



Course 454: Introduction to ASP.NET Web Services

Course Description...

This is an intermediate level course in .NET programming but a beginning course in .NET Web Services. The course begins with a discussion of the concept of marshalling, proxies and stubs; and then provides enough XML to support an understanding of SOAP (Simple Object Access Protocol) and WSDL (Web Services Description Language). Basic ASP.NET and ADO.NET concepts are introduced.

Learning Objectives...

- Introduce the concept of an assembly and distinguish between private, shared, and remote assemblies
- Understand the concept of marshalling and the role of proxies and stubs
- Discover the power of XML
- Introduce two applications of XML (SOAP and WSDL)
- Explore those principles of ASP.NET and ADO.NET that support a basic introduction to Web Services

Who should attend...

Audience includes individuals who are familiar with simple programming techniques in .NET, including some familiarity with object-oriented programming.

Prerequisites...

Course 460 or its equivalent is acceptable, course 451 is preferred as a foundation for this course.

See next page for a detailed course outline...



Course Outline...

Introduction and Overview

Course Objectives

Unit 1: Review of Prerequisite Material (Optional)

What Is .NET?

- .NET Framework
- Microsoft Intermediate Language
- Common Language Runtime

Why Is .NET?

- Safer, more secure and more stable
- Run once, run always
- XCOPY installation

Introduction to Visual Studio .NET

- Tour of RAD Environment
- Tour of important files
- Tour of important project types

Expectations, You Know How To

- Write procedural code
- Have a basic understanding of object-oriented principles
- Use a debugger to step through code and watch variables

Unit 2: Review of Assemblies

Review of Classes and Objects

- Encapsulation (inheritance and polymorphism touched on briefly)
- Object declaration, reference vs. value types

Review of Components

- Private assemblies
- Shared assemblies
- Components, distributed architectures and the need for remotable components
- Demonstrations

Unit 3: Marshalling

The Process Boundary

- Executables
- DLL's
- Cross process communication
- Proxies and Stubs



Technology Review

- COM
- CORBA
- RMI
- The need for cross-platform marshalling

Web Services Basics

- Marshalling via HTTP and SOAP
- Proxy descriptions via WSDL
- The importance of XML
- Demonstration

Unit 4: XML Basics

Origins of XML

- SGML as the beginning
- HTML as an application of SGML
- XML as a subset of SGML

XML Elements

- Syntax
- Schemas
- Parsers (briefly)
- Transformations and other issues (briefly)

Unit 5: ASP.NET Basics

Comparison of a Web Site with a Web Service

- HTML is usually consumed by human beings
- XML is usually consumed by an application
- Examples

The Structure of ASP.NET

- Code behind model
- .asmx vs. aspx.vb and aspx.cs pages
- File locations in an ASP.NET application
- Web Services as a stateless engine
- Debugging web services

Unit 6: Web Service Details

The Client Side Proxy

- SoapHttpClientProtocol
- Wrapping the Invoke method
- Passing parameters to Invoke



An Introduction to WSDL

An Introduction to SOAP

- Method calls in SOAP
- Method responses in SOAP
- Passing parameters by reference
- Tracing with the SOAP Toolkit
- Simple object serialization with SOAP

Remote Debugging

- Single-stepping through a web service
- Watch windows
- Etc.

Unit 7: Data Access

ADO.NET, Data Access and Data Transfer

- Brief discussion of Connections, Commands, and DataReaders
- Extended discussion of datasets (how to use them, when to use them)
- Marshalling objects using Datasets
- Datasets and cross-platform issues
- ADO.NET Transactions

.NET Remoting (Discussion Only)

Unit 8: Working With Legacy Components

- COM Interop
- ASPCompat Attribute and VB6 Components
- Call-based dlls

Unit 9: Putting It All Together

What Has Been Learned

- Introduce the concept of an assembly and distinguish between private, shared, and remote assemblies
- Understand the concept of marshalling and the role of proxies and stubs
- Discover the power of XML
- Introduce two applications of XML (SOAP and WSDL)
- Explore those principles of ASP.NET and ADO.NET that support a basic introduction to Web Services

Please contact your ROI representative to discuss course tailoring!!!