You and HTML and the World Wide Web - Course Objectives

On successful completion of this class, the student, with the aid of the appropriate reference materials, should be able to:

1. Describe the conceptual working of the Internet and the World Wide Web

2. Design, create and maintain documents coded in HTML that are destined for the World Wide Web, using these features and techniques:

    * HyperText linking
    * Embedded text and page style markup
    * External Cascading Style Sheets
    * Ordered, unordered, and definition lists
    * Embedded images of various kinds
    * Client-side maps
    * Embedded multimedia objects
    * Basic client-side scripting using ECMAScript-based scripting language JavaScript
    * Use the Document Object Model (DOM) to access, change, insert, and delete document nodes under script control
    * Request and gather information using forms and controls
    * Set and retrieve cookies
    * Create and use tables on a page
    * Use tables to create simple graphs
    * Dynamically modify tables under script control
    * Use frameset techniques

3. Use Notepad as an editor

4. Install, configure, and use the FileZilla FTP client to upload documents to a web site (optional)

5. Know where and how to find additional information as needed.

Lab work will be tested just using your local browser, or optionally you can use a web server we provide, or a server you or your employer provide.

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You and HTML and the World Wide Web - Topical Outline

Day One

Introduction to the Web
- The Web - basic concepts
- The Web and HTTP
- FTP and FileZilla (optional)
- Computer Exercise: Setting up for the labs 39

Introduction to Markup Languages
- Overview: Markup Languages
- SGML
- HTML - An Introduction
- The HTML, HEAD, META and TITLE elements
- Computer Exercise: HTML and Unicode 75

Text Markup Elements
- Element types in the body of an HTML document
- Events and scripts
- The BODY element
- The paragraph element (P)
- The headings elements (H1 - H6)
- The line break element (BR)
- Pre-formatted text: the PRE element
- Computer Exercise: Using Block text markup 96

Links and Anchors
- Introduction to Hypertext
- Destination Anchors
- Hyperlinks
- External resource links
- The A element
- Link types - the Rel Attribute
- The accesskey and target attributes
- The LINK element
- The media attribute
- MIME types
- Computer Exercise: Using Links and Access Keys 114

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Basics of HTML style
- Inline style elements (B, EM, I, MARK, S, SMALL, STRONG, SUB, SUP, U)
- The style attribute
- The STYLE element
- External style sheets
- Style precedence
- Grouping elements: the DIV element
- Grouping text: the SPAN element
- Quotations: BLOCKQUOTE and Q elements
- Breaking up a page: the HR element
- A digression: Lining Up Text
- Computer Exercise: Getting some style 146

Day Two

Introduction to Style Sheets
- Style sheets
- Style properties
- Special notes
- Cascading Style Sheets
- Style Sheets on z/OS
- Computer Exercise: Using style sheets 160

Lists
- Styles of lists
- List bounds: OL, UL, and DL elments
- List content: LI, DT, DD elements
- Lists: example
- Computer Exercise: Displaying lists 176

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Images and maps
- Included items
- The Image element (IMG)
- Client-side maps
- The MAP element
- The AREA element
- Areas and coordinates
- Applications of maps
- Maps with block content
- Computer Exercise: Images and maps 203

Objects
- Introduction - A little background
- The EMBED element
- The OBJECT element
- The PARAM element
- Embedding object examples: a PDF document, another HTML page, an image
- Nested objects
- Multimedia - General Comments
- Should you use OBJECT or EMBED?
- Summary of EMBED, OBJECT, PARAM Use
- Objects: design and copyright issues
- Computer Exercise: Embedding objects 226

Introduction to Client-side scripting
- Scripts
- DOM - the Document Object Model
- Scripting - Basics
- Computer Exercise: Basic Scripting 254

DOM and Scripting
- Using DOM to reference Nodes
- The Window Object
- Computer Exercise: Extend the Basic Scripting 278

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Day Three

More on scripts
- The if statement
- Arrays
- The for statement
- HTMLDocuments: additional properties and methods
- Adding and deleting nodes
- The SCRIPT element
- Functions
- Remote scripts
- Computer Exercise: Expanding / Collapsing List 315

Miscellaneous Scripting Topics
- The document.write() construct
- Testing for browser capabilities
- Computer Exercise: Using document.write() 326

Forms and INPUT controls
- Introduction to Forms and Controls
- The FORM element
- The INPUT element (type: text, password, checkbox, radio, file, hidden, submit, reset, image, button)
- Successful controls
- Submit processing
- Computer Exercise: Forms and INPUT controls 360

Those Other Controls
- The BUTTON element
- List boxes (SELECT, OPTION, OPTGROUP elements)
- The LABEL element
- DOM properties and methods for SELECT elements
- The TEXTAREA element and DOM methods for TEXTAREA
- The FIELDSET and LEGEND elements
- Computer Exercise: Nobel Prize Application 400

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A delightful Exploration of Various Topics
- The meaning of "focus"
- Tabbing and tabindex
- Controls without forms
- Design issues

Day Four

Cookies
- The Stateless Web
- Storing State Information
- Cookie formats
- Working with cookies
- Cookies: the Good, the Bad, and the Ugly
- Cookies and your Server
- Computer Exercise: Using cookies 433

Introduction to Tables
- Table terms
- The TABLE element
- The CAPTION element
- The TR element
- The TH and TD elements
- Using Header information
- Building a table
- Computer Exercise: Enhancing a Table 467

Structuring Tables
- Grouping rows
  - The THEAD and TFOOT elements
  - The TBODY element
- Grouping columns
  - The COL element
  - The COLGROUP element
  - Grouping columns - notes
  - Calculating column widths
- Computer Exercise: Structuring a Table 482

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Scripting With Tables
- DOM Methods for Table-related elements
- Scripting ideas for tables
- Highlighting the contents of some cells
- The switch statement
- The break statement
- Adding a column to a table dynamically
- Computer Exercise: Updating a table dynamically 506

Frames and Framesets
- The Frameset Model
- The FRAMESET element
- Figuring row and column sizes
- The FRAME element
- Sample framesets
- Frames as targets
- Reserved target names
- The NOFRAMES element
- The IFRAME element
- Computer Exercise: A page using frames 520

Loose ends
- Accessing programs without forms
- Hiding pages - robots.txt
- Validation of HTML pages
- Change
- Design for any browser
- Design thoughts
- HTML Next - a peek at the future
- What does 'Free' mean on the Web?
- Additional studies

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Websites vs. 'apps'

With all the attention these days on mobile apps (applications) one wonders if websites are a thing of the past. And with websites like FaceBook: are personal or corporate websites a thing of the past? I don't think so, for these reasons:

- **Focus - a website focuses on a particular company, organization, person, or topic; FaceBook, Instagram, SnapChat, Twitter, and the like tend to be scattershot**

- **Durability - mobile apps and apps like FaceBook tend to be ephemeral: their content changes constantly; a website provides consistency and longevity of content**

- **Structure - most apps don't have much in the way of organization or help or guidance: the developers seem to think their user interface is intuitive or obvious; a well designed web site provides clear structure and help**

- **Visibility - websites are generally designed for larger screens, apps for smaller screens; in depth information is more easily accessed with a larger screen**

Local Websites

Most, if not all, browsers allow you to open a local file. This means you can view your web pages on your PC or Mac without having to have a remote web server. This is great for development and testing. Not all features can be tested this way, but all the content of this course can be tested locally. Our labs are set up to support testing your website locally or on a remote server.

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Notes on Standards

Although there is more detail in the Appendices, it might help to keep these few points in mind:

1. The World Wide Web Consortium (W3C) establishes Web oriented standards. The process for a standard to be established is basically this: a Working Group with a charter publishes a document called a Request For Comment (RFC). This RFC is then reviewed and goes through a conensus building process that hopefully ends up with the RFC becomming a Recommendation. This is the W3C term for an internet standard.

   The official list of current W3C standards and drafts is found at:

   http://www.w3.org/TR/

2. Another group was formed in 2004 that has become quite important in the web standards area: Web Hypertext Application Technology Working Group (WHATWG). This group was founded by employees of Apple, Mozilla, and Opera when they became concerned that W3C was not developing HTML any further and instead focusing on XHTML. After some time, the W3C working group on XHTML was disbanded and W3C indicated an interest in working with WHATWG on HTML 5. Both groups now consult on the process. WHATWG does not publish a standard, but a specfication that they call a "Living Standard" because it continues to grow and change.

   The WHATWG Living Standard is always very similar to the W3C HTML 5 standard and may be found here:

   http://www.whatwg.org/specs/web-apps/current-work/multipage/

3. The Internet Engineering Task Force (IETF) establishes standards for internet infrastructure related protocols, such as TCP, HTTP, IP, and many others. IETF also uses the term RFC, and has a process for an RFC to become a Standard.

   The official list of current IETF standards is at:

   http://www.rfc-editor.org/standards

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Notes For the Course

Since this is a first course in HTML (HyperText Markup Language), the intent is that labs should be done using a simple text editor. That is, do not use any of the editors on the market that are designed explicitly for HTML.

These commercial HTML editors let you create HTML quickly, but they have two drawbacks: 1) they hide your work from you (that is, they focus on the presentation and not the markup) and 2) they insert lots of unnecessary markup (such as self-promotional comments / notes).

When testing production HTML, you should test using as many browsers as possible. There is no shortage of free browsers available on the Internet. Examples in these courses were tested in Mozilla Firefox, Opera, Google Chrome, and Microsoft Edge.

Browser versions change quickly, but we felt it was important to have a consistent test base throughout this course.

This course is based on the W3C standards for HTML and DOM as well as the ECMA-international standard for ECMAScript (also known as JavaScript), and is intended to be browser-independent. That is, we try to avoid teaching any features only available for specific browsers.

Historically, HTML was released in waves, so version 2, version 3, version 4, etc. Now, the W3C is working on new versions of CSS (Cascading Styel Sheets, CSS 3) and HTML (HTML 5), and DOM (the Document Object Model, DOM 4). These standards are dynamic. We have added notes that reflect the thinking going into these standards at the current time throughout the course.

There is a similar language available called XHTML (eXtensible HyperText Markup Language) that was very popular for a while but it has not replaced HTML as people once thought it might. We mention this in passing from time to time but it is of no real interest here.

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