

You and z/OS and the World Wide Web

Course Summary

Description

Students who complete this course will be able to create and maintain web pages written in HTML (and XHTML) that are hosted on the mainframe. This also provides a firm basis for writing CGI (Common Gateway Interface) scripts to run on the z/OS server.

Objectives

After taking this course, students will be able to:

- Describe the conceptual working of the Internet and the World Wide Web
- Design, create, and maintain documents coded in HTML5 that are destined for the World Wide Web, including using these features and techniques:
 - HyperText linking
 - Embedded text and style markup
 - External Cascading Style Sheets
 - Ordered, unordered, and definition lists
 - Embedded images of various kinds
 - Client-side maps
 - Embedded multimedia objects, including AUDIO and VIDEO
 - Basic client-side scripting using JavaScript (a.k.a. ECMAScript)
 - Use the Document Object Model (DOM) to access, change, insert, and delete document nodes and attributes under script control
 - Request and gather information using forms and controls
 - Set and retrieve cookies
 - Create and use tables on a page
 - Dynamically modify tables under script control
 - Use tables to create simple graphs
 - Inline frames
- Know where and how to find additional information as needed.

Topics

- Introduction to the Web - Web servers on z/OS
- Introduction to Markup Languages (SGML, HTML, XHTML)
- Text Markup Elements
- Links and anchors
- Basics of HTML Style
- Introduction to Style Sheets
- Lists
- Images and maps
- Client-side map processing
- Objects and applets
- Multimedia
- DOM - the Document Object Model
- Introduction to client-side scripting
- JavaScript (ECMAScript)
- Forms and controls
- Cookies
- Tables
- IFrames - inline Frames
- Validation of HTML pages
- HTML future directions

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Course Summary (cont'd)

Audience

This course is designed for programmers experienced with working in an OS/390 or z/OS environment who will be designing and coding Web applications that are to be run using the z/OS HTTP server.

Prerequisites

Before taking this course, you should have familiarity with z/OS UNIX System Services, such as might be obtained by attending our course Introduction to z/OS UNIX (PT5642).

Duration

Five days

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Course Outline

- I. Introduction to the Web**
 - A. The Web - Basic Concept
 - B. The Web and HTTP
 - C. Computer Exercise: Setting up for the labs
- II. Introduction to Markup Languages**
 - A. SGML
 - B. HTML - An Introduction
 - C. XHTML - What is it?
 - D. HTML 5 and Browsers
 - E. HTML - An Introduction
 - F. The HTML, HEAD, META and TITLE elements
 - G. Other sub-elements within the HEAD element
 - H. HTML on z/OS
 - I. Computer Exercise: HTML and Unicode
- III. Text Markup Elements**
 - A. Element types in the body of an HTML document
 - B. Events and scripts
 - C. The BODY element
 - D. The Paragraph element (P)
 - E. The Headings elements (H1 - H6)
 - F. The Line Break element (BR)
 - G. Pre-formatted text: the PRE element
 - H. Computer Exercise: Using Block markup
- IV. Links and Anchors**
 - A. Introduction to Hypertext
 - B. Destination Anchors
 - C. Hyperlinks
 - D. External resource links
 - E. The A element
 - F. Link types - the Rel Attribute
 - G. The Accesskey Attribute
 - H. The Target Attribute
 - I. The Media Attribute
 - J. MIME types
 - K. The LINK element
 - L. Computer Exercise: Using Links and Access Keys
- V. Basics of HTML Style**
 - A. Inline style elements (B, EM, I, MARK, S, SMALL, STRING, SUB, SUP, U)
 - B. The STYLE attribute
 - C. The STYLE element
 - D. External Style sheets
 - E. Style precedence
 - F. Grouping elements: the DIV element
 - G. Grouping text: the SPAN element
 - H. Quotations: BLOCKQUOTE and Q
 - I. Breaking up a page: the HR element
 - J. A digression: Lining Up Text
 - K. Style Sheets on z/OS
 - L. Computer Exercise: Getting some style
- VI. Introduction to Style Sheets**
 - A. Style sheets
 - B. Style properties
 - C. Cascading Style Sheets
 - D. Style Sheets on z/OS
 - E. Computer Exercise: Using Style Sheets
- VII. Lists**
 - A. Kinds of lists
 - B. List bounds: OL, UL, and DL elements
 - C. List content: LI, DT, DD elements
 - D. Lists: example
 - E. Computer Exercise: Displaying lists
- VIII. Images and maps**
 - A. Included items
 - B. The Image element (IMG)
 - C. Client-side maps
 - D. The MAP element
 - E. The AREA element
 - F. Areas and coordinates
 - G. Applications of maps
 - H. Maps with block content
 - I. Computer Exercise: Images and maps
- IX. Objects**
 - A. Introduction - A little background
 - B. The EMBED element
 - C. OBJECTs - Rationale
 - D. Plugins
 - E. HTML OBJECTs - Principles
 - F. The OBJECT element
 - G. The PARAM element
 - H. Embedding object examples: a PDF document, another HTML page, an image, a Java applet
 - I. Nested objects
 - J. Multimedia
 - K. Objects: design and copyright issues
 - L. Computer Exercise: Embedding objects

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Course Outline (cont'd)

- X. The AUDIO and VIDEO elements - Optional section**
- A. Multimedia - Background
 - B. Economic factors
 - C. Technical factors
 - D. The AUDIO element
 - E. The VIDEO element
 - F. Further explorations of media elements
 - G. Further resources for media elements
 - H. Computer Exercise: Audio and Video
- XI. Introduction to Client-side scripting**
- A. Scripts
 - B. DOM - the Document Object Model
 - C. Scripting - Basics
 - D. Computer exercise: Basic Scripting
- XII. DOM and Scripting**
- A. DOM - A Sample Document
 - B. Using DOM to reference Nodes
 - C. The Window Object
 - D. Computer Exercise: Extend the Basic Scripting
- XIII. More on scripts**
- A. The if statement
 - B. Arrays
 - C. The for statement
 - D. HTMLDocuments: additional properties and methods
 - E. Adding and deleting nodes
 - F. The SCRIPT element
 - G. Functions
 - H. Remote scripts
 - I. Computer Exercise: Expanding / Collapsing List
- XIV. Miscellaneous Scripting Topics**
- A. The document.write() construct
 - B. Page re-direction
 - C. Testing for browser capabilities
 - D. The NOSCRIPT element
 - E. Computer Exercise: Using document.write()
- XV. Forms and INPUT controls**
- A. Introduction to Forms and Controls
 - B. The FORM element
 - C. The INPUT element (type: text, password, checkbox, radio, file, hidden, submit, reset, image, button)
 - D. Successful controls
 - E. Submit processing
 - F. Computer Exercise: Forms and INPUT controls
- XVI. Those Other Controls**
- A. The BUTTON element
 - B. List boxes (SELECT, OPTION, OPTGROUP elements)
 - C. The LABEL element
 - D. DOM attributes and methods for SELECT elements
 - E. The TEXTAREA element and DOM methods for TEXTAREA
 - F. The FIELDSET and LEGEND elements
 - G. Computer Exercise: Nobel Prize Application
- XVII. A delightful Exploration of Various Topics**
- A. The meaning of "focus"
 - B. Tabbing and tabindex
 - C. Controls without forms
 - D. Design issues
 - E. Cookies
- XVIII. The Stateless Web**
- A. Storing State Information
 - B. Cookie formats
 - C. Working with cookies
 - D. Cookies: the Good, the Bad, and the Ugly
 - E. Cookies and your Server
 - F. Computer Exercise: Using cookies
- XIX. Introduction to Tables**
- A. Table terms
 - B. The TABLE element
 - C. The CAPTION element
 - D. The TR element
 - E. The TH and TD elements
 - F. Using Header information
 - G. Building a table
 - H. Computer Exercise: Enhancing a Table
- XX. Structuring Tables**
- A. Grouping rows
 - B. The THEAD and TFOOT elements
 - C. The TBODY element
 - D. Grouping columns
 - E. The COL element
 - F. The COLGROUP element

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Course Outline (cont'd)

- G. Grouping columns - notes
 - H. Calculating column widths
 - I. Computer Exercise: Structuring a Table
- XXI. Scripting with Tables**
- A. DOM methods for Table-related elements
 - B. Scripting ideas for tables
 - C. Highlighting the contents of some cells
 - D. The switch statement
 - E. The break statement
 - F. Adding a column to a table dynamically
 - G. Computer Exercise: Updating a table dynamically
- XXII. Inline Frames**
- A. The IFRAME element
 - B. The IFRAME Element - examples
 - C. Computer Exercise: A page using inline frames
- XXIII. Loose ends**
- A. Accessing programs without forms
 - B. Hiding pages - robots.txt
 - C. The favicon file
 - D. Validation of HTML pages
 - E. Change
 - F. Design for any browser
 - G. Design thoughts
 - H. HTML Next - a peek at the future
 - I. Additional Studies