

Course Description: This comprehensive course teaches you the principles, benefits and components of XML, introduces some advanced principles of XML development and emerging standards such as XSL, XPath, and XML Schemas. The course includes the use of the Java programming language to inspect, modify and create XML documents using the SAX and DOM Interfaces.

Who Should Attend: This course was designed for Programmers and Web developers who want to use the Extensible Markup Language (XML) for creating, transferring and presenting data on the web or between software components.

Prerequisites: Students should have completed a course in Java Programming or have equivalent knowledge, and familiarity with HTML documents.

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

- Recognize all components of an XML document.
- Create XML-compliant markup languages.
- Write both a well-formed and valid document.
- Use namespaces to uniquely identify markup elements amongst the global creation of new documents.
- Understand the components of XML Application Programming Interfaces like DOM and SAX.

Course Outline:

Introduction

History
 What is a Markup Language?
 SGML - Standard Generalized Markup Language
 HTML - Hypertext Markup Language
 Sample HTML document
 XML - Extensible Markup Language
 XML Vocabularies
 Creating Semantic Tags

Getting Started With XML

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

Document Type Definitions

Introduction to DTDs
 Element Type Declarations
 Cardinality Summary
 Attribute Type Declarations
 String Attribute Type Declarations
 Attribute Default Specifications
 Enumerated Attribute Type Declarations
 ID Attribute Type Declarations
 IDREF and IDREFS Attribute Type Declarations
 NMTOKEN Attribute Type Declarations
 Entity Type Declarations
 Entity Declarations
 ENTITY Attribute Type Declarations
 NOTATION Attribute Type Declarations

Cascading Style Sheets Level 2 (CSS2)

What is a CSS?
 Creating CSS2 Stylesheets
 Selecting Elements
 Pattern Matching
 STYLE Attributes
 Inheritance
 Cascades
 Multiple Stylesheets
 Comments
 Property Names and Values

XML Stylesheet Language (XSL)

What is XSL?
 What is XSLT?
 Using XSLT
 XSL Syntax
 Namespaces

Trees and Nodes
 Associating Documents With Stylesheets
 XSL Stylesheet Element
 XSL Template Elements
 Accessing Node Values
 XSL Apply-Templates Element
 XSLT Match Patterns
 Expressions as Tests in Patterns
 Matching by ID
 XSL If Element
 XSL Choose Element
 XSL For-Each Element
 XSL Sort Element
 XSL Comment Element
 Miscellaneous

XLink
 Xpointer

XML Schema

Introduction to XML Schemas
 XML Schema Syntax
 Simple Types
 Built-in Primitive Simple Types
 Built-in Derived Simple Types
 Datatype Hierarchy
 Using Built-In Datatypes
 Defining Your Own Simple Types
 Facets
 List Types
 Union Types
 Complex Types
 Global vs. Local Elements and Attributes
 Complex Types with Simple Content
 Complex Types with Mixed Content
 Complex Types with No Content and Any Content
 Annotations

Document Object Model (DOM)

What are Parsers?
 JAXP - A Plugability Layer
 Parsing with DOM
 Trees and Nodes
 DOM Node Types
 Processing Child Nodes
 Error Handling
 Building the Node Tree

SAX API

Parsing with SAX
 Event Handling in SAX
 ContentHandler Interface
 Attributes Interface
 DTDHandler Interface
 EntityResolver Interface
 ErrorHandler Interface
 SAXParseException Class

Future XML Capabilities