CIW-Methodology and Technology-Volume 1

Section 1: Design Concepts

Lesson 1: Overview of Design Concepts

- The Internet offers the capability for one-to-one relationships.
- The Internet is transactional.
- After E-Commerce, Intranet development is the second largest growth area in Web development.
- Many HTML and WYSIWYG editors are in 3rd and 4th generations.
- Dynamic HTML is a combination of scripts and HTML objects that provide interactivity.

Lesson 2: Web Page Layout and Elements

- The average person reads 25% slower from a monitor than from printed text.
- Common denominators for page layout:
  - Most users have a 15-inch or smaller monitor.
  - Most users utilize a 640x480-screen resolution.
  - Most users have a 28.8 KBPS modem.
  - Most users use version 4.x or earlier browser.
  - Very few users download plug-ins.
- Page layout refers to the way a Web designer presents information to users.
- Items to consider when planning page layout:
  - Frameset
  - Margin
  - Border
  - Color
  - Space
  - Navigation
  - Rule
  - Whitespace
  - Table
  - Paragraph
  - List
  - Heading level
  - Image
- Response times for various Internet connections:
  - Modem: 2Kb/sec
  - ISDN: 8Kb/sec
  - T1: 100 Kb/sec
- Color is perceived as a representation of the type of culture and industry a company participates.
- Colors that create black-subtractive
- Colors that create white-additive
- Two standard color formats:
  - RGB
  - Hexadecimal
- RGB values are formatted in base-10 number 0-255.
- RGB value is a 24-bit coloring scheme.
- Hexadecimal code values range from 00 to FF.
- Hex code uses base 16 values.
- There are 216 Web-safe colors.
- Dithering is the process by which a browser approximates a color to the closest browser-safe color.

- Times New Roman and Arial are the most common fonts on the Internet.
- One limitation of font usage is that the font must be registered on the user's system to be viewed correctly.
- Serifs are small decorative strokes added to the end of a letter's main stroke.
- Serifs improve readability by leading the eye along the line of type.
- Sans-serif fonts do not have serifs. They must be read letter by letter.
- Size=3 is the default font size for most browsers.
- True-Type fonts can be rendered in any point-size value without degradation.
- Anti-aliasing makes text look smooth by blurring lines between the text and background.
- Netscape fonts use Bitstream TrueDoc to store and compress fonts in a file called Portable Font Resource.
- Microsoft uses OpenType (Adobe).
- Web pages should contain 50% less text than the printed version of the same information.
- Use tables and transparent GIFs to add whitespace to pages.

Lesson 3: Usability Testing

- Knowing your audience requires learning demographics: age, education, income, and location.
- Usability elements:
  - Quality content
  - Easy navigation
  - Information architecture
  - Search capability

Lesson 4: Navigation Concepts

- Primary navigation consists of elements accessible from most locations within the site.
- Secondary navigation allows the user to navigate within specific locations.
- A site map is a graphical representation of a Web sites hierarchy.
- Three-click rule: Users should not need to click more than three times during navigation to find information they seek.
- Points to consider when designing site navigation:
  - Determine goals and needs
  - Learn from navigation that works
  - Go deeper than the Home page
  - Provide quick links
  - Expect all users to have different backgrounds.
- Determining users goals and needs requires interviewing those who will use the site.
- Good navigation should tell people where they are and where they have been.
- Shortcuts provide quick links and easy access to small pieces of content.

Lesson 5: Web Graphics

- Good Web graphics must be aesthetically pleasing, functional, and small in file size.
- Pixel-picture element. Smallest unit displayed by a computer monitor.
- Higher bit values result in more intense colors.
- Standard screen resolution: 640x480 72dpi
- Dithering is the approximation of colors between an image palette and system palette.
- Two types of Web graphics:
  - Bitmaps are composed of individual values for each color displayed. (photos, drop shadows)
  - Vector images store information about the graphic in mathematical interpretations that are interpreted and displayed. (line art, shapes, illustrations)
- Vector-based drawing programs map shapes onto a visible grid.

- Vector graphics cannot deliver photo realistic detail and display more slowly when loading in a browser.
- Paint-type programs create bitmaps from scanned photos and video captures.
- Graphic images come in numerous file formats:
  - Bitmap (BMP)
  - Tagged Image File Format (TIFF)
  - Windows metafile (WMF)
  - Graphics Interchange Format (GIF)
  - Joint Photographic Experts Group (JPEG)
- Browsers natively support only GIF and JPEG image formats.
- GIF is a platform limited to 256 colors.
- GIF is a “lossless” format; as it is compressed, no information is lost.
- GIF 89a allows storage and playback of a sequence of still images to create the illusion of animation.
- GIF images can be transparent.
- JPEG graphics can contain up to 24 bits.
- The greater the compression of a JPEG, the greater the level of degradation.
- Designers have no control over how 24 bits of JPEG are mapped into a 256-color palette.
- JPEG 2000 aims to enhance the compression feature of standard JPEGS.
- PNG (Portable Network Graphics) is emerging as the new format for Web graphics.
- PNG files are lossless and support transparency like GIFs, yet also support compression and high bit depth like JPEGS.
- PNG support is currently not complete.
- Scalable Vector Graphics (SVG) is currently in a working draft phase in the W3C.
- SVG uses XML to describe certain shapes; this allows the graphic to become an object in the HTML page.
- Creating Web-quality images requires the knowledge and use of a graphics application.
- The ALT attribute provides alternative text in place of an image in HTML.

Lesson 6: Multimedia

- The correct choice of multimedia will help conserve your visitor’s time, increasing the chances of longer visits and potential business.
- The most common types of basic animations are:
  - Animated GIFs: a compilation of still images that is set in motion at a designated sequence, speed, and repetition.
  - Rollovers: actions triggered by passing the cursor over designated areas of the Web page.
  - Flash files: offer media rich content while conserving bandwidth.
- Scrolling text should not be used for critical information.
- Audio can be delivered by the user downloading the entire file and then playing the file or by streaming format.
- Embedded audio files should be avoided unless they are integral to the site.
- The only acceptable form of embedded audio is a Flash file.
- Common audio file types:
  - .aiff: Macintosh native format
  - .au: UNIX native format
  - .mid: MIDI format; small file size by creating algorithms
  - .mov: QuickTime format; supports audio and video
  - .wav: Windows native format
  - .swf: Shockwave/Flash format
- Streaming audio gives the user the ability of hearing an audio file without having to completely download the file first.
- Video can be downloaded and played or streamed down to the user.
- Video should never be mandatory outside of a LAN or Intranet.

- The most successful model to deliver content seems to be the “spiral” concept and its three components: interest, activity, and resolution.
- Designers must research to discover the most widely use plug-ins.
- JAVA vs. Plug-ins.

Section 2: Site Development and Management

Lesson 7: The Web Development Process

- A well-rounded Web design team has expertise in the following areas:
  - Project management
  - Graphic design
  - Technology
  - Marketing
  - Writing and Editing
  - Information architecture
- The look, feel, and functionality of a Web site are developed from the user’s point of view; a bottom up approach.
- The Web Development process consists of five phases:
  - Conceptualization is the process of developing the vision and strategy for the Web site.
  - Design Visualization is the process of preparing the transactional, navigational, and hierarchical construction of the content.
  - Analysis is the process of testing concepts for achieving the Site’s vision.
  - Production is the process of executing the designed plan.
  - Evolution is the process of refining and updating the Site’s design.
- Defining the Project’s Goals:
  - Step 1-Project Analysis: must be performed to identify strengths and weaknesses of the project, including team members.
  - Step 2-Client expectations and evaluations: clients often have unrealistic expectations of the project’s capabilities.
  - Step 3-Sign-off stages
  - Step 4-Project transition
- A tactic is a method used to implement your strategy.
- A metaphor suggests a likeness or pre-existing identification with other things or experiences.

Lesson 8: Mindmapping

- Mindmapping is a process that allows you to structure ideas on paper in the order that your brain follows, rather than by linear process which is normally used when forming ideas.

Lesson 9: Site Implementation Factors

- Factors that affect site implementation include scope of the project, skill resources available, technology you plan to use, and time allotted for implementation.
- Determining the scope of the project requires you to decide the initial state of the Web site.
- The scope typically falls under one of the following:
  - Internet: intended for public use and supplies information to random users
  - Intranet: intended for internal use and supplies information to known users
  - Extranet: intended for known external users and supplies specific information required by those users
- The skill resources required depends on which aspect of the Web application is being developed.
  - Development and Construction: skills sets range from HTML programmers to system and database administrators.
  - Maintenance: skills sets might only require HTML programmers to provide and update content

- The lowest common denominator when deciding on what technologies to use is the intended audience.
- Time is often the most valuable resource; it should not be overlooked or understated.
  - Deadlines
  - Maintenance

Section 3: Basic Technology Concepts

Lesson 10: HTML Standards and Compliance

- Tim Berners-Lee invented HTML with colleagues at CERN as a means of distributing non-linear text to points across the Internet (Hypertext).
- Hyperlinks are embedded instructions within one text file that calls another file when the link is accessed.
- Hypermedia is an extension of Hypertext. It includes images, video, audio, animation, and other data types incorporated into HTML documents.
- Ted Nelson first conceived hypertext in 1965.
- HTML is a cross-platform language that works on Windows, Macintosh, and UNIX platforms.
- In markup language, instructions and data reside in the same file.
- HTML is an application of SGML.
- Tags are pieces of text, enclosed in angle brackets that provide instructions to programs designed to interpret HTML.
- Web browsers are programs designed specifically to render hypermedia documents from the Internet.
- The HTML standard defines the individual elements that make up the language.
- Six versions of HTML standards exist: 1.0, 2.0, 3.0, 3.2, 4.0, and 4.01.
- The World Wide Web Consortium (W3C) is the standards organization that controls the evolution of HTML.
- HTML 1.0 is the first version used for graphical browsers.
- HTML 2.0 includes all capabilities of 1.0 plus support for user input fields, necessary for forms.
- HTML 3.0 was never ratified, instead in evolved into HTML 3.2.
- HTML 3.2 added features such as tables, applets, and text flow around images, while providing backward compatibility with HTML 2.0.
- HTML 4.0 is the W3C standard for the latest version of HTML. The new recommendation supports:
  - Style sheets
  - Internationalization features
  - Accessibility features
  - Enhanced tables and forms
  - Scripting and multimedia
- There are three variants of HTML 4.0:
  - Transitional: takes advantage of HTML 4.0 features but does not rely on them for benefit of those viewing pages with older browsers.
  - Strict: used if you want to rid your document of structural markup, leaving it free of any tags associated with layout; used with CSS to produce font, color, and layout effects.
  - Frameset: used to create frames in the browser window.
- HTML 4.01 is the latest revision from W3C. It calls for the support of XHTML.
- XHTML is a combination of Extensible Markup Language 1.0 (XML) and HTML 4.01.
- Deprecated tags and attributes are those that have been replaced by other HTML elements.
- HTML 4.0 deprecated tags:
  - <ISINDEX>
  - <APPLET>
  - <CENTER>
  - <FONT>

- <BASEFONT>
- <STRIKE>
- <U>
- <DIR>
- <MENU>

- You can still use deprecated tags; most browsers continue to support them.
- Proprietary extensions “extend” the existing HTML standard.
  - <BLINK>: Netscape Navigator proprietary tag
  - <MARQUEE>: Internet Explorer proprietary tag

Lesson 11: Tables and Page Structure

- The advantage of tables over frames is that the users can easily bookmark a page using tables.
- Within the standards of HTML 3.2, table structure is the only way to create page divisions.
- Page structures are created by adding attributes to the HTML table, table row, and table data tags.
- HEIGHT and WIDTH can be expressed in pixels or percentages.
- The <BODY> tag can be modified to move top and left margins to the edge of your browser window.
- The <TABLE> tag must be modified to allow your table to occupy the entire space of the browser window.
- The <TR> tag can be used to provide uniform attributes.
- The <TD> tag can also be modified to provide uniform attributes.

Lesson 12: HTML Frames

- Frames are scrollable regions in which pages can be displayed.
- A frameset is a Web page that defines a set of frames in which other Web pages are displayed.
- Frames are now a part of the HTML 4.0 recommendation.
- The advantage of using frames is that static and dynamic information can be combined.
- The <FRAMESET> tag is a container tag that allows you to define regions in your browser window and assign separate files to each region.
- Attributes for <FRAMESET> tag are COLS and ROWS.
- The <FRAME> tag defines the content that will appear in each frame. It is enclosed within the <FRAMESET> tag. The SRC attribute specifies which file appears in each frame.
- The opening <FRAMESET> must follow the closing <HEAD> tag and must precede the opening <BODY> tag. If you don’t use alternate text for browsers incapable of rendering frames, you don not need the <BODY> tag at all.
- The <FRAMESET> tag must contain either the ROWS or COLS attribute. You cannot specify ROWS and COLS in the same <FRAMESET> tag.
- The NAME attribute can be used to designate internal links <A NAME-“any name”>.
- The <BASE> tag allows you to specify the URL for a document and a default target frame for all links in that file.
- The TARGET attribute specifies the default target for all hyperlinks on a particular page.
- The <NOFRAMES> tag allows you to create a page for those whose browsers don’t support frames.

Lesson 13: Metadata

- Metadata can be defined as data about data.
- The metadata tag describes the content of a Web page and has several uses and forms.
- The DTD (Document Type Definition) <!DOCTYPE> tag precedes the opening <HTML> tag. This requirement is stated in HTML 3.2 standard.
- The <TITLE> element is mandatory in HTML 3.2.

- <META> information consists of general information about the document or page content that should be available for the user.
- <META> tags are header elements and can include:
  - Expiration date
  - Author name
  - Keywords
  - Description
- The <META> tag requires the CONTENT attribute and either the NAME or HTTP-EQUIV attribute.
- <META HTTP-EQUIV> tags are equivalent to HTTP headers.
- If you use the <MEAT HTTP-EQUIV> tag, you force your Web server to add or change content in the response header.
- <META> tags with a NAME attribute are used for information types that do not correspond to HTTP headers.
- Only about 1 out of 4 Web sites use keyword and description <META> tags.
- Not all search engines use metadata.
- The maximum keyword allowance is 1,000 characters; however it is believed that anything over 255 is ignored.
- Description should be no more than 25 words (maximum allowance is 150 characters).
- A directory differs from a search engine in that it will only find sites based on manual submissions.
- Common characteristics used to determine relevance using search engines:
  - Titles
  - Beginning content
  - Frequency
- To change a Web page's content after a specified delay without user interaction, you can use the <META HTTP-EQUIV="Refresh"> attribute and value.
- Dublin Core is the core set of metadata elements.

Lesson 14: Cascading Style Sheets

- A style sheet is a predefined HTML document structure that includes heading fonts, text layout commands, graphic object placement, and other design guidelines.
- A style is a set of formatting instructions placed in the <HEAD> of an HTML document.
- Styles allow you to make one change that affects multiple HTML elements.
- Cascading style sheets refer to the use of multiple style definitions in a single document.
- There are four ways to apply style variations:
  - Linked: a single style sheet controls multiple Web pages
    - Each page must be linked to the style sheet by a plain text file with a .css extension.
  - Imported: uses the "@ import" method to import an external style file.
  - Embedded: styles for a single page and perhaps the simplest method.
  - Inline: added inline to existing HTML tags or in conjunction with the approved HTML 4.0 <SPAN> tag.
- The advantage of using inline styles is that you can designate attributes with a single tag.
- Styles allow for inheritance, which means that a few simple statements can dramatically alter large amounts of text.
- A style guide is a standards document that establishes a set of conventions for performing common tasks.

Section 4: Applications and Tools

Lesson 15: Site Development with Microsoft FrontPage 2000-Introduction

- FrontPage incorporates three distinct functions to assist in the overall development process.
  - Site Management

- Page Layout and Design
- Data Connection

- FrontPage views allow the user to access different components of the application.
  - Page View
    - Normal
    - HTML
    - Preview
  - Folders View
  - Reports View
  - Navigation View
  - Hyperlink View
  - Tasks View

Lesson 16: Site Development with Microsoft FrontPage 2000-Basic Features

- Page layout in FrontPage is performed using the Page View.
- Advanced page layout can be performed using HTML tables or CSS positioning.
- You do not need to know the exact table dimensions because WYSIWYG editors allow you to modify tables to the desired sizes.
- You can construct tables with FrontPage in several ways:
  - Use the Insert Table feature
  - Draw the Table
  - Manually code the table in HTML
- Inserting images can be done using images located on the Internet, on your computer, or images already on the Web site.
- Each table on a Web site has it's own set of properties.
- Each page on a Web site also has it's own set of properties.
- Cells within a table have their own set of properties.
- An image map allows a single image to become a hyperlink to multiple locations.
- A template is a document that specifies default settings or attributes.
- FrontPage allows Rich Text Format (RTF) documents to be imported directly into a page in Page view.
- FrontPage also allows HTML to be directly inserted into a Web page. FrontPage removes the structure tag pairs so that no duplicates exist.
- Shared borders are loosely based on the idea of frames, in which a portion of the page remains constant as you traverse the site.
- For a shared border to function, the Web server must have FrontPage server extensions.
- You can create framesets in FrontPage using the frameset templates.
- When using frames, you must target each hyperlink to instruct it where to open the page to which it links.
- There are three ways to apply styles in FrontPage.
  - Linked
  - Embedded
  - Inline
- Themes are predesigned styles. They include graphics, rules, fonts, and colors.

Lesson 17: Site Development with FrontPage 2000-Advanced Features

- The FrontPage DHTML toolbar makes it easy to create DHTML effects without the need to know how to code them.
- A Web form is typically the only way to obtain information from a user.
- Components are special features of FrontPage that make programming easy to implement.
- To use FrontPage components the Web server must support FrontPage server extensions.
- A site search form is very useful to visitors and should be implemented when possible.

Lesson 18: Site Development with Macromedia Dreamweaver 3.0-Introduction

- Dreamweaver is a WYSIWYG editor produced by Macromedia
- Dreamweaver serves as an HTML page creation tool and Web site management tool, offering capabilities to organize and structure entire Web applications.

Lesson 19: Site Development with Macromedia Dreamweaver 3.0-Basic Features

- Dreamweaver gives you the ability to manually position elements, rather than creating a table and then modifying the table to accommodate element positions.
- The Image Properties palette allows you to create image maps in Dreamweaver.
- Dreamweaver allows you to create templates to maintain consistency and ensure necessary components remain consistent.
- Dreamweaver has the capability to import a document created with Microsoft Word and saved as HTML.
- The Objects palette offers Dreamweaver full frames capability.

Lesson 20: Site Development with Dreamweaver 3.0-Advanced Features

- Dreamweaver provides a dialog box specifically for creating rollover buttons.
- Dreamweaver uses the Forms menu from the Objects palette to create forms.
- Dreamweaver does not offer server-side form processing.
- Dreamweaver offers a feature called Behaviors that allows you to add other interactive elements to a page.
- The Behaviors Inspector controls behaviors.
- Users can drag layers from your site if you do not convert layers to tables before publishing.
- The Dreamweaver Library allows you to store objects and files that are used repeatedly.
- HTML can be manually edited with Dreamweaver using an external HTML editor.
- A jump menu in Dreamweaver is a drop down menu that automatically links to a specified URL.
- Dreamweaver Exchange provides developers with a place to download and submit Dreamweaver extensions.

Lesson 21: Web Pages with Allair Homesite 4.5

- Homesite 4.5 is an advanced HTML editor used to create complex Web pages quickly.
- Homesite can also create JavaScript pop-up windows, dynamic expandable outlines and page transitions.
- Homesite is not a WYSIWYG editor; it is an HTML tag editor.
- A hierarchy-style internal manager that allows the user to create, rename, move, and delete files provides strong file management.
- The Tags menu allows the user to:
  - Open a dialog box to edit the current tag
  - Create blank opening or closing tags to fill
  - Find a matching opening or closing tag
  - Repeat the last tag inserted
- The Tag Chooser allows any HTML tag to be inserted.
- The Tag Completion feature automatically adds a closing tag when you type a tag.

Lesson 22: Images with JASC Paint Shop Pro

- Paint Shop Pro is a paint-type program that translates images into bitmap files so you can manipulate them.
- The use of 16.7 million colors (24 bit) is recommended because most effects and filters will not work on images with fewer colors.

- PSP 5.0 and later supports floating palettes, meaning the palettes expand and retract when you need them.
- PSP allows you to add text to any image.
- Paint Shop Pro provides a variety of filters and special effects.
- The filter-browser gives you a sample of what effect each filter has on an image.
- Cropping an image will decrease it dimensions and file size.
- A layer is a portion of a PSP image that can remain independent of other layers on the image.
- Transparency is used to give the appearance that an image is floating.
- The screen capture feature has several options:
  - Area: an area of a screen specified by the user
  - Full-screen: the entire screen
  - Client-area: only the input area of the active window
  - Window: active window only
  - Object: an object in a window
- You can create animated GIFs using Animation Shop.

Lesson 23: Multimedia with Macromedia Flash 5.0

- Flash combines four elements that define its functionality:
  - Vector graphics
  - Streaming capability
  - A timeline
  - Layers
- By using vector graphics, Flash can be scaled without file size being affected.
- Streaming allows multimedia content to begin playing as soon as it reaches its destination (browser).
- The Flash Timeline can be thought of as a series of movie frames. The more frames added, the longer the movie.
- Each movie can have multiple layers, providing animation that is linear and parallel.
- Flash is not natively supported in browsers and requires a plug-in.
- Flash movies are placed in HTML code using the <OBJECT> and <EMBED> tags
- Flash is a development tool and a testing tool.
- Colors and fills can be assigned to most objects on the Flash stage.

Lesson 24: Multimedia with Flash 5.0-Timelines and Layers

- The Flash Timeline is a sequencing component that controls the way in which a Flash movie plays.
- There are three basic types of frames in Flash:
  - Normal frame: designed to extend the movie to a certain point along the timeline
  - Key frame: a frame containing objects that will be displayed in all frames following it or until the timeline encounters another key frame or blank key frame.
  - Blank key frame: a Flash frame that marks a milestone in the timeline.
- Layers are used to run multiple timelines independently.

Lesson 25: Multimedia with Flash 5.0-Creating and Editing Symbols and Buttons

- Flash has the ability to define and reuse objects called symbols.
- A symbol is a graphic, a button, or a movie clip stored in a Flash movie's library.
- A Flash button can be used as a standard rollover button or to launch embedded movies.
- You can used pre-designed buttons or create your own from shapes.
- The Library allows you to customize and organize items into folders.

Lesson 26: Multimedia with Flash 5.0-Tweens

- The most dynamic aspect of Flash is its animation capability called “tweening”.
- There are two types of tweens:
  - Motion tween: motion in which objects move from one location to another on the stage
  - Shape tween: motion in which objects change their shape or form on the stage
- There are three main rules for tweening:
  - Only one tween can exist in a layer at a time.
  - In a motion tween, the objects must be symbols.
  - In a shape tween, the objects cannot be symbols.
- There are two ways to create a motion tween:
  - Place a symbol in a key frame and reposition the symbol further down the timeline in another key frame and add motion tween.
  - Use a guide layer, which acts as a path for the tween.
- Shape tweens offer more flexibility because you can transform any shape into any other shape you want.
- Text tweening is a form of motion tweening.

Lesson 27: Multimedia with Flash 5.0 Movie Clips

- Flash movie clips differ from movies only in that a movie clip uses a different timeline.
- A movie clip is a Symbol so you use the Symbol Editor to develop the clip.
- The movie clip is called by an action in the main movie.
- In order to add sound to a movie, it must be placed in the timeline.
- The easiest way to add a Flash movie to HTML is to let Flash create the HTML code, then insert the code it creates into the HTML page.

Lesson 28: Multimedia with Flash 5.0-Tell Targets and Masks

- When using Tell targets, you assign a scripting action to an object, and Flash instructs the object on how to perform.
- You can use a Mask to cover layers.

Section 5: Advanced Technology Concepts

Lesson 29: JavaScript Fundamentals

- HTML has little or no ability to interact with users. To do this you would use CGI scripts of JAVA.
- JavaScript is a run-time interpreted language.
- Scripting languages are subsets of larger languages.
- In programming, objects encapsulate predetermined attributes and behaviors.
- Properties represent various object attributes.
- Methods are the actions an object can perform.
- A scripting language is a simple programming language designed to enable users to write useful programs easily.
- JavaScript is a scripting language.
- JavaScript is object-based, not object oriented. It depends for functionality on a collection of built-in objects.
- JavaScript is event-driven.
- Netscape developed JavaScript.
- Java was developed by Sun Microsystems and is an object-oriented programming language.
- JavaScript can be server-side or client-side.
- LiveWire can be used to implement server-side JavaScript.
- JavaScript does not support database access without LiveWire.
- VBScript is a subset of Visual Basic. It is easier to learn that JavaScript because it is interpreted not complied.
- Jscript is the Microsoft implementation of JavaScript.

- ECMA Script will be a standardized scripting language.
- JavaScript resides in HTML documents.
- The <SCRIPT> tag is used to place JavaScript into HTML.
- Dot notation is used to associate an object's name with its properties or methods.
- Strengths of JavaScript:
  - Quick development
  - Easy to learn
  - Platform independent
- The alert () method will allow a pop-up window on page load.
- The prompt () method requests user input through a text field within a dialog box.
- You can open a window by using the open () method.
- The Navigator object allows access to information specific to a browser.
- The Image object defines the location of required images for a rollover effect.

Lesson 30: Dynamic HTML

- DHTML is made possible through the use of script (JavaScript or VBScript), the Document Object Model (DOM), and two specifications that work together: HTML 4.0 and cascading style sheets (CSS).
- DHTML can offer alternatives to server-side technology such as Active Server Pages (ASP).
- Active Server Pages (ASP) is a technology that uses the server to run scripts, then passes the output back to the browser.
- The DOM (Document Object Model) is a specification or hierarchy of JavaScript objects.
- The DOM is the interface that accesses and manipulates HTML and XML documents. It also provides logical structure to these documents.
- Cascading Style Sheets (CSS) enable you to create Web pages with layout specification of desktop publishing programs.
- Scripting lets you design a response or function to a user event, such as a mouse move.
- An event handler detects when events occur and performs a defined action as a result.
- One of the main differences in Netscape's implementation of DHTML is the use of the <LAYER> tag.

Lesson 31: Extensible Markup Language (XML)

- XML stands for Extensible Markup Language.
- XML is derived from SGML (Standard Generalized Markup Language).
- SGML is a meta-language, a language used to create other languages.
- XML allows search engines to perform directly targeted searches.
- The ten goals of XML:
  - Usable over the Internet
  - Support a variety of applications
  - Compatible with SGML
  - It is easy to write programs that process XML
  - Options in XML are kept to a minimum
  - It is human legible and clear
  - Design is prepared quickly
  - Design is formal and concise
  - It is easy to create XML pages
  - Terseness is of minimal importance
- XML tags must have a closing tag.
- Five basic rules for well-formed XML:
  - Tags cannot be inferred; they must be explicit.
  - Empty tags require a forward slash (/) before the closing bracket.
  - All attribute values must be enclosed in single orderable quotations.
  - Tags must nest correctly.
  - Tags are case-sensitive and must match in every implementation.

- XHTML combines HTML and XML to create a transition from HTML toward XML while still providing backward compatibility.

Lesson 32: HTTP Servers

- An HTTP server is commonly known as a Web server.
- A Web server serves HTML document over the Internet, Intranets, Extranets, LANS, and WANS.
- Popular Web servers include:
  - Apache
  - Netscape Enterprise
  - Microsoft IIS
- A port is logical connection port and can range from 0-65563.
- Ports 0-1024 are reserved for privileged services.
- Port 80 is the default port for HTTP servers.
- Port 443 uses Secure Sockets Layer (SSL).
- Personal Web Server 4.0 allows PCs running Windows NT or 95/98 to function as a Web Server.
- Common Gateway Interface (CGI) is not a language; it is a simple protocol used to communicate between HTML forms and an application.
- CGI can be used to extract data from a database or file.
- Java Server pages and Active Server pages are technologies that enables data and applications to be ran on the server before information is sent to the client.
- The main difference between CGI and ASP/JSP technologies is the way processes are executed.

Lesson 33: Cookies

- Cookies are small text files that have a variety of uses.
- Currently, a server can pass no more than 20 cookies to a user's computer and a user can store no more than 300 cookies.
- Cookie header parameters:
  - Name=value
  - Expires=date
  - Path=path
  - Domain=domain
  - Secure
- Cookies are used to maintain state.
- Cookies can be enabled or disabled.
- Cookies can be deleted manually.

Lesson 34: Downloadables and Plug-Ins

- Plug-Ins extend the browser's capabilities to view and interact with non-traditional, sometimes new file formats, not supported by a browser.
- Plug-Ins can be installed three ways:
  - Online: performed without exiting a browser session
  - Offline: the user downloads the plug-in, quits the browser, and launches the plug-in installation file.
  - Pre-Installation: some common plug-ins are pre-installed by browser manufacturers.
- Macromedia Shockwave is a family of multimedia players designed to provide the Web user with a wide range of multimedia experiences.
- Adobe introduced Acrobat to help Web professionals publish distributable documents from existing files by creating Portable Document Format (PDF) files.
- RealPlayer allows the browser to play audio and video in streaming format.
- When providing a link to a downloadable file always provide the file type and file size.

Lesson 35: Java Applets

- Java is a programming language derived from C++.
- "Object-oriented" means that a program can be created once and re-used a number of times.
- Java Applets are platform-neutral.
- Applets are small application designed to run inside a browser.
- Java can function in any computer environment, but Java Applets will work only in Web-based applications.
- Applets are small and fast.
- Multithreading allows more than one thread of execution within a document
- To embed a Java Applet into an HTML document, you should use the <OBJECT> tag.
- The <APPLET> tag should be used to make the code platform-independent.
- The <PARAM> tag is used to set parameters within an Applet.

Lesson 36: Databases

- Traditional databases store and organize information in fields, records, and files.
- Hypertext databases store information as objects.
- Schema is the structure of a database system and often depicts the structure as a graphical reference.
- There are three types of database queries:
  - Menu: user is offered a list of options from which to choose
  - Query by Example: user states which fields and values to use in the query.
  - Query Language: specialized language called Structured Query Language is used to retrieve or manipulate information in a database
- SQL (Structured Query Language) has become the semi-standard language for accessing information from a database.
- Database queries require a database management system (DBMS).
- A DBMS is an application that allows users to manipulate information in the database.
- There are three types of DBMS:
  - Flat file: stores information on a single table consisting of multiple rows and columns
  - Relational database management system (RDBMS): stores related information in a collection of tables
  - Multidimensional: uses common field values and stores information in organized groups of records
- DBMS includes the following technologies or support for access, storage, and output:
  - Open database connectivity (ODBC): the standard method for accessing a database regardless of the DBMS application used.
  - Computer output to laser disk (COLD): used for storage of information on CD-ROMS
  - Binary Large Object (BLOB): used for storage of binary data in a single entry
  - Virtual Sequential Access Method (VSAM): used on IBM mainframes
  - Indexed Sequential Access Method (ISAM): used for the management of information storage and access on a hard drive.
  - Online Analytical Processing (OLAP): used to analyze information and data organization
  - Report Program Generator (RPG): used for generating reports
  - ActiveX Data Objects (ADO): used to access different information types, such as spreadsheets, Web pages, and other documents.
  - Java Database Connectivity (JDBC): executes statements via JAVA programming with any SQL database

Lesson 37: Standards Organizations

- Organizations that facilitate the growth of the Internet:
  - Internet Society (ISOC): The ISOC provides leadership in addressing issues that confront the future of the Internet, and heads the group responsible for Internet infrastructure standards, including the IETF and IAB

- Internet Architecture Board (IAB): a technical advisory group that conducts research and makes recommendations to the Internet Society (ISOC)
- Internet Research Task Force (ERTF): concerned with the evolution of the Internet and the long term issues surrounding it
- Internet Engineering Task Force (IETF): concerned with short term technical Internet issues and makes recommendations to the IAB for standards approval
- World Wide Web Consortium (W3C): primary focus is on the World Wide Web and not the Internet; creates recommendations for languages and technologies such as HTML, XML, and CSS
- Internet Corporation for Assigned Names and Numbers (ICANN): a non profit private sector that assumes responsibility for IP address space allocation, protocol parameter assignment, domain name system management, and root server system management
- Requests for Comments (RFCs): created to collect information on all types on Internet-related issues

Section 4: Web Workshop

Lesson 38: Web Workshop

Lesson 39: Web Site Publishing

- File Transfer Protocol (FTP) is used to transfer files between two computers or a server and a computer, depending on the configuration.
- When publishing your Web site, two pieces of information are necessary:
  - IP address and URL of the machine to which you want to copy your site
  - User name and password to access and publish your content to that server
- The generic method of publishing a Web site uses FTP.
- WS FTP Pro is a shareware program that can be used to publish Web sites.
- Microsoft FrontPage 2000 has a built-in publishing capability.
- Use HTTP to publish to a server with FrontPage extensions installed.
- Dreamweaver 3.0 offers publishing capabilities in the Site window.