

## Building Web Applications with ASP.NET and Ajax: Hands-On - 4 Days

### Course 506 Overview

- You Will Learn How To**
- Create multitier Web applications using Visual Studio, ASP.NET and Ajax
  - Design for data independence with Entity Framework, LINQ and ADO.NET
  - Leverage distributed sessions, page inheritance and caching in ASP.NET
  - Program a business layer with stateful objects and distributed transactions
  - Create a more responsive User Interface (UI) using Ajax Extensions and the Ajax Control Toolkit
  - Develop fast, efficient Web pages with WCF Web services and jQuery

**Course Benefits** Modern Web sites need to be able to handle simultaneous users, while providing a fast, responsive Web 2.0 interface. In this course, you create a multitier Web site using Visual Studio and .NET. You learn how to create a scalable architecture, use WCF services and MSMQ for asynchronous distributed programming and how to enhance the UI with Ajax Extensions, the Ajax Control Toolkit and jQuery.

**Who Should Attend** Those programming robust Web applications. Programming experience at the level of Course 503, "Visual Basic Programming for .NET", or Course 419, "C# Programming", and Web development experience are assumed. ASP.NET and JavaScript experience are helpful.

**Hands-On Training** You gain experience building a scalable application. Exercises, presented in VB or C#, include:

- Creating custom business entities
- Building a data access layer
- Exploiting ASP.NET security features for Web UIs
- Programming transactional components
- Building a richer UI using Ajax Extensions
- Connecting Ajax to WCF Web services
- Building DHTML with jQuery
- Implementing message queuing
- Manipulating XML on the client
- Dynamically switching ASP.NET themes and masters

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### Course 506 Outline

#### Architecture of Scalable Applications

- N-tier applications
- Distributed objects vs. clustering
- Communication between layers
- Challenges of a Web farm environment

#### Building the Data Layer

##### Designing for data independence

- Working with business objects
- Maximising efficiency with ADO.NET

##### Exploiting Microsoft ORM tools

- Utilising the Entity Framework
- Simplifying data access with LINQ to SQL

#### Constructing the Presentation Layer

##### Working with ASP.NET controls

- Handling control events
- Binding business components with ObjectDataSource
- Exploiting simple and complex data binding

##### Implementing Web security

- Authenticating anonymous Internet users
- Achieving role-based Web security
- Integrating Microsoft security tables with an existing database

##### Building Web Forms

- Inheriting from a base page
- Dynamically switching themes and master pages

##### Managing state for Web farms

- Sticky sessions vs. dynamic load balancing
- Implementing distributed session state
- Leveraging caching for performance and scalability
- Filtering, sorting and aggregating with LINQ to Objects

#### Implementing the Business Layer

##### Programming the middle tier

- Encapsulating business logic in business entity objects
- Managing concurrency
- Employing promotable .NET transactions
- Distributing transactions across multiple transaction servers

##### Sending Asynchronous Distributed Messages

- Utilising Microsoft Message Queue (MSMQ)

- Reading from and writing to queues using the System.Messaging namespace

#### Building More Responsive ASP.NET Pages with Ajax

##### Creating a richer UI with Ajax extensions

- Integrating Ajax and existing pages
- Increasing responsiveness with the UpdatePanel
- Utilising AsyncPostBack Triggers for conditional updates
- Using Ajax with Master Pages via ScriptManagerProxy

##### Leveraging the Ajax Control Toolkit

- Linking DropDownLists with CascadingDropDown controls
- Writing and calling an Ajax-enabled WCF Web service
- Implementing the Ajax Accordion control

##### Enhancing Web Form controls with Ajax control extenders

- Creating modal dialogs with the ModalPopup control
- Simplifying dates with the CalendarExtender
- Responding to user input with the AutoComplete extender
- Guiding the user with TextBoxWatermark

#### Developing with jQuery

##### Manipulating HTML with jQuery

- Investigating jQuery syntax
- Returning wrapped sets with the jQuery function
- Responding to DOM loading with the .ready() function
- Traversing the DOM with selectors

##### Creating DHTML with jQuery

- Manipulating JSON and HTML
- Updating client HTML pages with jQuery and Ajax
- Traversing XML Ajax returns with .find() and .each()
- Animating changes to HTML

##### Implementing Microsoft Official jQuery Plugins

- Building DHTML with Ajax and client-side templates
- Displaying preformatted HTML inside client templates
- Localising formats with the Globalisation plugin

##### Delivering JavaScript efficiently

- Improving performance with Microsoft's Content Delivery Network
- Reducing script size with the Microsoft Minifier

#### Deploying Web Packages

- Packaging for deployment
- Transforming the Web.config for release
- Importing Web packages in IIS