

# IE Class Web Technologies Curriculum

## Course Outline – Web Technologies 130.279

### Foundations

Lesson	Topics Covered	Exercises	TEKS (Texas Only)
The Foundation lessons will provide students with a general understanding of computers, how the internet works, the web design process, how to acquire web hosting and publish to it, and other concepts that any web designer should be familiar with.			
Foundations Lesson 1	<b>Preparing for the Course:</b> Students are introduced to course and IE Class system. Students are instructed as to the necessary file system that they will need to create for the course. Proper netiquette on networks, and Internet and computer safety, and acceptable use policies are also discussed. Students will learn about client-server applications and web content delivery and associated applications.	Questions 1	1g, 4c, 7d,
Foundations Lesson 2	<b>Computer Basics:</b> Students are given an overview of the various components, including the hardware and software of the computer and how they work together.	Crossword 2 Questions 2	3a, 3b, 3d
Foundations Lesson 3	<b>Introduction to the Internet:</b> Students learn about the history of the Internet. They will also learn about the type of content online, and delivery enablers available, and how information is transferred. New trends in web and Internet technology are also covered.	Questions 3 Crossword 3 Search Activity	10b, 3c, 3e, 3f, 4c, 5d, 9b, 10c,
Foundations Lesson 4	<b>The Web Design Process:</b> The planning process of web site development is covered, including the various web site structures. The components of page layout and design are also covered. Students will learn to evaluate and meet customer & client requirements when developing web projects. They will learn to evaluate web projects and to develop a Quality Assurance Plan.	Crossword 4 Questions 4 Site Planning Design Evaluation Quality Assurance Plan	6a, 6b, 7a, 12b, 12c, 12d
Foundations Lesson 5	<b>Color Theory:</b> Students will learn the basics using color in their site, how the computer generates different colors, about the RGB color scale, the different color schemes, and how to logically select colors for their site based on a specific color scheme.	Questions 5	7a
Foundations Lesson 6	<b>Copyright Guidelines:</b> Students are given an overview of copyright guidelines relevant to commercial web design. The copyright qualifications are explained as well as what is and is not available in the public domain. The Fair Use Guidelines are also introduced.	Questions 6	1h, 4a, 4b
Foundations Lesson 7	<b>Website Administration:</b> This lesson will teach students the fundamentals of managing their websites. They will learn the process of acquiring a domain name, the fundamentals of web servers, including types of servers and how to select a web server. Students will also learn the process of uploading their web site to a web server.	Questions 7 Simulation	9a, 10a, 10d, 10e, 10f, 10g 10h, 10i, 10j, 10k
Foundations Lesson 8	<b>Career Exploration:</b> Students will learn about the web design industry and various fields. Topics will discuss the various required skills and education levels to obtain a job in website design.	Questions 8 Personal Inventory Career Exploration	1a, 1c, 2a, 2b, 2c

**NOTE:** We suggest covering Foundations Lessons 1 – 3 before starting HTML Lessons. The remaining Foundation Lessons may be covered in conjunction with the HTML lessons.

## Web Graphics

Lesson	Topics Covered	Exercise	TEKS (Texas Only)
<p>Students will be introduced to the basic concepts of graphic editing and how to prepare images for use on their web pages. Students will also learn how to create quality images from scratch using the concepts that are common in most graphics packages. The featured graphics package in this unit is GIMP. GIMP is a freely distributed Open Source graphics package that is capable of performing many of the functions of Photoshop or Fireworks, and can save images in the native formats of those packages. GIMP is free for anyone to download and install, including students and teachers, and free for school to teach.</p>			
<b>Web Graphics Lesson 1</b>	<p><b>Basic Concepts:</b> This lesson will cover the different image types, image resolution concepts, and terminology. Students will also be introduced to the GIMP interface and how to open and save images.</p>	Worksheet Lab 1-1	5c, 7b, 7d
<b>Web Graphics Lesson 2</b>	<p><b>Cropping and Resizing:</b> This lesson will focus on preparing existing images for use on the web. Students will learn to use GIMP to resize images and to crop images down.</p>	Lab 2-1 Lab 2-2	5c, 7b, 7d
<b>Web Graphics Lesson 3</b>	<p><b>Working with Filters:</b> This lesson will give students experience in modifying and enhancing images using the filter tools built into GIMP.</p>	Lab 3-1 Lab 3-2	5c, 7b, 7d
<b>Web Graphics Lesson 4</b>	<p><b>Selected Regions:</b> Students will learn to select and edit specific regions of an image and make</p>	Lab 4-1 Lab 4-2 Lab 4-3 Lab 4-4	5c, 7b, 7d
<b>Web Graphics Lesson 5</b>	<p><b>Banners &amp; Buttons:</b> Students will learn to manipulate and enhance text to create banners for their website.</p>	Lab 5-1 Lab 5-2	5c, 7b, 7d
<b>Web Graphics Lesson 6</b>	<p><b>Creating Image Maps:</b> Students will learn about Image Maps and how to use the Image Map feature in GIMP to create custom image maps for their site.</p>	Lab 6-1 Lab 6-2	5c, 7b, 7d
<b>Web Graphics Lesson 7</b>	<p><b>Working With Layers:</b> Students will learn what layers are and how they are used with graphic design.</p>	Lab 7-1 Lab 7-2 Lab 7-3	5c, 7b, 7d
<b>Web Graphics Lesson 8</b>	<p><b>Image Colorization:</b> Students will learn how to manipulate colors of images and how to add colors to individual sections of black &amp; white images.</p>	Lab 8-1 Lab 8-2	5c, 7b, 7d
<b>Web Graphics Lesson 9</b>	<p><b>Animated GIFs:</b> Students will learn the basics of simple motion graphics, and how to create animated GIF type images for their web pages.</p>	Lab 9-1 Lab 9-2	5c, 7b, 7d
<p><b>Graphics Project:</b> Students will use the skills they have learned in the GIMP unit to design web graphics for 3 different web sites. Each graphic must meet the requirements of the organization and utilize specific features of GIMP.</p>			1i, 5a, 5c, 7b, 7d

**NOTE:** Web Graphics may be taught prior to the HTML unit, or after completing HTML Lesson 5. After HTML Lesson 5, various labs will have students create their own graphics for their website, so the Web Graphics Unit will be incorporated throughout the course.

GIMP may be downloaded and distributed freely from [www.gimp.org](http://www.gimp.org). Unlike expensive software applications that most students, and teachers, will typically only have the opportunity to use at school, any student may download and install GIMP at home for their personal use thus expanding their opportunities to utilize what they learn in class.

# Designing With HTML

Lesson	Topics Covered	Exercise	TEKS (Texas Only)
<p><b>The HTML Lessons will teach students the basics of creating web pages. Students should use Notepad or some other basic text editor that allows them to create web pages using code.</b></p>			
<b>HTML Lesson 1</b>	<p><b>Basic Tags and Structure:</b> This lesson will introduce students to various web based coding languages used. Students will learn the basic HTML tags and page structure. Students will learn to create and save basic web pages and how to view them in their web browser. The importance of cross-browser compatibility will also be discussed.</p>	<p>Tag Notes Questions 1 Error Detection Lab 1-1 &amp; 1-2 Lab 1-3 Lab 1-4 &amp; 1-5</p>	<p>5c, 6a, 7c, 8a, 8b, 8c, 8d</p>
<b>HTML Lesson 2</b>	<p><b>Creating Lists:</b> Students will learn and create the three basic HTML lists; ordered, unordered, and definition. Students will then learn to create nested lists and how to customize the lists.</p>	<p>Lab 2-1 &amp; 2-2 Lab 2-3 Lab 2-4 Lab 2-5 Lesson 2 Quiz</p>	<p>5c, 6a, 7c, 8c</p>
<b>HTML Lesson 3</b>	<p><b>Building the Site/Creating Links:</b> Students will learn how to create HTML links and to connect web pages. Students should be reviewed on the basic web pages structures. Students will also learn how to create email links and page jumps.</p>	<p>Lab 3-1 Lab 3-2</p>	<p>5c, 6a, 7c, 8c</p>
<b>HTML Lesson 4</b>	<p><b>Text and Fonts:</b> Students will learn how to modify fonts on a web page and the various attributes of the FONT tag.</p>	<p>Lab 4-1 Lab 4-2</p>	<p>5c, 6a, 7a, 7c, 8c</p>
<b>HTML Lesson 5</b>	<p><b>Working with Images:</b> Students will learn how to import images into their web pages. They will also learn how to control the size and placement of the images, and to wrap text around the images. Layout concepts are also covered in this lesson.</p>	<p>Lab 5-1 Lab 5-2 Lab 5-3 Lab 5-4 Lab 5-5</p>	<p>5c, 6a, 7c, 8c</p>
<p><b>Project 1:</b> After HTML Lesson 5 is completed, Project 1 should be assigned. Project 1 will allow students to create a web site on their own using the concepts covered in the first five HTML lessons. Emphasis should be placed on proper coding, site structure, and readability of content.</p>			<p>1e, 2d, 5a, 5c, 7a, 7c, 8c, 12a</p>
<b>HTML Lesson 6</b>	<p><b>Creating Tables:</b> Students will learn how to create basic tables in HTML. Students will also learn sizing and spacing techniques with tables, and how to use tables in laying out web page content.</p>	<p>Lab 6-1 Lab 6-2 Lab 6-3 Lab 6-4 Lab 6-5 Lab 6-6</p>	<p>5c, 6a, 7c, 8c</p>
<b>HTML Lesson 7</b>	<p><b>Merging Cells in a Table:</b> Students will learn how to merge cells across columns and rows in a table. Students will use column and row spanning to build more complex tables, and they will learn how to used advanced tables as a layout technique.</p>	<p>Lab 7-1 Lab 7-2 Lab 7-3 Lab 7-4 Lab 7-5 Lab 7-6 Lab 7-7</p>	<p>5c, 6a, 7c, 8c</p>
<b>HTML Lesson 8</b>	<p><b>Creating Nested Tables:</b> Students will learn how to create complex table structures and nested tables. Students will use these techniques as a layout and design tool.</p>	<p>Lab 8-1 Lab 8-2 Lab 8-3 Lab 8-4 Lab 8-5 Table Quiz 8</p>	<p>5c, 6a, 7c, 8c</p>
<p><b>Project 2:</b> After HTML Lesson 8 is completed, Project 2 should be assigned. The emphasis should be on layout and design, balance, and consistency.</p>			<p>1e, 2c, 2d, 5a, 5c, 5d, 7a, 7c, 8c, 12a,</p>

Lesson	Topics Covered	Exercise	TEKS (Texas Only)
HTML Lesson 9	<b>Creating Frames:</b> Students will learn how to divide the browser into frames and load different pages into each frame. Students will learn to direct linked pages to open into specific frames. Students will also learn and apply the various frame attributes.	Lab 9-1 Lab 9-2 Lab 9-3 Lab 9-4 Lab 9-5	5c, 6a, 7c, 8c
HTML Lesson 10	<b>Inline Frames:</b> Students will create inline frames and learn how to specify which links are to open in the frame and which are to open a new main page.	Lab 10-1	5c, 6a, 7c, 8c
HTML Lesson 11	<b>Audio and Video:</b> Students will embed audio and video files onto their web pages. They will also learn to control the presentation of media files.	Lab 11-1 Lab 11-2	5c, 6a, 7b, 7c, 8c
<b>Project 3:</b> After HTML Lesson 10 is completed, Project 3 should be assigned. Project 3 is the final project in the HTML Lessons. The emphasis should be on proper usage of frames, navigation, page layout and design.			1i, 2d, 5a, 5c, 5d, 7a, 7c, 8c, 12a

## Cascading Style Sheets

Lesson	Topics Covered	Exercises	TEKS (Texas Only)
<b>The Style Sheet Lessons will teach students the fundamentals of using Cascading Style sheets and how to apply them at the inline, embedded, and external level. Students will also learn how to use style sheets to layout content.</b>			
<b>Style Sheets Lesson 1</b>	<b>Style Sheet Basics:</b> Students will learn the structure of a style rule, the units of measure used in Style Sheets, the three levels of style sheets, and how to apply style sheets at each level.	Lab 1	5c, 8b, 8c
<b>Style Sheets Lesson 2</b>	<b>Setting Font and Text Styles:</b> Students will learn about the various text and font properties and how to use them in style sheets and apply them to their web pages.	Lab 2	5c, 8c
<b>Style Sheets Lesson 3</b>	<b>Margins and Borders:</b> Students will learn to modify and apply margins and borders to various objects using style sheets.	Lab 3	5c, 8c
<b>Style Sheets Lesson 4</b>	<b>CSS Classes and IDs:</b> Students will learn to create style sheets using classes and ids. They will learn how classes are applied and when they are to be used.	Lab 4	5c, 8c
<b>Style Sheets Lesson 5</b>	<b>Background Images and Lists:</b> Students will learn to import images through a style sheet to be used as bullets and backgrounds.	Lab 5	5c, 8c
<b>Style Sheet s Lesson 6</b>	<b>Cursor &amp; Scrollbar Properties:</b> Students will learn to modify the scrollbar and cursor on a web page using style sheets.	Lab 6-1 Lab 6-2	5c, 8c
<b>Style Sheets Lesson 7</b>	<b>Positioning &amp; Page Layout:</b> Students will be introduced to the <div> and <span> tags. They will learn to use style sheets instead of tables to establish page layouts.	Lab 7-1 Lab 7-2	5c, 8c
<b>Style Sheets Lesson 8</b>	<b>CSS Filters:</b> Students will use CSS Filters to modify and distort images and text presentation on a web page.	Lab 8-1 Lab 8-2	5c, 8c

**NOTE:** Cascading Style Sheet concepts will be continued throughout the Dreamweaver, JavaScript, and PHP Lessons and Labs.

## Dreamweaver

Lesson	Topics Covered	Exercise	TEKS (Texas Only)
<b>The Dreamweaver unit is the newest addition to IE Class. The purpose is to give students exposure to using an visual editor with the coding sills they have already learned as well as introducing some of the built in features of the application.</b>			
<b>Dreamweaver Lesson 1</b>	<b>Creating A Site Profile:</b> Students will learn how Dreamweaver manages sites through profiles, and they will learn how to setup a site profile for sites that are to be managed remotely and locally.	Questions 1	5c, 8c
<b>Dreamweaver Lesson 2</b>	<b>Creating &amp; Editing Documents:</b> Students will learn how to create and edit web documents in Dreamweaver. Students will work in Code View and learn to integrate HTML coding skills with Dreamweaver.	Lab 2-1 Lab 2-2	5c, 8c
<b>Dreamweaver Lesson 3</b>	<b>Image Navigation Features:</b> In this lesson, students will learn to create image maps, image rollovers, and how to create navigation toolbars.	Lab 3-1 Lab 3-2	5c, 8c

### If Using Dreamweaver CS3 or MX

<b>Dreamweaver Lesson 4</b>	<b>Flash Elements &amp; Multimedia:</b> Students will learn to create Flash Text elements, Flash buttons, and Flash image viewers.	Lab 4-1 Lab 4-2	5c, 8c
<b>Dreamweaver Lesson 5</b>	<b>Working In Design View:</b> Students will how to use the automated coding features in Dreamweaver's Design View.	Lab 5	5c, 8c
<b>Dreamweaver Lesson 6</b>	<b>Creating Style Sheets:</b> Students will learn to use the Dreamweaver Style Sheet tools for creating Embedded and External Style Sheets and how to create and edit style rules.	Lab 6	5c, 8c
<b>Project 4:</b> After Dreamweaver Lesson 6 is completed, Project 4 should be assigned. The emphasis of Project 4 should be on the utilization of style sheets in website design and the use utilization of Dreamweaver tools. Students will design a site that achieves complete separation of layout and styles from site content.			1i, 5a, 5b, 5c, 5d, 7a, 8c, 12a

### If Using Dreamweaver CS4

<b>Dreamweaver Lesson 4</b>	<b>Working In Design View:</b> Students will how to use the automated coding features in Dreamweaver's Design View.	Lab 4	5c, 8c
<b>Dreamweaver Lesson 5</b>	<b>Spry Widgets</b>	Lab 5-1 Lab 5-2	5c, 8c
<b>Dreamweaver Lesson 6</b>	<b>Customizing and Editing Style Sheets:</b> Students will learn to use the Dreamweaver Style Sheet tools for creating Embedded and External Style Sheets and how to create and edit style rules.	Lab 6	5c, 8c
<b>Project 4:</b> After Dreamweaver Lesson 6 is completed, Project 4 should be assigned. The emphasis of Project 4 should be on the utilization of style sheets in website design and the use utilization of Dreamweaver tools. Students will design a site that achieves complete separation of layout and styles from site content.			1i, 5a, 5b, 5c, 5d, 7a, 8c, 12a

## Forms & JavaScript

Lesson	Topics Covered	Exercise	TEKS (Texas Only)
<b>The JavaScript focus will teach general programming concepts, yet keeping the design emphasis. Students will learn to use JavaScript as a tool for creating attractive and efficiently designed web sites.</b>			
<b>JavaScript Lesson 1</b>	<b>CGI Forms Overview:</b> Students are introduced to client-side processing scripts, web forms and their interactions with server-side scripts, and how data is passed from the client to the server.	Questions 1	5c, 8b, 8c, 9e
<b>JavaScript Lesson 2</b>	<b>The Form Elements:</b> Students will learn to use and apply the various form elements. Students will create working forms that send data to live CGI scripts. Students will also learn to modify form elements appearances by using style sheets.	Lab 2-1 Lab 2-2 Lab 2-3 Lab 2-4 Lab 2-5 Lab 2-6	5c, 8c, 9e, 9f, 9g
<b>JavaScript Lesson 3</b>	<b>Programming Basics:</b> Students will be introduced to the programming process and Object Oriented Programming. Students will use the document object to output information.	Questions 3 Lab 3-1 Lab 3-2	5c, 8c, 9c, 9d, 9e, 9f
<b>JavaScript Lesson 4</b>	<b>Variables &amp; Functions:</b> Students will learn how to use variables in JavaScript programs. Functions will also be introduced. Students will learn to create and use functions in their web pages.	Lab 4-1 Lab 4-2	5c, 8c, 9e, 9f
<b>JavaScript Lesson 5</b>	<b>Using Forms with JavaScript:</b> Students will be introduced to the event handlers and how to call specific functions based on certain events. They will also use JavaScript functions to process form data from a form.	Lab 5-1 Lab 5-2	5c, 8c, 9e, 9f
<b>JavaScript Lesson 6</b>	<b>Window Object Methods:</b> Students will learn to use the window object and its properties and methods.	Lab 6-1 Lab 6-2 Lab 6-3	5c, 8c, 9e, 9f
<b>JavaScript Lesson 7</b>	<b>JavaScript Arrays:</b> Student will be introduced to data structures and will learn how to create arrays in JavaScript. Students will be able to access specific elements of the array and output information from an array.	Lab 7-1	5c, 8c, 9e, 9f
<b>JavaScript Lesson 8</b>	<b>Repetition Structures:</b> Students will learn to use and control program flow using the for, while, and do/while loops.	Lab 8-1	5c, 8c, 9e, 9f
<b>JavaScript Lesson 9</b>	<b>Selection Statements:</b> Students will learn to use the if, if/else and switch statements to control program flow.	Lab 9-1 Lab 9-2 Lab 9-4 Lab 9-4	5c, 8c, 9e, 9f
<b>Project 5 (Team Project):</b> Students should be divided into groups of 2 or 3 for this project. Project 5 will focus on going through the entire website design process from determining client requirements for a business website, planning the site design and creating a storyboard, developing all graphics, and web pages.  NOTE: This project does not include any specific JavaScript requirement, however the team should be prepared to add a form element or a JavaScript element if requested by the client.			1a, 1b, 1c, 1d, 1e, 1f, 11a, 11b, 11c, 11d, 11e, 11f, 12a, 12b, 12c, 12d
<b>Project 5 (Individual Project):</b> Optionally, teachers may assign the individual project. This project will allow students to put to practice what they have learned throughout the course in developing a business web site. Emphasis should be on using JavaScript as a design tool for creating efficient and dynamic web pages.			

NOTE: Upon completion of Team Project 5, all TEKS for Web Technologies will have been satisfied.

## PHP / MySQL Scripting

Lesson	Topics Covered	Exercise	TEKS (Texas Only)
<p>The PHP lessons will introduce students to web design concepts using PHP, including form processing, user management, and expand on the concepts of dynamic and database driven web sites.</p>			
PHP Lesson 1	<p><b>Getting Started with PHP:</b> Students will be introduced to PHP scripting style and structure, on how PHP code is processed, and how it interacts with HTML.</p>	Lab 1-1 Lab 1-2	5c, 8c, 9e, 9f, 9g
PHP Lesson 2	<p><b>Variables &amp; Predefined Functions:</b> Variables will be introduced and students will learn how to create and use variables in web documents using PHP. Students will also learn how to use the predefined functions in PHP.</p>	Lab 2-1 Lab 2-2	5c, 8c, 9e, 9f, 9g
PHP Lesson 3	<p><b>User Defined Functions:</b> Students will learn to create their own functions and how to execute them. They will also learn practical methods for using functions in web page construction.</p>	Lab 3-1 Lab 3-2	5c, 8c, 9e, 9f, 9g
PHP Lesson 4	<p><b>Selection Statements:</b> Students will be reviewed on the comparison operators and logical operators. They will also learn how the if, if/else, and switch statements are used in PHP.</p>	Lab 4-1 Truth Tables Wks	5c, 8c, 9e, 9f, 9g
PHP Lesson 5	<p><b>Repetition Statements:</b> Students will learn how the <i>for</i>, <i>while</i>, and <i>do-while</i>, loop is used in PHP.</p>	Lab 5-1 Lab 5-2	5c, 8c, 9e, 9f, 9g
PHP Lesson 6	<p><b>Form Processing &amp; Data Files:</b> Students will learn to pass form information to a PHP script and how to process the data and generate an output.. Students will also learn how to create, retrieve, and edit datafiles in PHP Scripting.</p>	Lab 6-1 Lab 6-1	5c, 8c, 9e, 9f, 9g
PHP Lesson 7	<p><b>MySQL Databases / Storing Data:</b> Students will learn how to create databases, insert, update, delete, and select data from a database table. Students will also learn how to use the data stored in a MySQL database in web page construction.</p>	Lab 7-1 Lab 7-1	5c, 8c, 9e, 9f, 9g
PHP Lesson 8	<p><b>Advanced Data Manipulation:</b> Various advanced concepts will be introduced to students such as string manipulation and arrays.</p>	Lab 8-1 Lab 8-2	5c, 8c, 9e, 9f, 9g
PHP Lesson 9	<p><b>Sessions and Cookies:</b> Students will learn how to create and manage sessions and cookies. Students will also learn how sessions and cookies are used in visitor management.</p>	Lab 9-1 Lab 9-2	5c, 8c, 9e, 9f, 9g
<p><b>Project 6:</b> At the completion of the PHP lessons, students will design a database driven Content Management System utilizing session security techniques, and MySQL databases.</p>			5a, 5c, 8c, 9e, 9f, 9g, 12a