Syllabus

Creating Web-pages Using HTML5 and CSS3

For part-time groups. Version 3.0.2
Scope of the course: 12 double-classes.

Course objective

To teach the listener the creation of static web pages using XHTML1.0, HTML4/5, CSS2/3. Give the listener a complete representation about the technological chain of website creation, and an understanding of current trends in the development of web-based technologies. To teach the students to choose the most suitable method for creating web pages. To teach the listener to test and verify the web page code.

By the end of the course the listener will be able to:

- apply the basics of HTML – tags, attributes and methods for structuring the content of web pages to create formatted documents;
- apply the basics of CSS – values, lists, colors, fonts, and other formatting metrics;
- check and debug the code of web documents;
- form the content of web documents for different screens – from standard web browsers to mobile devices;
- possess the skills of fast and high-quality formatting of complex web documents;
- know the basics of HTML5 and CSS3.

Upon completion of this course the student takes a practical exam on course materials. For admission to the examination, all home and practical tasks must be submitted.

Before the start of this subject, it is required to provide the students with access to the following Microsoft Imagine Academy courses:

- Developing in HTML5 with JavaScript and CSS3 Jump Start;
- Preparing for Exam MTA 98-375 HTML5 App Development Fundamentals: Academic Edition.

Lesson 1

Introduction to web technologies. HTML structure

1. Introduction to the subject.
2. Introduction to markup languages. HyperText Markup Language (HTML):
   - the development of HTML, versions. Current versions used; HTML and XHTML;
   - the issues of cross-browser compatibility. Browser wars;
   - W3C.
3. Tag – the basic element of the HTML structure. Rules for writing tags and their attributes in XHTML standard on the example of <b>, <i>, <u>, <font>, <sup>, <sub>,
. Syntax differences between HTML and XHTML.
4. The main mistakes in writing tags:
   - <!DOCTYPE HTML> specifications;
   - validation of a document using HTML Validator add-on for Firefox;
   - the concept of well-formed;
   - progenitors of HTML4/5 and XHTML; SGML and XML.
5. Basic structure of an XHTML document. Key elements and their purpose.
6. Page encodings and the <meta> tag:
   - application of the <meta> tag – specifying an information about the page (expires, refresh, author, copyright, keywords, description);
   - specifying the page encoding using the <meta> tag;
   - character substitution and encodings.

Lesson 2

Formatting text using HTML

1. Tags classification: line and block elements:
   - line; <b>, <i>, <u>, <font>;
   - block; <p>, <h1>.<h6>.
2. Text formatting model: headers and paragraphs. <p>, <h1>.<h6> elements. Alignment of text in block elements: *align* attribute.
3. Tags classification: logical and physical formatting:
   - physical formatting tags; <b>, <i>;
   - logical formatting tags; , . Their differencies;
   - brief overview of the basic logical formatting tags; <abbr>, <acronym>, <cite>, <code>, <del>, <dfn>, <ins>.

4. Colors in Web:
   - Web color picker;
   - Photoshop/GIMP – additional tools of a coder. Consideration of key features; opening an image, selection of colors using the Photoshop|GIMP palette, the eyedropper tool;
   - using the selected color in the color attribute of the <font> tag.
5. Practical task: creating a simple web page.

Lesson 3

Formatting with CSS

1. CSS – Cascade Style Sheet:
   - introduction. Versions overview. Purpose; HTML is used to define the structure, CSS is used for formatting;
   - embedding CSS in HTML using the style attribute. The rules for writing CSS properties.
2. Tags without formatting: – block tag, – line tag.
3. The analogy of HTML and CSS on the example of linear and block tags:
   - the <font> tag – color, font-size, font-family properties;
   - the <b> tag – font-weight properties;
   - the <i> tag – font-style properties;
   - the <u> tag – text-decoration properties;
   - the <sup> and <sub> tags – vertical-align properties;
   - the align attribute – text-align properties;
   - contracted notation of the font property;
   - additional properties of CSS for text formatting; letter-spacing, line-height, text-intend, text-transform, white-space, word-spacing.
4. Using the *class* and *id* attributes to specify the styles:
   - creating styles for tags, classes, identifiers inside the <style> tag. The concept of selectors. The rule for writing selectors; tag selector, class selector, identifier selector, universal selector (*);
   - priority of using the styles (tag / class / id / style). Increasing the priority with the !important rule;
   - style inheritance. Standard values of the properties;
   - tracking styles with the firebug development tool (add-on for Firefox).
5. The use of external CCS style files:
   - connecting the CSS file using the <link> tag and the @import statement;
   - CSS files and browser cache.
6. Practical task: formatting text using CSS.

Lesson 4

Lists. CSS padding and margins

1. Creating lists:
   - unordered lists; and <li> elements;
   - ordered lists; and <li> elements;
   - the type, value, start attributes.
2. Creating nested lists.
3. Formatting lists with CSS:
   - the list-style-type, list-style-image, list-style-position properties;
   - contracted notation of the list-style property;
   - creating multilevel lists. Nested selectors.
4. Definition lists: <dl>, <dd>, and <dt> elements.
5. Managing margins and paddings:
   - the margin property and its descendants; margin-left, margin-top, margin-right, margin-bottom;
   - the padding property and its descendants; padding-left, padding-top, padding-right, padding-bottom;
   - the difference between padding and margin, and their purpose;
   - canceling the default margins in some tags; <body>, <h1>.<h6>, <p>.
6. Practical task: creating lists.

Lesson 5

Graphics in web design. Graphics optimization

1. Graphics file formats on the Web.
2. Photoshop/GIMP tools for working with images:
   - layers in Photoshop/GIMP;
   - rectangular selection. Rulers. Guides;
   - image optimization in Photoshop.
3. The <img /> tag and its attributes (src, alt, width, height, border):
   - the *border* property – an analog of the border attribute;
   - specifying the margin, padding, and border properties for the image;
   - aligning images on a page by using the align attribute. The float property – an analog of the align attribute.
4. Page background – the background property;
   - specifying a color as a background; background-color. Mandatory background for the <body> element;
   - specifying an image as a background; background-image, background-repeat, background-position, background-attachment;
   - images and browser cache.

5. Sprites: the smaller the pictures – the higher the speed. Creating sprites using online services (spritegen.website-performance.org, csssprites.com, printf.ru/spritr).
6. Practical task: designing web pages with graphics.

Lesson 6

Hyperlinks. Principles of the web site navigation

1. General information about hyperlinks:
   - the <a> tag and its attributes (href, target);
   - ergonomics, ease of navigation.
2. Absolute and relative addressing:
   - organization of external links;
   - organization of internal links with the <a> element. The id and name attributes;
   - organization of the «mixed» transition (to the specified element in an external HTML document);
   - graphical links. Canceling the link borders.
3. Creating a menu with the list structure (<ul>, <li>), and its formatting. The *display* property. Converting a link to a block element.
4. Pseudo-classes:
   - links pseudo-classes; active, hover, link, visited;
   - pseudo-classes for the common elements; first-child, first-line, first-letter.
5. The *cursor* CSS property.
6. Practical task: development of the image gallery.

Lesson 7

Tables

1. Creating a simple table. The <table>, <tr> and <td> tags:
   - the border, cellspacing, and cellpadding attributes. Their possible CSS analogs; border and padding;
   - specifying the width and height of the cell; the width and height attributes. The rules for specifying the width and height. CSS analogs; the width and height properties;
   - aligning data in the table; the align and valign attributes. CSS analogs; the text-align and vertical-align properties;
   - managing the color of a background and the frames of the table (an individual row and an individual cell);
   - using images as a background of the table (an individual row, an individual cell).

2. Merging cells: the *colspan* and *rowspan* attributes.
3. Tags for logical structuring of tables: <thead>, <tbody>, <tfoot>. Tags for logical grouping of tables: <colgroup>, <col>.
4. Managing table frames: the *frame* and *rules* attributes.
5. Practical tasks: creating complex tables.
6. The basics of table layout. Example of table layout: its disadvantages.

Lesson 8

Positioning. Web page block layout

1. The *position* property:
   - consideration of positioning; relative and absolute;
   - the top, left, bottom, and right properties.
2. The visibility and overflow properties.
3. Practice.
4. The basics of block layout. The rules of layout:
   - block nesting;
   - specifying the width and height of the blocks using the width and height properties;
   - wrap around blocks. Cancelling wrap around blocks. The float and clear properties;
   - the rules for specifying padding and margins;
   - specifying the minimum height and width of the block; the min-height and min-width properties. Specifying these properties in IE6 browser;
   - alignment inside blocks (margin, text-align, line-height, position). Cross-browser alignment.
5. Consideration of the simplest pages structures:
   - fixed-size structure.
6. Flexible structure. Blocks with negative margin.

Lesson 9

Forms. Frames

1. Introduction to forms.
2. Form controls:
   - buttons (send, cancel, etc.);
   - checkboxes;
   - radio buttons;
   - pop-up lists;
   - text input;

- selecting files;
- hidden controls.

3. Creating forms using HTML:
   - the <form> element;
   - the <input> element;
   - the <button> element;
   - the <select>, <optgroup> and <option> elements;
   - the <textarea> element;
   - the <label> tag;
   - form structure; <fieldset> and <legend>.
4. Formatting form elements with CSS.
5. Frames and their structure (theoretical information):
   - the <iframe> tag;
   - using the <!DOCTYPE HTML> specification for frames;
   - harm of using the frames;
   - applying the <iframe> tag in the WYSIWYG visual editors.

Lesson 10

Initial website optimization. Placing a site on the Internet

1. Website optimization for search engines:
   - specifying keywords and descriptions using the <meta> tag;
   - the importance of using the <h1> . <h6> headers and the and logical tags;
   - the importance of using the unique content.
2. Hosting, domain name registration.
3. Placing a website on the Internet. Working with FTP-clients.
4. Registration in the search engines and directories. Placing the counter on the web page.

Lesson 11

Creating pages with HTML5 and CSS3

1. The structure of the HTML5 document:
   - new structure assignments tags; <header>, <nav>, <section>, <article>, <aside>, <footer>. Availability of new tags in modern browsers. Displaying new tags in obsolete browsers.
2. HTML5 – a competitor of Flash:
   - inserting a video on the page through the <video> tag;
   - inserting an audio on the page through the <audio> tag;

- creating images and animation through the <canvas> tag;
- using SVG format.

3. New form elements.
4. New properties: CSS3:
   - working with the background; creation of gradients, changing the background size – the background and background-size properties;
   - working with borders; rounded edges in blocks – the border-radius property;
   - setting the opacity of page elements – the opacity property;
   - full support of the CSS 2.1 selectors.

Lesson 12

Exam

Creating a website with the subsequent placement on the Internet. (Main requirements: block layout, valid code.)