

Course Description: This course introduces Ajax and its underlying technologies. XML is introduced as the foundation for XHTML documents. The differences between an HTML and XHTML document are discussed as well as formatting XHTML documents using Cascading Style Sheets (CSS). JavaScript is covered in detail along with its interaction with the W3C DOM for XML and XHTML. Students will learn how all of these technologies come together to form the basis of an Ajax application. The XMLHttpRequestObject will then be studied as a means of communicating with server-side components.

Who Should Attend: This course is intended for developers interested in building a dynamic and interactive web based application.

Prerequisites: Basic knowledge of HTML is required for this course. Prior experience with any programming language is suggested.

Benefits of Attendance: Upon completion of this course, students will be able to:

- Understand the purpose of Ajax and its underlying application model
- Create and manipulate well-formed XML documents
- Understand the differences between an HTML and XHTML document
- Use Cascading Style Sheets to format an XHTML document
- Use JavaScript to develop dynamic web pages
- Understand the W3C DOM and interface with it through the use of JavaScript
- Understand the DOM event model and use it to allow JavaScript to interact with user input
- Use the XMLHttpRequestObject to asynchronously communicate with server-side components

Course Outline:

Introduction

Introduction to Ajax
Typical Web Application Model
Ajax Application Model
Coding Ajax Applications

Getting Started with XML

Parsing XML
XML Syntax
Elements
Attributes
Comments
Unicode and Character Sets
Character References
Entity References
CDATA Sections
Processing Instructions

HTML/XHTML

Introduction
HTML/XHTML Differences

Cascading Style Sheets

Introduction
CSS Syntax
CSS Property Names and Values
Creating CSS Style Sheets
Grouping Selectors
Pattern Matching Rules
Inheritance

The Core JavaScript Language

Introduction
A Simple XHTML and JavaScript Example
Language Structure
Variables
Numbers
Strings
Booleans
Expressions and Operators
Arithmetic Operators
Comparison and Logical Operators
Operator Precedence
The if Statement
The switch Statement
The while Statement
The for Statement
Nested Loops
The break Statement
The continue Statement
Functions

Local vs. Global Variables

JavaScript Arrays

Introduction
Creating Arrays
Processing Arrays
Array Methods
Associative Arrays

Functions

Introduction
User Defined Functions
Arguments and Parameters
The arguments Array
Core JavaScript Functions
Numerical Functions
URI Encoding and Decoding Functions

Core JavaScript Objects

Objects
The Math Object
The Date Object

The Document Object Model (DOM)

Web Browsers and Parsers
Introduction
The W3C DOM
Trees and Nodes
The Node Interface
The NodeList and NamedNodeMap Interfaces
Node Traversal Example
Node Traversal Display
Node Traversal Details
The Element Interface
The Text and Attr Interfaces
DOM Compatibility
The Document Interface

The DOM Event Model

Introduction
JavaScript Events
Event Handlers as XHTML Attributes
Event Handlers as Properties
Event Propagation
The Event Object
Event Properties and Methods
Cross-Browser Event Handling
Handling Mouse Events

The XMLHttpRequest Object

Introduction

Cross-Browser XMLHttpRequest Object

XMLHttpRequest Properties
XMLHttpRequest Methods
Communicating with the Server
Processing Text Responses
Processing XML Responses
Attributes Named id and of Type ID
Defining a Callback Handler Function
Handling Multiple XMLHttpRequest Objects

A More Complex Ajax Example

Introduction
The XHTML Component
The CSS Component
The Server-Side XML Components
The Utility Components
Building the Application - Stage 1
Building the Application - Stage 2
Building the Application - Stage 3
Building the Application - Stage 4
Building the Application - Stage 5
Building the Application - The Final Stage