

The Extensible Markup Language (XML) defines a way of marking up text to describe the structure of data. XML allows you to create your own markup language: you define the tags that give meaning to your data. The World-Wide Web Consortium (W3C) creates and maintains the definition of XML, making it a standard for creating markup languages. Industries and organizations use XML to write rules defining their own markup languages.

In this two-day course students will learn advanced features of XML. Through lecture and hands-on lab exercises, they will extend their capabilities in XML Schema, XPath, and XSLT. In addition, new topics such as XQuery and features of XSLT 2.0 will be discussed.

**Course Objectives:**

- Reuse XML Schema content using features such as restriction, extension, and redefinition.
- Ensure element or attribute uniqueness with XML Schema.
- Transform XSLT stylesheets to text, HTML, and XML output.
- Call various XPath and XSLT functions.
- Merge XSLT stylesheets using include and import syntax.
- Use XSLT and XPath 2.0 elements and functions.
- Retrieve attribute and element content from an XML document using XQuery.

**Audience:** XML developers who need to use some of the advanced features of XML.

**Prerequisites:** *Introduction to XML* and some XML development experience.

**Number of Days:** 2 days

<p><b>1. Course Introduction</b>          Course Objectives          Overview          Suggested References</p>	<p><b>4. Generating Output with XSLT</b>          Output Methods          HTML Output          Plain Text Output          XML Output          xsl:element and xsl:attribute          Attribute Value Templates          xsl:attribute-set          Text, Processing-Instructions,              and Comments          Working with Namespaces</p>
<p><b>2. Defining New Types Using Schemas</b>          Substitution Groups          All and Choice Elements          Simple Type Restrictions          Pattern and Enumeration Facets          Complex Types and Extensions          Complex Types and Restrictions          The Final Attribute</p>	<p><b>5. Using XPath and XSLT Functions</b>          XPath Datatypes and Functions          Node Test Functions          Node Set Functions          Boolean Functions</p>
<p><b>3. Additional Schema Elements</b>          Uniqueness          Keys and Keyref          Groups          Attribute Groups          redefine          Allowing Any Content</p>	

- String Functions
- Number Functions
- id() Function
- XSLT Functions
- The document() Function
- xsl:key and the key() Function
- 6. Advanced XSLT**
  - Copying Elements
  - Numbering
  - Variables
  - Parameters
  - Using Other Stylesheets
  - Apply-imports
  - Template Rule Conflicts
  - Extensions
- 7. XSLT and XPath 2.0 New Features**
  - XSLT 2.0 Grouping Elements and Functions
  - User-Defined XSLT Functions
  - Multiple Output and XHTML Documents
  - Temporary Trees
  - Sequences
  - Types
  - Stylesheets That Are Schema-Aware
  - Character Mapping
  - Regular Expressions
- 8. Introduction to XQuery**
  - What is XQuery?
  - doc() Function
  - XQuery Datatypes
  - XQuery Expressions
  - XQuery Prolog
  - Modules
  - Conditional Expressions
  - Iteration and FLWOR
  - Built-in Functions
  - User-Defined Functions
- 9. Appendix A – Effective Document Design**
  - Design Goals
  - Intended Audience
  - Document Types
  - Choosing a Validation Method
  - Incorporating Namespaces
  - Modular Document Design
- 10. Planning for Extensibility**
- Appendix B – XSL Formatting Objects**
  - What is XSL?
  - XSL-FO Overview
  - Types of Objects
  - Defining Page Masters
  - Setting Up the Flow
  - Block-Level vs. Inline-Level Objects
  - Lists
  - Tables
  - Out-of-Line Objects