

Programming in HTML5 with JavaScript and CSS3

اهداف دوره : گسترش روز افزون تکنولوژی وب در سال های اخیر و گرایش طراحان و برنامه نویسان به استفاده از روش های استاندارد، باعث گردیده که دنیای وب رشد قابل ملاحظه ای داشته باشد. در این میان تکنولوژی های HTML5, CSS3, JavaScript چنان تحولی بوجود آورده اند که استفاده از آنها فقط محدود به دنیای وب نبوده و حتی در ساخت برنامه های کاربردی برای انواع موبایل ها، تبلت ها نیز از آنها استفاده می شود. بی اغراق می توان گفت دیگر نیازی به فراگیری زبان های برنامه نویسی پیچیده مثل C++, Java, C# برای تولید برنامه های کاربردی نیست! زیرا تکنولوژی های فوق در عین سادگی، کلیه نیازهای بصری برنامه های کاربردی را فراهم نموده و از همه مهمتر اجرای آنها را در سیستم های عامل متفاوت از قبیل Windows Phone, Android, iOS ... امکان پذیر نموده است. ظهور تکنولوژی هایی از قبیل PhoneGap موید مطالب فوق می باشد.

مدت دوره : ۴۰ ساعت

مخاطبین دوره : این دوره برای کلیه علاقمندان به برنامه نویسی در محیط وب، موبایل، تبلت توصیه می گردد و همچنین دوره پیشنهادی برای برنامه نویسی در محیط Windows 8 نیز می باشد.

پیشنیاز دوره : تسلط به یک زبان برنامه نویسی و Web Development Fundamentals

دست آوردهای دوره : پس از گذراندن دوره مذکور قادر به انجام فعالیت های زیر خواهید شد :

- آشنایی با تگ های جدید HTML5 برای فرمت اطلاعات
- آشنایی با تکنیک های طراحی افکت پیشرفته بکمک CSS3
- معرفی بیش از ۲۰ روش طراحی بکمک CSS3
- معرفی کنترل های جدید HTML5 و اعتبار سنجی فیلدها
- آشنایی با روش های برنامه نویسی وب با زبان JavaScript
- پیاده سازی سرویس های آژاکس بکمک jQuery
- پیاده سازی نمودارهای اطلاعاتی بکمک Canvas و معرفی HeighChart
- پیاده سازی پردازش های موازی Multi Thread بکمک Web Worker
- پیاده سازی روش های افزایش کارایی وب سایت بکمک Application Cache
- پیاده سازی بانک های اطلاعاتی محلی بکمک Web SQL
- معرفی مولفه jqGrid برای نمایش اطلاعات لیستی
- معرفی ذخیره سازی اطلاعات در sessionStorage, LocalStorage
- معرفی موتور YepNop برای تولید تست های توانمندی مرورگر
- پیاده سازی وب سایت های Cross Browser بکمک Modernizr
- آشنایی با تکنولوژی LINQ for JavaScript از طریق Linqjs
- ارسال و دریافت اطلاعات از سرور بکمک AJAX, JSON
- چندین نوع مثال اجرایی متنوع و جذاب سبد محصول، داشبورد تجاری، فرم های ورود اطلاعات و ...



Module 1: Overview of HTML and CSS

This module provides an overview of HTML and CSS, and describes how to use Visual Studio 2012 to build a Web application.

Lessons

- Overview of HTML
- Overview of CSS
- Creating a Web Application by Using Visual Studio 2012

Module 2: Creating and Styling HTML5 Pages

This module describes the new features of HTML5, and explains how to create and style HTML5 pages.

Lessons

- Creating an HTML5 Page
- Styling an HTML5 Page

Lab : Creating and Styling HTML5 Pages

- Creating HTML5 Pages
- Styling HTML5 Pages

After completing this module, students will be able to:

- Create static pages using the new features available in HTML5.
- Use CSS3 to apply basic styling to the elements in an HTML5 page.

Module 3: Introduction to JavaScript

This module provides an introduction to the JavaScript language, and shows how to use JavaScript to add interactivity to HTML5 pages.

Lessons

- Overview of JavaScript Syntax
- Programming the HTML DOM with JavaScript
- Introduction to jQuery

Lab : Displaying Data and Handling Events by Using JavaScript

- Displaying Data Programmatically
- Handling Events

After completing this module, students will be able to:

- Explain the syntax of JavaScript and describe how to use JavaScript with HTML5.
- Write JavaScript code that manipulates the HTML DOM and handles events.
- Describe how to use jQuery to simplify code that uses many common JavaScript APIs.

Module 4: Creating Forms to Collect Data and Validate User Input



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This module describes the new input types available with HTML5, and explains how to create forms to collect and validate user input by using the new HTML5 attributes and JavaScript code.

Lessons

- Overview of Forms and Input Types
- Validating User Input by Using HTML5 Attributes
- Validating User Input by Using JavaScript

Lab : Creating a Form and Validating User Input

- Creating a Form and Validating User Input by Using HTML5 Attributes
- Validating User Input by Using JavaScript

After completing this module, students will be able to:

- Create forms that use the new HTML5 input types.
- Validate user input and provide feedback by using the new HTML5 attributes.
- Write JavaScript code to validate user input and provide feedback in cases where it is not suitable to use HTML5 attributes

Module 5: Communicating with a Remote Data Source

This module describes how to send and receive data to and from a remote data source by using jQuery AJAX operations.

Lessons

- Sending and Receiving Data by Using jQuery AJAX operations

Lab : Communicating with a Remote Data Source

- Retrieving Data
- Serializing and Transmitting Data
- Refactoring the Code by Using jQuery ajax method

After completing this module, students will be able to:

- Simplify code that serializes, deserializes, sends, and receives data by using the jQuery ajax method

Module 6: Styling HTML5 by Using CSS3

This module describes how to style HTML5 pages and elements by using the new features available in CSS3.

Lessons

- Styling Text
- Styling Block Elements
- CSS3 Selectors
- Enhancing Graphical Effects by Using CSS3

Lab : Styling Text and Block Elements using CSS3

- Styling the Navigation Bar
- Styling the Page Header
- Styling the About Page



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After completing this module, students will be able to:

- Style text elements on an HTML5 page by using CSS3.
- Apply styling to block elements by using CSS3.
- Use CSS3 selectors to specify the elements to be styled in a Web application.
- Implement graphical effects and transformations by using the new CSS3 properties.

Module 7: Creating Objects and Methods by Using JavaScript

This module explains how to write well-structured and easily-maintainable JavaScript code, and how to apply object-oriented principles to JavaScript code in a Web application.

Lessons

- Writing Well-Structured JavaScript
- Creating Custom Objects
- Extending Objects

Lab : Refining Code for Maintainability and Extensibility

- Inheriting From Objects
- Refactoring Code to Use Objects

After completing this module, students will be able to:

- Describe the benefits of structuring JavaScript code carefully to aid maintainability and extensibility.
- Explain best practices for creating custom objects in JavaScript.
- Describe how to extend custom and native objects to add functionality.

Module 8: Creating Interactive Pages using HTML5 APIs

This module describes how to use some common HTML5 APIs to add interactive features to a Web application. This module also explains how to debug and profile a Web application.

Lessons

- Incorporating Multimedia
- Reacting to Browser Location and Context
- Debugging and Profiling a Web Application

Lab : Creating Interactive Pages by Using HTML5 APIs

- Incorporating Video
- Incorporating Images
- Using the Geolocation API

After completing this module, students will be able to:

- Use the Drag and Drop, in a Web application.
- Incorporate audio and video into a Web application.



- Detect the location of the user running a Web application by using the Geolocation API.
- Explain how to debug and profile a Web application by using the Web Timing API and the Internet Explorer Developer Tools.

Module 9: Adding Offline Support to Web Applications

This module describes how to add offline support to a Web application, to enable the application to continue functioning in a user's browser even if the browser is disconnected from the network.

Lessons

- Reading and Writing Data Locally
- Adding Offline Support by Using the Application Cache

Lab : Adding Offline Support to a Web Application

- Implementing the Application Cache
- Implementing Local Storage

After completing this module, students will be able to:

- Save and retrieve data locally on the user's computer by using the Local Storage API.
- Provide offline support for a Web application by using the Application Cache API.

Module 10: Creating Advanced Graphics

This module describes how to create advanced graphics for an HTML5 Web application by using a Canvas element, and by using Scalable Vector Graphics.

Lessons

- Programmatically Drawing Graphics by Using a Canvas
- Programming with HighChart

Lab : Creating Advanced Graphics

- Create Business Intelligent Dashboard

Module 11: Animating the User Interface

This module describes how to enhance the user experience in an HTML5 Web application by adding animations.

Lessons

- Applying CSS Transitions
- Transforming Elements
- Applying CSS Key-frame Animations

Lab : Animating User Interface Elements

- Applying Transitions to User Interface Elements
- Applying Key-Frame Animations

After completing this module, students will be able to:

- Apply CSS transitions to elements on an HTML5 page, and write JavaScript code to detect when a transition has occurred.
- Describe the different types of 2D and 3D transitions available with CSS3



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- Implement complex animations by using CSS key-frames and JavaScript code.

Module 12: Creating a Web Worker Process

This module describes how to use Web Worker Processes to perform long-running operations asynchronously and improve the responsiveness of an HTML5 Web application.

Lessons

- Introduction to Web Workers
- Performing Asynchronous Processing by Using a Web Worker

Lab : Creating a Web Worker Process

- Improving Responsiveness by Using a Web Worker

After completing this module, students will be able to:

- Describe the purpose of a Web Worker process, and how it can be used to perform asynchronous processing as well as provide isolation for sensitive operations.
- Use the Web Worker APIs from JavaScript code to create, run, and monitor a Web Worker process.