**Web Design and Development**

Although many people currently design and build web sites, very few can make a site that not only looks good, but also navigates and functions flawlessly. In this section you will start by learning about the most common web-related professions in today’s world. Also covered is an overview of how to construct a web site from start to finish. Perhaps the most important topic covered will be the Web Design Principles. These are solid truths of web design that must be followed if you are to build a professional looking site (and get a good grade in this class). Lastly, you will take part in activities critiquing sites on the web today, comparing them to our Web Design Principles.

**Web Professionals**

Almost every major business in today’s world has a presence on the World Wide Web. There are many ways a business can utilize a web site. Some companies have a web site that merely informs the public about them, acting as a “online brochure”. On the other end of the spectrum, many businesses use their web site as their #1 revenue source through online e-commerce.

No matter how a company uses their web site, two things are certain, someone has build the site and someone is maintaining it. Often times the person or team that has built the web site is also maintaining it. In the past, most companies hired web design firms to build and maintain their web site. As more and more people enter the job market with solid computer and web skills, more businesses are hiring people into their company to work on the web site. Although the best web sites are still constructed by the high-end web design and development firms.

Most web professionals fall into one of two categories Web Designers or Web Developers. The Web Designer is primarily responsible for how the site looks, while the Web Developer is responsible for how well the site works. If working together within a team of web professionals, both web designers and developers must work closely together for the site to reach its full potential. These two professions, along with a couple others are discussed in detail below.

**Web Designer**

The web designer plans and builds the visual interface of a web site. It is their job to make the visitor’s interaction with the site’s programming as intuitive and user friendly as possible. They design the banners, buttons, images, color schemes, text, and all other visual aspects of a web site. The site must be professional and “look the part”. If it is sloppily designed, visitors will assume the content of the site is sub-standard as well.

One of the web designer’s primary concerns is to evoke a specific impression in the user’s mind about the site. If building a web site for a Amusement or Theme Park, the web designer would want the site to evoke feelings of joy, adventure, and excitement. If building a web site for a bank, the web designer would want to evoke feelings of safety and trust. The well-rounded web designer can design to all audiences, from those planning a vacation to those looking for help on figuring their taxes. If the web designer evokes the wrong feelings, the visitor may leave the site for one with which they feel more comfortable.

Today a wide variety of powerful software is available to help web designers construct a site that appeals to the target audience, is highly functional, and will accomplish the purpose of the site as efficiently as possible.

**Web Developer (Programmer)**

It is easy to build basic web sites, those that do not offer high levels of interactivity. These web sites allow you to navigate throughout the site, usually only displaying information. Once a web site becomes more interactive, the skills of a good web developer are needed. For example, web sites that are password protected, feature on-line purchasing, or searchable student directories (like most universities now have), required the skills of a programmer. The general rule of thumb is, the more complicated your site is, the more programming will be involved. Travel sites such as Travelocity, Expedia, and Orbitz all contain extensive programming that allows visitors to sort and review thousands of airline flights. Then the site allows them to select and purchase the flights they want. The amount of programming skill necessary to accomplish online purchases of this magnitude is truly impressive.

While the web designer primarily uses software to design a web site, web developers often “hand code” into the web site. Today’s web developer is well versed in the programming languages of the World Wide Web. The foundation language that every web developer must know is HTML (Hyper Text Markup Language). Every web page uses some form or variation of HTML. When interactivity is added to a web site, additional languages and associated technologies such as JavaScript, SQL, C++, Cold Fusion and others become important. The job of the web developer is critical to the success of the site. If a visitor comes to the site and it is not working properly, he or she will immediately leave for a site that is working properly, and probably never come back.

**Web Director (Manager)**

Both web design and development are extremely time consuming. Therefore, a team of designers and developers are needed to maintain a constantly changing or large site. Most large web sites, like the travel sites listed above, are built and maintained by a team of web professionals. Their leader is called a Web Director. Web directors do not necessarily have to have the highest level of web skills, but they must have a good understanding of the entire process and possess great personnel management and administrative skills.

**Webmaster**

The term “Webmaster” was made popular in the late 90’s. It refers to someone who can do it all: design, develop, and maintain a web site. They are the one person in charge of a web site. In today’s world, this is only true with small to medium sized sites with limited interactivity. Sites that are large, highly interactive, or are often updated, simply can’t be maintained by just one person. Not only would he or she not have enough time, but with the rapid pace at which new web technologies are appearing, it is almost impossible for one person to keep “up to speed” in the world of web design and development.

Many people do not care for the term Webmaster. This is because today, a true Webmaster is extremely rare. Most carrying the title are merely competent, not possessing a mastery of any part of web design and development.

**7 Steps in Building a Web Site**

Building a web site should be a calculated and carefully planned venture. Significant hours of planning, research, and preparation must be invested before any work on the computer begins.

**1.Determine the Problems, Define the Purpose/Goals**

Most web sites are built to solve a problem or meet a need. For example, say your were a web professional and a dentist came to your office and said, “I have two problems: I am not getting enough patients and the patients I do have often forget their 6 month check-up appointments. Can a web site help me?” The problems of course are that he does not have enough patients, and the ones that he has often forget their appointment times. The goals of the web site should then be to gain new customers and help the current customers remember their appointments.

**2.Gather Info & Research**

In this step you might perform an in-depth interview about all aspects of his business. You then may want to tour his office. Next, it is always important to find out as much about whom you are building the site for as you possibly can. This is called the “target audience”, or in this case, his his current and potential customers. Your primary goal in this step is to Identify and Understand the target audience. It is essential to find out what % of his customer are children, teens, young adults, middle aged adults, and senior citizens.

**3.Shape Solution, Determine Content, Choose Technology, Story board/Map Site**

Remember the problem? Here is a solution your could propose to him. “Yes, we could build you a web site that would showcase your fine facilities, inform people of your services and location, and allow them to make appointments online. For your current customers, we could allow them to log in and view their next appointment and we could automatically send them an e-mail reminder.” Your focus in this step should be to determine content for the site, choose technologies to use, and story board or map out the site.

**4. Gather Assets**

This would include taking digital images of the office, collecting information such as hours of operation, history of the practice, and other important information that need to be placed on the site.

**5. Construct Site**

Keeping the purpose in mind, construct a site based upon the Site Map you have already devised.

**6. Test, Improve, Test, Improve, Etc.**

As portions of the site nears completion, you must test every page, link, button and all other parts of the site. Carefully study the site, asking yourself, is there any way I can make improvements? Once the site is complete, it is always a good idea to have a few people test it out, just to get their opinion on how easy it is to use and if it makes sense to them. They may see some things that can be improved. After you have integrated their improvements, show the site to your client, the dentist. He may have some things that he wants you to change. Make those changes and you are almost finished.

**7. Publicize the Site**

Discuss with your client the various means of publicizing the site such as search engine submission, placing the web address on business cards, office paperwork, in the newspaper ads, etc.

**Web Design Principles**

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| Your home page is the most important page of your web site because it is the first page visitors will see. A visitor’s entire impression of your site and whomever or whatever it represents could be determined within the first few seconds of scanning the home page. |
| 1. | If your home page has a logo, place it in a highly visible location.  Logos often represent instant association.  For example, when you see the "Golden Arches", right away you think of McDonalds. |
| 2. | Include a “tag line” that summarizes the purpose of the site.  This will help the visitor quickly determine if you can meet their needs. Don't make visitors guess what your site is about. |
| 3. | Avoid repetitive content.  In the limited space available on the home page, there is certainly not room for the same information displayed twice. |
| 4. | Place the navigation in a highly noticeable area of the page.  Most navigation is placed either across the top or along the left side of the page. |
| 5. | Don’t include an ACTIVE link to the home page on the home page.  Why would you ever want to link a page to itself? An inactive link is okay as long it's clearly visible that it's not working. |
| 6. | Offer users direct links to important site features.  If there is one specific thing visitors are coming to your site for, save them time by offering a link to it directly from the home page. |
| 7. | Use graphics that show real content, not just decoration for your home page.   Make sure all your home page content contributes to the overall purpose of your site. |
| 8. | Don’t place an animated intro before your home page.  Animated intros are a thing of the past.  Even when they were a fad, few people wanted to watch one more than once.  They are really annoying to people wanting to visit your page more than once. |
| 9. | Don’t place anything in your web site that does not work toward the purpose of your site. |
| 10. | Do not welcome users to your site. If people were not welcome to visit a web page, it would not be placed for public access on the world wide web. |
| 11. | Do not use a hit or site counter. They are also yesterday's design effect. If your site is on the world wide web your hosting company can discretely supply you with information about the number of visitors you have had, the browsers that your customers use, how long they have stayed at your site and more. Also, hit counters rarely reflect the actual number of visitors since they can be started on any number and adjusted at any time. |
| 12. | Keep the home page clean and professional.  The home page has only about 5 seconds to make a first impression.  Make the most of it by keeping your site clean and looking like it was designed by a top web designer. |
| Page Layout |
| 13. | Use invisible tables or layers/div tags to hold all elements of a web page. Content of the page must be kept in proper alignment. Adjust your cell or layer padding as needed and set borders to "0".  Table borders should not be visible unless the table is holding numerical data. |
| 14. | Keep scrolling to a minimum. This does increase the number of pages, but it is easier to keep the user on track this way. Make sure all content is arranged to utilize the entire width of your screen, this will minimize vertical scrolling. |
| 15. | Never design a page that is locked into a width wider than 1200 pixels. Making pages any wider will cause horizontal scrolling. It is usually best to make a web page resizable to fit the screen resolution the user has set on their computer. |
| 16. | Space content evenly throughout the page. Avoid trapped empty space on your pages. Don’t make a “claustrophobic” page by cramming to much in at once. |
| 17. |

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| Clashing colors should be avoided at all costs. Clashing colors make the site difficult to read and are hard on the eyes of visitors. Clashing colors chase away your customers. |

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|     This Text     is clashing |   This text is  not Clashing |

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| Your site should have an organized, matching color scheme that is appropriate for your customer. Consider the colors that would be appropriate for a baby clothes outlet versus a neighborhood hardware store. Obviously, these sites demand a very different color palette. Perhaps, something like the colors shown at the right. Imagine if the Hardware store and the Baby Store switched site colors. Both would undoubtedly lose customers. |

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| Baby Store | Hardware Store |
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| 18. | Web page backgrounds should be solid in color. Use either a very light colored background with very dark text or a very dark background with very light colored text.Using an image for a background is rarely a good idea.  If used, make sure it is somewhat transparent so text can be easily read on it.   Avoid using repeating background images. They make text difficult to read and look amateurish. |
| 19. | Page elements that are intended to be in the same spot in every page should not “jump” as you go from page to page. |
| Using Graphics |
| 20. | Optimize every photo image through the following 5 step process.1) Crop the image to remove unneeded parts of the image2) Resize the image to fit desired its space on the web page3) Adjust the brightness and contrast4) Adjust the color balance5) Sharpen the imageNever resize and image an image with HTML or web editors such as Dreamweaver. Use a web graphics program such as Fireworks or ImageReady. |
| 21. | Optimize your images to find the proper balance between an image’s file size and its quality. |
| 22. |

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| Save images in the proper file format. Photographs are to saved as .jpegs (.jpg). Solid colored images are to be saved a .gifs.  If you right-click on the images at the right and choose Properties, you will see that the image of the horse is a .gif file and the image of the network cable is a .jpg file. | http://www.edulaunch.com/sites/default/files/images/lessons/basics/section_3/gif_example.gifGIF File | http://www.edulaunch.com/sites/default/files/images/lessons/basics/section_3/jpeg_example.jpgJPEG File |

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| 23. |

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| When placing text in your images, make sure that the text is not covering up anything important in the photo. As you can see at the right, the first image is preferable to the second.  Be certain the color of the text allows it to be readable against the background of the photo.  The image below displays text that is not only in the wrong place, but it is also too hard to read.http://www.edulaunch.com/sites/default/files/images/lessons/basics/section_3/image_text_hard_to%20_read.jpg | http://www.edulaunch.com/sites/default/files/images/lessons/basics/section_3/text_on_image_correct.jpgCorrect | http://www.edulaunch.com/sites/default/files/images/lessons/basics/section_3/text_on_image_incorrect.jpgIncorrect |

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| 24. | Consider a border for your image to make it look more professional. The exception to this is you the image is intended to blend or gradually fade into the background of the page. |
| 25. | Large images that take up nearly the entire screen should not be used unless it is critical to the content of the page. Unnecessarily large images take too long to download. |
| 26. |

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| Do not use animated gifs. Animated gifs are yesterday's design effect. If you use them your site will look like it was made way back in the mid 90’s.  As proven at the right, they are also extremely annoying.  Real web designers don't use them. | http://www.edulaunch.com/sites/default/files/images/lessons/basics/section_3/animated_floppy.gif |

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| 27. | Place captions below images if their meaning is not clear. |
| Using Multimedia |
| 28. | Never place background music in a page. If you want to provide music for them to listen to, allow them to click to active it. |
| 29. | When offering video, allow viewers to choose between STREAMING and DOWNLOADING.  Streaming is what you commonly see on YouTube and Hulu.  Most streaming now utilizes the Flash Player.  When downloading, offer different sizes and player options so those with differing connection speeds and software can all view your video. |
| 30. | Use Flash only when it enhances your site. Too many people use it just for the sake of animating something on their site. Flash is a remarkable tool for the web, but it is often misused by web designers. |
| Using Text |
| 31. | Don’t use a variety of type faces or fonts without a good reason. It is often wise to just stay with one.  Not all fonts are supported by all browsers, so avoid choosing a fancy, obscure font for your site. The most common fonts are: arial, geneva, helvetica, verdana and times new roman. Edulaunch lessons are made using verdana. |
| 32. | Blue text should not be used unless it is a link.  |
| 33. | Avoid changing the color of text within a page without a good reason. For paragraphs of text where your goal is to give the user information, black text on a white background is best.  |
| 34. |

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| Text of a sentence or longer shouldleft justified, not centered.  NEVER leave 1-3 words left in the middle of the page(seen left). | This is left justified text. | This is center justified text. |

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| 35. | Don't use a scrolling marquee. It detracts from the usability of your site. Repeat visitors will find it annoying.  |
| Site Navigation |
| 36. | Don’t change link colors within the same page and in most cases, you would not want to do it within a single site.This only confuses visitors as to which are links and which are not. |
| 37. | If your page is long, place navigational headers at the bottom of your pages. If your pages are consistently longer than one-and-a-half screens, it may be valuable to repeat any navigational links at the bottom of a page as well as putting them at the top, to help readers navigate without forcing them to always scroll to the top of your pages. |
| 38. | When linking within a body of text, link only essential parts. For example, if you wanted to link to the details of Tim Duncan’s new contract:

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| Today the San Antonio Spurs signed Tim Duncan to a [multi-year contract](http://www.spurs.com/). |
| *Is preferable to:* |
| [Today the San Antonio Spurs signed Tim Duncan to a multi-year contract](http://www.spurs.com/). |

Write as if there were no links in the text. For example:

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| [Yosemite National Park](http://www.nps.gov/yose/) has a new web site. |
| *Is preferable to:* |
| [Click here](http://www.nps.gov/yose/) to visit Yosemite National Park’s new web site. |

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| Content Delivery |
| 39.  | Identify and Build your Site for your Target Audience - All aspects of web design, (color, layout, content, navigation etc.) should be done with the user in mind. Before you begin the design of a site, you should identify the characteristics of your target audience as closely as possible. Some questions you may want answered are listed below.Ask the questions:1) What is the bandwidth of visitors?(see below)2) Why will users be visiting the site? What needs do your viewers have that you are hoping to meet with this web site? What are their demographics(ages)?3) What will bring them back to the site after they have left?4) How computer savvy will are they?5) What information should be on the home page so that users won't have to "sift" through the site to find it.Consider the loading time of your site in relation to your target audience. Many users, in fact most, still use a 56k dial up connection. Nothing sends viewers fleeing from a site like excessive load time. This means you need to keep the file size of all your pages down so that your customers will stick around to see the pages you have designed. |
| 40. | Put as much content as close to the home page as possible. The more pages visitors have the click through the more annoyed they will be. |
| 41. | Make sure every page has a purpose. |
| 42. | Write content as concise and exact as possible. Short, factual, well-written, pages with interesting links seems to attract the most visitors. |
| 43. | Choose an HTML title to reflect contents of the page. The title that appears in the header of the browser window should match the HTML page title. Try to have a unique title for each page. |
| 44. | If needed, provide a search service. For large web sites provide a search service if that will improve retrieval and accessibility. Clearly state the scope of the collection being searched. There are many online services that will search your site for you such as Google and Whatuseek. |
| Quality Control |
| 45. | Test every link. If people hit dead links, they get frustrated and will soon leave your site. |
| 46. | Check your spelling. If you're fortunate enough to be creating HTML pages in an editor with a spell-checker, use it. Otherwise, dump the text into a word processing program to check for errors. |
| 47. | Double-check your writing for grammatical mistakes and things that are unclear. Then get someone to edit your writing since it is hard to catch your own mistakes. |
| 48. | Make pages that will display well in all browsers. Not all browsers display pages the same way. This means that as you construct your pages you will need to check them in Internet Explorer, Netscape Navigator, AOL and any other browser you think might be used. |
| 49. | Keep your pages up-to-date. There is nothing worse then going to time-sensitive site and finding old information posted.  Check regularly for links to other web sites that don't connect. |
| Web Etiquette |
| 50. | You may not legally use images "borrowed" from other web sites without permission. Images used may be those you have taken with a digital camera or scanned from a conventional photograph. CDs of royalty-free images may be purchased. There are also many services available online that provide legal access to images. |
| 51. | Don't publish any copyrighted material without the permission of the owner. Get explicit, written permission to reproduce copyrighted material.You may not legally use copyrighted music. This is the reason so many professional music sites use a looping techno beat in the background. Music placed on your web site can be original (the school song played by the school band on a high school site, for example). If you must have music for your site, consider creating your own beat with copyright free mixing software. |
| 52. | Do not reproduce trademarks or trademarked logos if there is a possibility of someone associating your web site with the owner of the trademark or logo. |
| 53. | Don't insult people.  Only post things in good taste, never use derisive comments or inflammatory remarks. |

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| **Top Ten Mistakes Made By New Web Designers** |
| **1.** | **Excessive Scrolling** - Make sure you fill your page horizontally before it's filled vertically. |
| **2.** | **Clashing Color**- This most often happens with text against a poorly suited background, see the example the web design principles page. |
| **3.** | **Untitled Pages**- Many simply forget to title your page. |
| **4.** | **Text Too Large** - This usually happens when there is not enough content to fill a page.  Designers compensate by making the text really large. |
| **5.** | **Images Not Optimized** - Refer to the 5 step process in the web design principles. |
| **6.** | **Pages that Jump** - Elements that should be in the same position in every page are not, causing them to appear to "jump" or move as you click from page to page. |
| **7.** | **Spelling and Grammatical Errors** - Place your content in a word processing program to proof it.  Then have someone else read through it. It's very difficult to catch your own mistakes. |
| **8.** | **Forgetting to Test Links** - It is essential that you test every link on every page.  Don't assume that if the link works on one page, that it will work on all of them. |
| **9.** | **Centering Text that Should be Left Justified** - Refer to the example in the web design principles. |
| **10.** | **Using Dark Text on a Dark Background**- It's best to use light text on a dark background, or dark text on a light background. |

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| Top Ten Most Annoying Web Page Features |
| **1.** | **Auto-Play Videos**- Don't place videos on your site that start playing as soon as the page loads.  Videos should only play after someon has hit the the play button. |
| **2.** | **Pop-Up Ads** - They appear in front of and behind your current browser window, trying to sell you everything from airline tickets to cameras. |
| **3.** | **Animated GIFs** - These get old really quickly. |
| **4.** | **Multi-Colored Graphical Backgrounds** - It's ugly and it makes text very hard to read. |
| **5.** | **Mandatory Site Registration** - No one wants to give you their personal information just to see your home page. |
| **6.** | **Cursor Effects** - Don't make someone's cursor turn into something they don't want it to be. |
| **7.** | **Flash Intros** - People just want to get to your site already. |
| **8.** | **Underlined Text that Isn’t a Link** - Most will assume it's a link and click on it. |
| **9.** | **Background Music** - Most people don't share your taste in music anyway. |
| **10.** | **Blinking Text**- Keep text visible at all times. |