the Internet.

Tim Berners-Lee developed HyperText Markup Language HTML with the following goals
– Simplicity
– Universality
– Degradability - new versions can't break old.

Mosaic was the first graphical Internet Browser.

Web Development Model
– Presentation - How things are presented
– Structure - How things are organized
– Behavior - How users and products interact

World Wide Web Consortium (W3C)
– Created by Tim Berners-Lee
– Ensures interoperability on the Internet.
– Sets standards

Other Related Organizations: ISOC, IAB, IETF, IRTF, IANA, ICANN

Broadband Types: ISDN, DSL, Cable Modem, T-1, T-3. Bandwidth (how fast data flows) is measured in bits per second. T-1 and T-3 lines often require expensive equipment.

Clients request information (ex. Web Browser), while servers provide the information (ex. Web Server). The client must interpret the HTML code it receives from the Web Server.

TCP - Transmission Control Protocol - connection oriented, reliable.
IP - Internet Protocol - addressing, type of service.
HTTP - Hypertext Transfer Protocol - allows linking (don't confuse with HTML)
FTP - File Transfer Protocol - used to transfer files.

http:\\	www.adobe.com/	products/golive/	main.html
Protocol	Domain Name	Directory Path	File

Current Browsers such as Netscape and Internet Explorer evolved from Mosaic.

Web Designers ABSOLUTELY MUST test their work in many different browsers, versions, and different monitor types.

If the Webmaster deletes or renames a file on the server, user's bookmarks directed to the old file will no longer work.

Plugins are programs that add features or services to your browser.
    Examples:
- Adobe Acrobat Reader for PDF formatted documents
- QuickTime for Internet Movies
- Real Player for audio and video files
- Flash for Internet Animations

HTML Structure
–   **Head and Body**
–   **Paired Tags**

Correct Structure Order <html><head><title></title></head><body></body></html>

XHTML = current standards
HTML 3.2 introduced tables, applets, superscript & subscript.
HTML 2.0 early HTML standard (1994)

Markup Languages -
–	**HTML**	**Original Markup Language, most widely used, files and text**
–	**SGML**	**Used to organize and tag elements of a document**
–	**XML**	**Allows data to be used in multiple formats**
–	**XHTML**	**Enhanced Interoperability**
–	**DHTML**	**Allows for increased interactivity.**

Document Object Model - Both pages and tags within pages are objects and can have their own properties.

<head>
–   **Includes title, scripting, style, meta information**
–   **Things contained within the head tags are generally not visible to the user.**

<body>
–   **Includes text, images, links, multimedia**
–   **Things contained withing the body tags are generally visible to the user.**

CSS Styles
–   **Inline Style- add styles to individual tags.**
–   **Embedded Style - Add styles to an entire Web Page**
–   **Linked Style - Apply (link) one .css design file to thousands of pages. Easy to change multiple pages at once.**

Tags - command to do something
Element - Tags with content between them
Attributes - Modified Tags

Tag Rules:
1. Contained within < >
2. Use both opening and closing tags (ex. <center> </center>
3. Generally use all lowercase letters
4. No spaces between symbols
5. Attributes are applied to opening tags, NOT closing tags.

****	specifies the guit.gif image from the img folder.
width=" "	width in pixels
height=" "	height in pixels
border=" "	used to add (or with a 0 value remove borders)
align=" "	Horizontally align image left, centered, or right
alt="description of image"	specifies a text description of the image.
hspace=" "	horizontal space
vspace=" "	vertical space

Hyperlink Example
** Yahoo **

An ABSOLUTE LINK includes a full path (one that you could type into the address bar of any browser and get to the page.)

A RELATIVE LINK includes only a partial path (usually the path from the root level of the Web Site.) Relative links are shorter than absolute links.

TABLES:

3 required tags <table> <tr> <td>

<table> denotes the beginning of a table

align=" "	Align the entire table left or right
border=" "	Create a visual border around the table
cellspacing=" "	Space between individual table cells
cell padding=" "	Space around the edges of the cell
width="x%" or width="x"	Width - in percent or pixels

<tr> table row

align=" "	horizontal alignment
valign=" "	vertical placement of text within a cell (top, centered, bottom)

<caption> defines a table caption

\<td\> defines individual table cells

       align=" "   **horizontal alignment of the cell contents**
       height=" "   **height in pixels or percent**
       width=" "   **width in pixels or percent**
       colspan=   **specifies how many columns this cell should span**
       rowspan=   **specifies how many rows this cell should span**

LISTS:

- **\<ol\> Ordered List (1,2,3)**
- **\<ul\> unordered list (bullets)**
- **\<li\> list item (defines items in your list)**
- **\<dl\> definition list (word followed by indented definition)**
- **\<dd\> definition description**

FRAMES:

- **\<frameset\>   defines a set of frames**
- **\<frame\>   defines one individual frame**
- **\<no frame\> specifies what to do if a browser does not support frames**

cols=" "   **creates columns**
rows=" "   **creates rows**
border=" "   **border width in pixels**
frame border=" "   **border width in pixels**
name=" "   **name of the frame (used to target other links to open in it.)**
noresize   **fixes frame size so users can not stretch or shrink it**
scrolling" "   **Determines is a scrollbar will display. Values are Yes, No, Auto**
src=" "   **URL of the page that the frame should load.**

Colors:

- **The three main colors in computer graphics are Red, Green, Blue**
- **Complementary colors produce grey when mixed.**
- **Computers display RGB using additive color methods.**
- **Printers use Cyan, Magenta, Yellow, and Black (CMYK.)**

Dithering - the process of substituting one color for another.

Web Safe colors use the following Hex Values: 00, 33, 66, 99, CC, FF,

2 types of images

1. **Vector** - mathematical formulas allow you to resize image without losing quality. (Use Bezier curves)
2. **Bitmap (Raster)** images simply remember what each pixel is, thus if increase size significantly it will have a low quality image.

GIF (Graphic Interchange Format)
- **Bitmap Graphics.**
- **Lossless Compression**
- **Allows animations and transparent colors.**
- **Good for images with large blocks of color**

JPG (Joint Photographic Experts Group)
- **Bitmap Graphics**
- **Good for images with a lot of colors**
- **You can determine the amount of compression**

PNG - Portable Network Graphic
- **May replace GIF eventually.**
- **Not widely used yet**

SVG - Scalable Vector Graphic

Other graphic formats : TIFF, EPS, BMP, WMF, PICT, PCX

Two types of compression
1. **Lossless - Similar to Zip Files. Things are compressed, yet nothing is lost.**
2. **Lossy - Some detail is sacrificed to give a smaller file size.**

CODECs - COmpression **DEC**ompression are used to compress and decompress audio and video.

Meta keywords are used to help identify the contents of a page.

Movie Formats : AVI, MOV, MPEG 1 (Video CD), MPEG 2 (DVD, HDTV)

Forms:

<form> defines a form
<input> defines a field
    <type> type of form object
    <name> name of form field
    <value> describes input control
    <size> width of input control in pixels

<maxlength> maximum number of input characters
<checked> indicates a checkbox or radio button should start out checked
<src> allows you to insert an image

<textarea> </textarea>   text input area
<select>   Drop down or text list menu
<option>   Defines menu list items

<input type= " ">

text	a text box
password	text appears as asterisks or bullets
checkbox	check box
radio	radio button
submit	uses the specified form processor to process the form.
reset	restore form to default values. (Delete all user entered values)

JavaScript NOT Java is included in the HTML code and executed on the client side.
VBScript - Client side scripting (somewhat similar to JavaScript, but Microsoft.)

Common Gateway Interface (CGI) allows for interactivity and dynamic elements.

Many CGI scripts are written in PERL (CGI is NOT a language, although this is a common misconception)

ASP - Active Server Page: Often used to access databases.
PHP - Personal Home Page
JSP - Java Server Page
SSI - Server Side Includes

FUNDAMENTALS OF WEB DESIGN
CHAPTER 3

There are 3 ways to create Web Pages.
1. **Hand coding with a text editor such as Notepad.**
2. **HTML Editor such as Microsoft Frontpage.**
3. **Conversion Utilities (ex. Using save as HTML from Microsoft Word)**

Hand Coding
- **More difficult**
- **Allows more control over pages**

HTML Editors
- **Simplify the coding process**
- **Offer options such as spell check.**
- **Advanced HTML editors are known as WYSIWYG Editors.**

Conversion Utilities are generally weak from a design standpoint.
Ex. Ant, Interleaf, and the conversion utilities included with Microsoft Office

Conversion Utilities often create "fat" code that contains unnecessary tags.

WYSIWYG EDITORS:
- **Adobe GoLive**
- **Microsoft Frontpage**
- **Macromedia Dreamweaver**

Many professional Web Designers use templates for speed, accuracy, consistency, etc.

Bitmap Editors: (Quality determined by number of pixels) (Good for photographs)
- **Adobe PhotoShop**
- **Macromedia Fireworks**
- **Corel PhotoPaint**

Vector Editors: (Images can be resized without significant quality loss.) (Good for text)
- **Adobe Illustrator**
- **Macromedia Freehand**
- **Corel Draw**

Animation Applications:
 - **Adobe LiveMotion**
 - **Macromedia Flash**

Examples of multimedia include animations, audio, and video.

Animated vector graphics are most often saved in .swf (Shockwave File) Format

Pre-Production Phase
- – **Goal Defining**
- – **Information Architecture (organization of content - should be quick and to the point)**
- – **Interface Design**
- – **Testing**

Production Phase:
- – **Initial Meeting**
- – **Project Brainstorming**
- – **Proposal Development**
- – **Contract Negotiation**
- – **Content Creation**
- – **Scripting and Programming**

Post-Production Phase
- – **Testing**
- – **Publishing**

The pre-production phase is where you meet with your client and begin planning the Web Site.

At the initial meeting, you should acquire information about the scope of the Web Site and find out why they want to establish a Web Site.

Scope - How much detail should be presented. This is determined mainly by your client's needs and abilities. You may have to interview key people in the business to determine the best scope.

Before the first meeting, you should research the company. You should also have a presentation available to demonstrate how you have helped other customers.

Know your intended Audience:
- – **Old or Young, Male or Female, Ethnicity, etc.**
- – **Will they appreciate multimedia and will their bandwidth support it?**
- – **What type of color scheme should you use?**
- – **Should you use mainly text or images?**
- – **How important is accessability to disabled users?**

Factors of Design:

- **Site Presentation**
- **Information**
- **Budget**
- **Time**
- **Features**
- **Competitors**

Web Design Positions:
- **Project Manager - Oversees Everything**
- **Graphic Artist - Produces all of the graphics in such a way that they will easily integrate into the Web Site.**
- **HTML Expert - capable of modifying code to overcome editor issues.**
- **Programmer - Writes the necessary JavaScript, VBScript, Pearl, Etc.**
- **Text Editor - corrects grammatical and spelling errors.**

It is IMPERATIVE that you know to whom you are responsible and develop a good working relationship and line of communication with them.

The Good: Use competitors sites as a source of inspiration.
The Bad: Copy competitors features or design exactly.
The Ugly: Getting Caught.

How will you bill your clients:
1. **Hourly - they pay you a set hourly rate and usually cover most related expenses.**
2. **You agree on a set amount to complete the project.**
3. **Some combination of these two.**

Once you know what your client needs done you should write up a proposal.
- **Start and Ending Dates**
- **Other Important Dates**
- **Details of what will be done**
- **Initial features**
- **Signature(s)**
-

Contracts should include:
- **Who owns what**

- **What needs to be accomplished and when**
- **Which side is responsible for doing what**
- **Time frame of project**
- **Payment Terms.**

3 Elements of a Contract
1. **Offer**
2. **Acceptance of Offer**
3. **Consideration ($$$)**

Whenever possible, "your side" should write the contract.
- **ALWAYS leave room for negotiation**
- **NEVER sign a contract without reading it**
- **Try to negotiate a win-win situation, but don't end up work for free.**

Content:
- **Logos**
- **Illustrations**
- **Address & Contact Information**
- **Photographs**
- **Audio Files**
- **Marketing Material**

Static Web Pages: All pages are preformatted (you make and pre-format them all)
Dynamic Web Pages: Feedback (page displayed) is based on input. One example of this would be a search page. Dynamic pages usually require some sort of database.

Most Web Pages should use a hierarchical design.

How to determine what information should be included on a Web Page.
- **Relevance - It must be relevant to the Site and page it is on.**
- **Utility - If it doesn't have a specific use, it's probably not worth using.**

Always use a flowchart (Site Map) as a blueprint. Many modern Web Design programs will help you automate this process.

Update Plans - How often will updates be necessary. Are you or your client responsible for updates?

After the proposal, you make a requirements document.
- **What does the client need to provide the designer**
- **What does the designer need to do the job.**

       –   **Provide a flow chart (Site Map)**
       –   **This is an excellent place to obtain your client's signature.**

A common Rush Job markup is 50%. Don't be afraid to charge this.

In the production phase, make a folder for each client and subfolders for each media type. You can organize the stuff on the Web Server later.

You should try to keep files organized on the FTP server, however, you should keep the number of folders you use to do this at a minimum.

Naming
       –   **The initial page should be called index.htm or index.html.**
       –   **Pages should be named using lowercase letters**
       –   **Use sensible abbreviations to keep page names short**

Terms:

Project - temporary endeavor to create a product or service
Process - Routine set of tasks repeated many times
Phase - Group of related tasks to achieve a specific milestone
Task - Lowest level of scheduleable detail
Deliverable - What you have to show for your work
Project Milestones - significant completion points during a project. These need not be
      deliverables.
Project Team - Temporary group to get a specific job done
Exit Points - Point at which issues may require termination of the project.
Requirements Document - Lists what, where, when, desired results, etc.
Scope - How much detail is necessary.

FUNDAMENTALS OF WEB DESIGN
CHAPTER 5

The World Wide Web is the world's most dynamic and interactive publishing resource yet.

3 types of Interactivity:

      1. Functional Interactivity Ex. Links.

      2. Feedback Interactivity Ex. Asking for email, shopping carts

      3. Real Time Interactivity - Chat Rooms

You must factor in screen resolution. Things can look very differently on monitors of varying size, resolution, number of colors, etc. What people see at first glance is important.

It is important to keep information current. This will help keep people coming back.

6 Key Fundamentals of Web Design

1. **Clarity** - symbols (ex. Picture of house goes to home page), pictures, and links should follow specific guidelines.

2. **Consistency** - Use the same navigation buttons, link colors, frames, sounds, etc. throughout the entire Web Site. Navigation bars, logos, etc. should appear in the same spot on every page.

3. **Contrast** - There should be a lot of contrast between backgrounds and text. Usability is more important than ascetics. What is readable on your monitor might be impossible to read on an older monitor.

4. **Simplicity** - Keep it simple, don't overwhelm visitors with text or graphics. It's okay to leave some negative space (areas with nothing in them).

5. **Structure** -

      – **Story Telling** - The site should have an intended beginning, middle and end. (Ex. Home page, shopping cart, checkout.)

      – **Prominence** - If something is very important, it should be easily noticeable. Try using large, colorful, or bold text.

      – **Grouping** - Like things should be placed together. Ex. All computers should be under a common group.

- Nesting - Embedding a group within a group. Ex. One would expect digital cameras to be located under electronics.

6. Emphasis - should be used to draw attention to important things. Bright colors, placement of objects, or even formatting can help accomplish this.

Due to the nature of the Internet, there are some uncontrollable factors. No matter how hard a Web Designer tries, certain people may have difficulties viewing your Web Page because of their browser or screen size.

Resolution - The number of pixels per inch. Generally 72 per inch on a Mac and 96 per inch on a PC.

Color Scheme Considerations:
- Use harmonious color
- Establish a dominant color scheme.
- There are 256 (8-bit) colors that are considered "Web Safe." Use Them.

Dithering - taking two or more web safe colors and mixing them.

Content Surfacing - placing important information in a place where it is likely to be seen.

2 Methods of displaying text
1. Build it into the HTML Code
2. Have it displayed as a graphic.

Anti-Aliasing - Technique used to minimize jagged edges.

If the font that your Web Page calls for is not available, the computer's default font will be used. Therefore, if you are using a font that is not readily available on most computer you should display it as a graphic.

Font Types:

- **Serif: special horizontal element helps guide the eye.**
- **Sans Serif: Literally without Serif (horizontal element).**
- **Cursive: Script**
- **Display: Specialized Text. (Ex. Many children's fonts)**

**Font tags use numbers 1-6, 6 is the largest. Ex. **

If you are using the header <h1> tags, 1 is the largest.

3 DON'TS

1. **Don't use more than 2 fonts (ex. Times New Roman)**
2. **Don't use more than 3 styles (ex. Bold)**
3. **Don't use more than 3 sizes (ex. 12 pt.)**

Leading - the amount of space between lines of type.

Guidelines to hooking your audience:

- **Pages should load quickly and not require plugins.**
- **Structure & Navigation should be clear.**
- **Provide clear, concise, up to date content.**
- **Update frequently, utilize email lists, promotions, and dynamic features.**

The Internet Advertising Bureau (IAB) has 3 set sizes for banner ads.

- **468 x 60**
- **400 x 40**
- **234 x 60**

Frames:

- **Each frame loads a different page**
- **You can change one frame without having to change all frames.**
- **Accessibility for disabled users is decreased. Introduces Printing problems.**

FUNDAMENTALS OF WEB DESIGN
CHAPTER 6

3 Key Components:

1. **GUI - The part of the Web Site that users see**

2. **Usability - The effectiveness, efficiency, and satisfaction with which users can achieve a task.**

3. **Navigation - How the user finds information.**

In large Web Sites, you can use different colors to distinguish between categories. If you utilize this technique, make sure that your colors are all from the same family and that you do not use more than 5 colors.

Nearly all computers have Times New Roman and Helvetica, which makes these good choices of fonts to use on your Web Site.

In graphic design, a metaphor is a symbol of an idea. (Ex. Picture of house = link to home page)

Navigational Scheme:

-   **Keep the number of links to get to any page within your website at a minimum. (Optimally under 3)**

-   **Use fast loading text links whenever feasible.**

-   **Place all navigation bars in a similar location on the page.**

N A V	Where I am
B A R	What's here

Style guides (sheets) consist of information about:

- **Allowed Type Fonts.**
- **Color Preferences**
- **Logos**
- **Pictures**

Home page guidelines: Proportion, Fluidity, Direction, Structure, Mood.

Most pages complete with all the images that they load should be under 45k. If you must have something big (ex. Multimedia), let the user know in advance, and if possible provide alternatives.

Legibility

- **High contrast (ex. black text on a white background)**
- **Plain colored or subtle backgrounds. (Generally light colors)**
- **Blocks of text should be left aligned.**
- **Short Paragraphs**

Readability

- **Use CONCISE language and write for your audience.**
- **Browsability -people should be able to easily extract facts from your use of headings, keywords, lists, etc. Don't put more than one main idea per paragraph.**

Help should be accessible from every page.

- **At a minimum there should be a help email link.**
- **In a best case scenario there could be Frequently Asked Questions (FAQs), searchable databases, live tech support, etc.**

Two types of Links

– Interpage Links - load a different page. (From index.html to products.html)

– Intrapage Links - go to a different spot on the same page. AKA Bookmarks in Microsoft Frontpage. (From the top of index.html to the bottom of index.html.)

Image maps - images with multiple clickable "hotspots." Often used for graphical navigation bars.

In order to have search functionality, your pages must contain META information. This is true for having an internal search engine on your page as well as having search engines such as yahoo find you.

In order to have frames, you must have one HTML file that tells the browser how to display the frames and what pages it should load into the frames.

Mouse Effects

– Mouse Over - image changes to emphasize the section that the mouse is positioned over.

– On Click - Images changes when clicked.

– Mouse Out - image changes when mouse moves off of it.

Navigation Hierarchy

– Global Navigation goes between main sections of a Web Site.

– Parallel Navigation is used to move around within a section.

– Local navigation helps to locate something within a page.

– In a perfect world, it takes no more than 3 clicks to get to any page within a Web Site.

Naming Convention

- **Short names are good**
- **Easy to spell names are good (In case a user wants to remember a URL)**
- **Generally use all lowercase letter.**
- **Use letters and numbers only.**

Breadcrumb Trail: Shows users where they came from (Ex. Home: Contact Me: Search)

Your navigation scheme must easily answer the following questions:

- **Where am I**
- **Where can I go**
- **How do I return to where I was**

The WAI (Web Accessibility Initiative) is a part of the W3C that sets accessibility guidelines.

Guidelines:

– **Provide alternatives to visual context. (Ex. Alternate text for images)**

– **Be concise**

– **Your Site should be easy to navigate without a mouse (Ex. Tab order)**

– **Text links are best accessibility wise because they can be read by text readers.**

How to help the visually impaired:

– **Use short text with <H1> <H2> etc. to help summarize Text.**

– **Never restrict your fonts so that they can not be enlarged by he browser.**

– **Have someone that is color-blind review your site.**

– **Use alternate text to describe images and imagemaps.**

– **This also lowers download time and can help search engines find you.**

– **If the image does not warrant a description use ALT= "" so that people know that you didn't simply forget to include alternate text.**

How to help people with Auditory Disabilities:

– **Provide transcripts of audio clips**

– **Provide subtitles of video clips**

How to help people with motor disabilities:

Some people may have difficulty moving the mouse of typing on the keyboard. Your site should be developed with specific tab orders to enhance keyboard navigation.

Link tags allow you to specify a special page for disabled users that their browsers will automatically detect and display.

(Note on this page green text indicates good HTML code to use for accessibility)

<a href="cwdsa.html"
title="A Link To My CWDSA Page"> My CWDSA Page

<acronym title= ""> </acronym>

<a href="training.html" tabindex= "3"> training
adding this simple code greatly enhances navigation without a mouse. Especially in forms.

<legend> Billing Information </legend>
<label for="customer-name"> Name of customer: </label>
<input type="text" name="customer-name">

<optgroup> label="North America">
    <option> US
    <option> Canada

Table captions <caption> Population by country </caption>

<table summary="This is a description of my table">

Note: Tables and Accessibility generally don't go together. From an accessibility standpoint, it is best to completely avoid tables.

Available Assistive Technologies
– Screen magnifiers, screen readers, refreshable braille display, voice recognition, head pointing devices, eye trackers.

http://www.useablenet.com/home.htm - This site will examine your site and make accessibility recommendations.

When creating a Web Site for multiple human languages (ex. English and French) you should always use human translators. Software translators provide literal translations with little to no knowledge of grammar.

Equal access for disabled users is governed by
- Americans with Disabilities Act (ADA)
- Rehabilitation act of 1973 - Section 508

The following software can help you integrate accessibility:
- A-Prompt Toolkit
- Lift

International Concerns
- Local - the language and culture
- Localization - tailors a Web Site design and context to a specific locale.

Avoid using the following symbols on International Web Sites.
- Hands, stop signs or lights, mailboxes, check marks, or exclamation points.

- Carefully consider the colors that you use. What symbolizes royalty in one country symbolizes death in another. Often times it is necessary to have a different Web Site for different countries. If not, make sure everything is universally symbolic.

International Web Sites need to make sure that all of the following are in the correct format:
- telephone numbers
- addresses
- currency
- date / time / calendar layout (Spell out months and give military time in addition to local time format)
- weights & measures (should generally include metric.)

Text on international Web Pages should be even more clear and concise than normal.

–   **Use short simple sentences**

–   **Avoid slang & words with multiple meanings**

Web text should be shorter than printed text because it is slower and harder to read

- **Utilize summaries**
- **Only one idea per paragraph**
- **Scanability - should be easy to extract key facts from**
- **Clarity**
- **The less scrolling that is required, the better.**

Stickiness - a sites ability to attract repeat visitors. Keeping information current will greatly enhance this.

Legal issues:

- **Do not copy**
- **Copyright your own work. (Ex. © K. P. Shumaker 2002. All rights reserved)**
- **Don't automatically assume that materials that your client gives you are free of obligation.**

ANY ORIGINAL WORK IS AUTOMATICALLY COPYRIGHTED. UNDER US LAW IT NEEDS NOT SAY THIS NOR BE REGISTERED.

Optical Character Recognition (OCR) can convert printed text into electronic form. However, you must proof-read carefully as this technology is not perfect.

Typography is the arrangement and appearance of printed materials.

Flash animations have the extension .swf

Animated Gifs are an easy way to add simple animations with small file sizes. They display a series of static images played back in succession.

Ways of obtaining graphics for your Web Site:

- Scanned photographs or illustrations
- Flatbed scanners scan one line at a time by reflecting light off the image.
- Transparency scanners pass light through the transparent film. (Better Quality)
- Drum Scanners (Best Quality)

TWAIN is a cross-platform interface for acquiring images captured by scanners and digital cameras. It provides a separate layer between applications and hardware.

DPI=Dots Per Inch, PPI=Pixels Per Inch.

DPI determines the highest possible PPI although the highest possible value is usually not displayed.

Digital Cameras - light comes through the camera lens and is focused on CCDS or CMOS detector chips which convert it into digital picture format. The detectors determine quality and CCDS are used by most new cameras.

Preparing an image

- Optimize Quality
- Edit to suit needs
- Size as needed
- Format and compress

Steps to manipulate an image:

- Image input
- Optimizing
- Editing
- Resizing
- Image Saving

Factors that can effect CRT monitor output

- **Brightness and Contrast (Intensity)**
- **Gamma (brightness of midtone values)**
- **Phosphorus**
- **White Point**

De-skewing - rotating an image until it appears straight.

Photoshop Filter
- **Despeckle Filter - "reduces noise by blurring the image subtly while preserving areas with story contrast."**
- **Median Filter - adjusts the brightness of adjacent pixels by interpolating their values. Ignores values that are above a set threshold (thus eliminating scratches).**
- **Dust and scratch filter.**

The levels option creates a histogram of your images values and allows you to shift them.

Cropping - cutting away unnecessary parts of the image.

Rotating - Moving all pixels about a central axis.

Resizing - Increasing or reducing the size (remember to always do this in an image editor NOT a WYSIWYG editor.)

Slicing - cut an image up into different parts (files) that can load and be compressed differently. If used correctly, this can help reduce download time. (Also useful to help keep competitors from stealing images.)

The "change canvas size" option can be used to add or remove blank space surrounding the image.

A Webmaster must constantly consider Quality vs. File Size. The recommended Web resolution is somewhere around 72 pixels per inch. A typical Web Page and its graphics should not exceed 45k.

You shouldn't use animation unless it will both improve the delivery of information and be quick and easy to download.

3 ways to reduce download time:

1. **Reduce information**
2. **Animate a single graphic instead of using multiple graphics.**
3. **Utilize streaming. (Have the beginning start playing while the rest downloads.**

Streaming Technologies:

- **RealAudio**
- **MP3**
- **Liquid Audio**

Audio sampling frequencies range from 11 to 44 kHz and can be 8 or 16 bit.

Sound editors include Cool Edit, Sound Forge, Audio Track, Pro Tools, and Sound Edit 16 (Macromedia)

<embed src= "   " </embed> used to embed things such as music within a Web Page.

Multicasting is where the server sends out one signal and it is reflected to multiple destinations.

Common Video Resolutions:

- **720 x 480 typical**
- **320 x 240 multimedia**
- **240 x 180 internetwork.**

Interactivity: The way a Web Site can respond to a user's actions and choices. (Ex. Ordering something, rollover buttons, clicking on a link)

Animation - a one way moving presentation (Ex. Movie of ball rolling)

DON'T CONFUSE INTERACTIVITY AND ANIMATION. THEY ARE TWO VERY DIFFERENT THINGS.

Interactivity should only be used in cases where the Web Site needs the feature and it benefits the user in a specific way.

People can interact with a Web Site by ordering products, requesting support, giving feedback, etc.

Virtual Reality:
- **Render on the fly - images are rendered in real time.**
- **Prerendered - images are prerecorded and played back. More detail than render on the fly.**
- **Interactive panoramas - 360 degree simulated view.**

VRML - Virtual Reality Modeling Language.

Adobe Atmosphere is used to create 3-D works.

2 new multimedia options include Scalable Vector Graphics (SVG) and Synchronized Multimedia Integration Language (SMIL).

Most rich media ads are created as Shockwave (.swf) files.

Rollover buttons emphasize the area that the mouse if currently positioned over.

Keep forms short and simple. Remember, most people will leave as much blank as possible, so it is not always worth your time to create optional form fields. If you must collect a lot of information using a form, divide it up onto several pages. Placing form elements within a table can help with alignment.

a href="mailto:kyleshumaker@yahoo.com"> Description </>

Applets are small programs that run in your browser. They cannot access the Hard Disk

For example, JavaScript Applets are frequently used to verify form data before it is submitted.

A database is simply an organized way to store and access information.

2 types of Web Sites.
1. Static - Webmaster must make and pre-format all pages.
2. Dynamic - Webmaster makes a generic format and databases fill in content.

Personalized Web Sites recognize repeat users and respond to them. To do this they must:
1. Store information about the user
2. Recall the information when the user returns to the site
3. Personalize the page for that particular user.

Cookies - small text files used to store information such as username and password or shopping cart contents.

Merchant Account - an account provided by a bank that is required to process credit card payments.

Public Key encryption mechanisms use both a public key and a private key. You must have one to decode the other.

Public Key Infrastructure (PKI) was developed by Verisign. This method uses digital certificates which contain the name of the company, their public key, serial number, and expiration date.

Secure Socket Layer (SSL) uses a combination of public-key and digital certificates to provide very secure communications. It is the most common security protocol in use on the Internet today.

Forums - bring people with a common interest together.

Chat - real time text or audio communication between two or more people in a chat room.

Video Conferencing - Similar to chat, but with Video. Saves time and allows people in remote locations to meet, but requires a lot of bandwidth and hardware.

Others - Email, Instant Messaging, Online Invitations, Calendars, Organizers, Greeting Cards, etc.

Your Web Site should be tested on different platforms (PC vs Mac), Browsers (Internet Explorer, Netscape, Opera, Lynx) and different versions (4, 5, 6)

Make sure to test the Web Site on monitors of varying size, resolution and number of colors.

Check forms and email links to ensure that you are receiving input properly.

Check all text for grammar, spelling, punctuation, etc. (Hint: Would you have thought to check to spelling of the alternate image text and page titles in the HTML code? Your editor probably didn't think of this either.

Common HTML Problems:
- **unclosed tags**
- **pages without titles**
- **alignment problems**
- **forgetting to include alternate text for images**

To avoid these problems you should run an HTML code validator on your page before it is published.

Image Considerations:
- **All images on a page should total under 30k.**
- **Gif is good for images with large blocks of color.**
- **Jpg is best for photographs.**
- **Reduce colors, reduce physical size (In graphic editor)**
- **use height=and width= so that browser will set aside the allotted space and load the rest of the page first. NOT TO SET SIZE. (That should be done in an image editor.**

Interlaced images load a low quality image very quickly and then work to enhance it. This eliminates users having to stare at blank space, by showing them a rough sketch so that they can determine if they want to wait for the higher quality.

Most browsers cache images which is a good reason to use all of the same logos, graphical navigation bars, etc. The use of Cascading Style Sheets (CSS) can further enhance this.

HTML loads from the top down, so it is possible to create the illusion of speed by giving your viewers something to look at which the rest loads.

Many editors come with link management programs. These are great for checking availability, but will not tell you if the content of external links has changed and become irrelevant.

Be careful when removing a page from the Web Server because users who bookmarked it might become frustrated. Experienced Web Designers setup their Web Server so that if a page can not be found it loads a search page.

Change in inevitable. Make sure your client understands who is responsible for this and if that person is your client, make sure they have the correct templates, editors, etc.

Ways to increase stickiness:
- display date
- rotate images
- rotate featured products
- Web Site Specials "free shipping weekend"
- Email Lists

Monitor your competition's sites for inspirations on how to increase your sites stickiness.

Test early, and test often. This needs not require a lot of people.

Usability testing - involves watching people use your Web Site and observing the problems they run into.

A site wide consistency check should be performed in the post-production phase.

– **Related Page Layouts**

– **Appropriate Images**

– **Similar Text**

Recruiting Testers:

– **Don't give them any information before hand.**

– **Offer reasonable compensation.**

– **Don't waste too much time selecting "perfect users." A variety of people will be using your Web Site anyway.**

2 Test Types

– **"get it" - Formal Test. Ask a user to do or find something.**

– **"cubicle" - Informal Test. Ask the next guy over.**

FUNDAMENTALS OF WEB DESIGN
CHAPTER 11

You and your client must work together to make sure that everything gets done.

Before your site goes live it must have a privacy policy outlining what information will be collected and how it will be used. TRUSTe is a nonprofit company that reviews privacy policies.

Cookies are simply small bits of data a Web Site places on the viewer's hard drive to keep track of information such as cart contents, username, etc. They cannot contain viruses.

Secure Socket Layer "SSL" is used to encrypt online transactions.

Before you publish, make sure you are not violating any copyright or intellectual property laws.

Trademarks - devices that label, identify, and distinguish products or services in the market place.
- Ex. Nike Symbol, Names, short phrases.
- Any Logo

Copyright - an exclusive ownership interest in literary, artistic work, software, images, etc.

Patent - Protects inventions. Prevents someone from developing and marketing a similar product for the duration of the patent.

Fair use laws also apply on the Web. Just remember to cite the original author and publisher.

Your client will probably look to you for hosting information:

If they are interested in hosting their own Web Site, they must have :

- server
- always on connection
- router
- firewall
- power backup
- administrator
- a contingency plan
- backup server
- backup connection

Remote hosting considerations:
- Amount of server space needed?
- Size of data transfer (How much per month)
- Connection Speed
- Platform
- Are banner ads allowed if it reduces costs?
- Is access to CGI important?

Every computer on the Internet has a unique Internet Protocol (IP) Address.

Since these IP addresses are hard to remember, DNS was developed to map character strings to numerical IP Addresses.

Top level domains include .com (commercial) .net (network infrastructure) .edu (educational) .gov (government) .org (organization) (and several others)*

When selecting a domain name, choose a memorable, short, and easy to spell name.

FTP clients must be configured to locate and logon to your Web Server. After that, you transfer files similar to Windows Explorer. Two popular FTP Clients are WS_FTP & CuteFTP

Some Web Browsers and Web Page Editors have FTP / WEBDAV functionality built into

them.

WEBDAV is an open standard file transfer protocol. It is more secure than FTP because it does not send passwords as clear text.

You should test everything again after you have uploaded it to the Web Server to see how it is interacting with the server platform.

Marketing
– **Focus on your key audience.**
– **Ways to get listed in Search Engines**
 – **Wait to be discovered**
 – **Submit to one search engine at a time**
 – **Submit to several search engines at once. (Usually costs a nominal fee)**

Search Engines check meta tags, body text, domain name, file names, page titles, etc.

It may actually be smart to include international spellings and common misspellings in your Meta keywords.

Monitor your search engine rank. It doesn't do any good to be listed as #9,2555,625,320

Advertisement Vocabulary -
 Banner Ad - graphical advertisement usually 480 x 60 pixels.
 Click through - the number of people who click on the banner ad.
 Impressions - the number of people who see the page that the ad is on.
 CPM - Cost per thousand ad displays.
 Flat Free - Pay one price to have it listed for a specific number of hours, days, etc.

Advertisement Rates:

- **Click-through - Pay per click**
- **Banner exchange - you display someone else's and they display yours.**
- **CPM - flat fee per thousand impressions.**
- **Purchase a phrase from a search engine - often runs upwards of $10,000**

Email is a great marketing tool, but don't spam.

Link Exchanges will often display your link in return for you displaying their's.

Web Ring - group of sites that provide links to one another.

Co-Branding - two sites that partner with each other to provide additional services to their users. (Ex. A third party news feed integrated into a page.)

The Children's Online Privacy Protection Act (COPPA) requires that you obtain "verifiable parental consent" before collecting personal information from children under the age of 13.

* Western Samoa (Internet Country Code WS) will allow you to purchase an address under their top level domain (.ws) for a small annual fee. They market the .ws as **W**eb **S**ite. Not particularly relevant, but interesting.