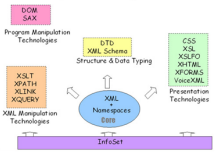
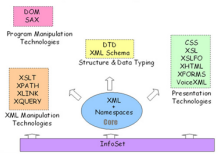
XML150 : XML Fundamentals

Code : XML150 **Duration :** 2 days **Category :** XML



XML Fundamentals



Audience :

This course is designed for project managers, system analysts, application developers and system administrators who want to learn the fundamentals of XML and how and where XML can be used.

Prerequisites :

To attend this course basic knowledge of the Internet and HTML is required. Knowledge of databases and object oriented programming is beneficial to the understanding of the subject matter.

Realization :

The theory is covered using presentation slides. Demos are used to clarify the theory. There is ample opportunity to practice.

Contents :

In the course XML Fundamentals participants will gain a thorough understanding of the fundamentals of XML. The concepts of the meta language XML are discussed as well as the usage of XML. Attention is paid to the syntax of XML documents and to the difference between well-formed and valid XML documents. The role of Document Type Definitions (DTDs) and XML Schema's (XSD files) is discussed as well as the importance of several derived XML languages, so called XML vocabularies, is explained. Also the different ways to present XML documents is covered. In this respect the focus is on the use of eXtended Stylesheet and Transformation Language (XSLT) style sheets and the XPath language to locate and address certain parts in an XML document. The new XQuery XML standard for accessing XML and relational data stores is covered and the syntax and practical applications of XQuery are explained. Also attention is paid to Web services for exchanging data between heterogeneous distributed systems and related standards such as SOAP and WSDL. Finally the access of an XML document from a programming language with the DOM and SAX API is discussed.

Module 1 : XML Introduction

What is XML?
XML versus HTML
Roots of XML
Markup Languages
Benefits of XML
XML Technologies
Applications of XML
XML Validation with XML Schema
XML Presentation with Stylesheets
XML Transport with Web Services

Module 2 : XML Syntax

XML Document Structure
Course Catalog in XML
Node Tree
XML Prolog
XML Elements
XML Attributes
Well Formed Documents
Valid Documents
Processing Instructions
Entity References
CDATA Sections
Character References
Comments
Namespaces

Module 3 : XML Validity

Validating XML documents
Document Type Definition
DOCTYPE Declaration
Internal and External DTD
Element Declaration in DTD
Attribute Declaration in DTD
Limitations of DTD's
XML Schema as DTD Successor
DTD to XML-Schema Conversion
XML-Schema Vocabulary
XML Schema Namespace
Referencing XML Schema's
Simple and Complex Types
XML Schema Data Types
User Defined Data Types

Module 4 : XML Formatting

Separate Content and Presentation
What is XSL?
XSLT Stylesheets
How does XSLT work?
What is XPath?
Stylesheet Blueprint
Templates
xsl:value-of
xsl:for-each
xsl:if
Using Predicates
Applying templates
XSLT as Transformation Language

Module 5 : XQuery

What is XQuery?
XQuery Motivation
XQuery Design Goals
XQuery Processing Model
Types of Queries
Where is XQuery used?
XQuery and other Technologies
Basic Syntax Rules
Selecting Nodes
XPath Expressions
FLWOR Expressions
Structure of an XQuery Module
XQuery Functions
Element Constructors
Conditional Expressions

Module 6 : XML Programming

What is parsing?
XML Processing Options
The XML DOM
Building a DOM Tree
Node Interface Model
XML Access through DOM
Navigation and Manipulation
Simple API for XML
SAX Operation
SAX Callbacks
XML Parsing Models
Pull Parsing versus Push Parsing
What is JAXB?
JAXB versus DOM and SAX
JAXB Architecture
JAXB Binding Life Cycle

Module 7 : XML Web Services

What is a Web Service?
Role of Interface
Interoperability
Web Service Stack
RPC Style Web Services
Document Style Web Services
What is SOAP?
SOAP
Structure SOAP Message
SOAP Messages as Payload
SOAP Header
What is WSDL?
Basic Structure WSDL
WSDL and Code generation
Service Orientation
WS Standards Overview