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# Course Catalog

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## a. Locations



Our trainings take place at various locations in the German-speaking countries.

### Public trainings:

You can enroll for public trainings at our training centers across Germany like in Berlin, Dresden, Hamburg, München / Munich, Düsseldorf, Frankfurt, and Stuttgart. Not all public trainings will be organized in all cities but you can still book a particular training for your team in one of our training and conference centers.

In Austria you can attend seminars and trainings in Wien / Vienna while we offer training dates in Switzerland in Zürich / Zurich.

### On-site trainings:

We have mobile and flexible trainers / lecturers who like to visit you and your team for an on-site training or a training in a conference center or hotel near you.

## USA

Chicago	Tel: Fax:
Miami	Tel: +1.305.395.7962 Fax: +1.305.395.7964
New York	Tel: +1.212.380.1181 Fax: +1.305.395.7964

# 1. W3C

## A. Ontologies



### (i) Java and Ontologies



#### Overview

<b>Course ID</b>	2020962
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



#### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
06-07 Aug 01-02 Oct 26-27 Nov	30-31 Jul 24-25 Sep 19-20 Nov	20-21 Aug 15-16 Oct 10-11 Dec

Prices plus local taxes.



#### Course Description

Jena is an open source Semantic Web framework for Java. It provides an API to extract data from and write to RDF graphs. The graphs are represented as an abstract "model". A model can be sourced with data from files, databases, URLs or a combination of these. A Model can also be queried through SPARQL and updated through SPARUL. Furthermore, Jena provides support for OWL (Web Ontology Language). The framework has various internal reasoners and the Pellet reasoner (an open source Java OWL-DL reasoner) can be set up to work in Jena. This training helps Java developers to use Jena in order to create and parse ontologies and semantic data models.



#### Course Outline

##### A. RDF and RDF Graphs

Writing and Reading RDF Documents - RDF Graph Navigation - Querying RDF Graphs - Editing and Parsing RDF Graphs

##### B. OWL and OWL Ontologies

Creating and Parsing OWL Ontologies - Analyzing OWL Classes and Their Properties - Analysis and Creation of Restrictions of OWL Classes

## **C. Triple Store Storage and SDB**

Setting Up and Using Triple Store Storage and Relational Storage Using Jena - Transactions for Read-/Write Operations  
- Bulk Storage

## **D. Querying Ontologies using SPARQL and ARQ**

Simple and complex Queries - Filters and Conditions - Grouping - Sub-Queries - Querying Lists - Dynamic Queries  
- ARQ Filters



## (ii) Ontologies using Protégé



### Overview

<b>Course ID</b>	2020173
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Project managers, systems analysts, programmers, developers, consultants
<b>Prerequisites</b>	General XML Kentnisse
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
30-31 Jul 24-25 Sep 19-20 Nov	06-07 Aug 01-02 Oct 26-27 Nov	13-14 Aug 08-09 Oct 03-04 Dec

Prices plus local taxes.



### Course Description

The Protégé platform supports modeling ontologies via a web client or a desktop client. Protégé ontologies can be developed in a variety of formats including OWL, RDF(S), and XML Schema. The Web Ontology Language (OWL) is a family of knowledge representation languages for authoring ontologies. The languages are characterised by formal semantics and RDF/XML-based serializations for the Semantic Web and applications using a complex data model. This training explains both the use of the Protégé software as well as the grammar and structure of OWL.



### Course Outline

#### A. OWL Ontologies using Protégé

(0.75 Days) Classes and Class Hierarchies - Properties and Hierarchies - Relationships- Instanzen - Validation and Inconsistencies – Management of OWL Ontologies in Protégé

#### B. Querying OWL Ontologies

(0.5 Days) Introduction to SPARQL – Queries using OWL2Query – Simple and Complex Queries

## **C. Visualization**

(0.25 Days) Visualizing Hierarchies using OWLViz – Graphical Representation of Relationships Using OntoGraf - Graph Visualization using NavigOWL – Ontologie-Visualization using SOVA

## **D. Reasoning in Protégé**

(0.25 Days) Reasoning and Inference using HermiT - Detecting Differences between Ontologies using LogDiffViz

## **E. Import and Export**

(0.25 Days) UML-Export using OWL2UML – Documentation using OWLDoc



## (iii) RDF / OWL



### Overview

<b>Course ID</b>	2020968
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
13-14 Aug 08-09 Oct 03-04 Dec	20-21 Aug 15-16 Oct 10-11 Dec	30-31 Jul 24-25 Sep 19-20 Nov

Prices plus local taxes.



### Course Description

The Resource Description Framework (RDF) is a family of World Wide Web Consortium (W3C) specifications originally designed as a metadata data model. It has come to be used as a general method for conceptual description or modeling of information that is implemented in web resources, using a variety of syntax notations and data serialization formats. RDF/XML is a syntax, defined by the W3C, to express and serialize an RDF graph as an XML document. The Web Ontology Language (OWL) is a family of knowledge representation languages for authoring ontologies. The languages are characterised by formal semantics and RDF/XML-based serializations for the Semantic Web. This training presents the main standards RDF, RDF Schema and OWL and shows during hands-on labs how to develop semantic data models.



### Course Outline

#### A. Ontologie und Metaphysik

(0.25 Days) Herkunft und Ursprung ontologischen Denkens - Metaphysik und Ontologie - Von den großen griechischen Denkern bis zur heutigen Philosophie - Einsatz der Ontologie und semantischer Daten(strukturen) in der Softwaretechnik

#### B. Semantisches Internet

(0.25 Days) Ansätze, Techniken und Anwendungsbeispiele für semantisches Internet - Lokaler Einsatz von Techniken des semantischen Internets in selbst geschriebener Software - Öffnung von Daten zu semantischen Techniken für Austausch und Weiterverarbeitung



## **C. RDF und RDF Schema**

(0.5 Days) Einführung: Einsatzbereiche von Resource Description Framework, Anwendungsbeispiele, Eingliederung in die Dokumentmodellierung und die Modellierung von semantischen Informationen, RDF-Tripel, RDF Data Model und der RDF Graph - Datenstrukturen: Vorgestellter Standard: RDF/XML Syntax Specification und Resource Description Framework (RDF): Concepts and Abstract Syntax, Serialisierung von RDF für XML, Datentypen, Verwendung von RDF/XML in einzelnen Dokumenten oder Blöcken - RDF Schema: Vorgestellter Standard: RDF Semantics - RDF Vocabulary Description Language 1.0: RDF Schema, Elemente, Eigenschaften, Hierarchien, Einschränkungen

## **D. OWL (Ontology Web Language)**

(0.5 Days) Vorgestellter Standard: OWL Web Ontology Language Overview und OWL Web Ontology Language Guide - Ebenen von OWL - Klassen, Eigenschaften, Hierarchien, Datentypen, Beziehungen und erweiterte Ontologie-Definitionen - Einbindung in RDF Schema - Vergleich und Abgrenzung XML Schema

## **E. Verarbeitung und Abfrage von RDF-/OWL-Daten**

(0.5 Days) Auslesen von RDF-Informationen mit Hilfe von XSLT, XPath und XQuery - Abfragesprache SPARQL, SPARQL Query Language for RDF - Alternativen: Einbindung in relationale Datenbanken und Software-APIs

## A. XML



### (i) Fundamentals (Long)



#### Overview

<b>Course ID</b>	2020302
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
2,550.00 USD	2,350.00 USD	2,550.00 USD
17-21 Aug 05-09 Oct 23-27 Nov	31 Aug - 04 Sep 19-23 Oct 07-11 Dec	07-11 Sep 26-30 Oct 14-18 Dec

Prices plus local taxes.



#### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies incl. hands-on labs, various examples, and case studies.



#### Course Outline

### A. XML Fundamentals and DTD

(0.75 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(1.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.25 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(1.5 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.25 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.5 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2

## **G. Querying XML using XQuery**

(0.5 Days) FLWOR Expressions: For and Let Clauses, Where Clause, Order By and Return Clauses - Constructors: Direct Element Constructors and Computed Constructors for Elements, Attributes and Other Nodes - Conditional Expressions



## (ii) Fundamentals (Short)



### Overview

<b>Course ID</b>	2020303
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture and discussion
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
03-04 Sep 22-23 Oct 10-11 Dec	27-28 Aug 15-16 Oct 03-04 Dec	30-31 Jul 17-18 Sep 05-06 Nov 24-25 Dec

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies. Hands-on labs can be found in our other trainings presenting the same topics in more days and in greater depth. This training, however, makes use of presentations and prepared examples and case studies.



### Course Outline

#### A. XML Fundamentals and DTD

(0.25 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(0.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.125 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(0.25 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.125 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.125 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2



## (iii) XML Schema



### Overview

<b>Course ID</b>	2020972
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 15-16 Oct 03-04 Dec	03-04 Sep 22-23 Oct 17-18 Dec	10-11 Sep 29-30 Oct 24-25 Dec

Prices plus local taxes.



### Course Description

An XML schema is a description of a type of XML document, typically expressed in terms of constraints on the structure and content of documents of that type, above and beyond the basic syntactical constraints imposed by XML itself. These constraints are generally expressed using some combination of grammatical rules governing the order of elements, Boolean predicates that the content must satisfy, data types governing the content of elements and attributes, and more specialized rules such as uniqueness and referential integrity constraints. XML Schema, published as a W3C recommendation in May 2001, is one of several XML schema languages. By attending this training you will learn how to write complex XML Schema documents and how to make the most out of its syntax. You will learn how to define elements, attributes, define groups of elements and attributes as building blocks and reuse them multiple times in the document design. You will then get to know the data type system which is a standard of its own and to select suitable data types for elements and attributes - or to declare specifically derived new types. For complex documents, this training will show you how to define global complex types which may even be used for derivation (inheritance) and other more object-oriented techniques. The training finally shows how to bind Java and .NET classes to XML Schema structures or how to generate corresponding classes or XML Schema definitions.



### Course Outline

#### A. XML Schema - Fundamental Declarations

(0.5 Days) Schema-validity and documents - Overview of XSD - Element Declarations: Local and Global Elements - Attribute Declarations: Local and Global Attributes - Built-in Attribute Declarations - Attribute Uses

## **B. XML Schema Datatypes**

(0.125 Days) Built-in Primitive Datatypes - Simple Type Definitions - Definitions for List Types and Union Types - Type Derivation - Simple Type Restriction using Facets

## **C. Using Complex Types**

(0.5 Days) Complex Types with Simple Content - Complex Types with Complex Content - Locally Declared Types - Derivation Techniques: Extension and Restriction, Content Type Restrictions - Attributes and Complex Types - Model Groups - Attribute Groups - Substitution Groups

## **D. Keys and References in XML Schema**

(0.125 Days) Identity-constraint Definitions - DTD Data Types ID and IDREF/IDREFS - XML Schema Elements xs:Key, xs:Unique and xs:Keyref - XPath Selectors for Keys and References

## **E. Modularity in XML Schema**

(0.125 Days) Inclusion - Import - Redefinition

## **F. Namespaces**

(0.125 Days) Defining Namespaces in XML Schema - Using Namespaces in Import, Inclusion and Redefinition

## **G. XML Schema and object oriented Programming Languages**

(0.25 Days) Binding between XML Schema and Java-/ .NET Classes - Marshalling and Unmarshalling / Serialization and Deserialization of XML and Objects - Generating Classes and XML Schema and Generator Options

## **H. XML Schema and Databases**

(0.25 Days) Usage of XML Schema for Relational Mapping and Modeling - Usage Scenarios of XML Schema in Databases like MS SQL Server and Oracle for XML Storage and Validation



## (iv) XSL-FO



### Overview

<b>Course ID</b>	2020774
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XSLT basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
10-11 Sep 29-30 Oct 17-18 Dec	30-31 Jul 17-18 Sep 05-06 Nov 24-25 Dec	27-28 Aug 15-16 Oct 03-04 Dec

Prices plus local taxes.



### Course Description

XSL Formatting Objects, or XSL-FO, is a markup language for XML document formatting which is most often used to generate PDFs. XSL-FO is part of XSL (Extensible Stylesheet Language), a set of W3C technologies designed for the transformation and formatting of XML data. The general idea behind XSL-FO's use is that the user writes a document, not in FO, but in an XML language. Then, the user uses an existing XSLT stylesheet or creates one of his/her own which then transforms / converts the XML into XSL-FO. From there, an FO processor finally renders the FO-document in formats like PDF or PostScript and other output formats depending on the capabilities of the renderer. This training provides you with a substantial knowledge of the FO standard and shows you in many hands-on labs how to create an XSL-FO document so that a real-world XML file can be published as a complex book. You will learn how to define page dimensions and page templates, create paragraphs, blocks like tables and lists, insert images, and how to define a table of contents, and links. The last part of the training shows you how to build modular XSL-FO documents applying advanced techniques of XSLT and how to automatize the transformation process using variables, parameters or attribute groups.



### Course Outline

#### A. Page Templates and their Properties

(0.5 Days) Page Masters - Page Sequence Masters - Regions - Complex Pagination - Page Numbers and other Static Content



## **B. Text-/Block Formatting**

(0.25 Days) Font, Color, Text Decoration, and Size - Block Formatting: Padding, Indentation, Positioning, Space

## **C. Formatting Objects for Tables and Lists**

(0.125 Days) Tables: Simple and Complex Tables, Formatting of Tables using Border, Padding and Positioning - Lists: Simple and Numbered Lists, Complex Lists

## **D. Book Design**

(0.5 Days) Chapters and Sections - Page Breaks - Table of Contents - Running Headers - References and Links

## **E. Graphics**

(0.125 Days) Embedding of Images - Scaling and Positioning of Images

## **F. Complex Transformations and Modularization**

(0.5 Days) Attribute Groups, Variables and Temporary Trees for Modular Programming - XSLT Techniques for Text Formatting



## (v) XSLT



### Overview

<b>Course ID</b>	2020903
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
10-12 Aug 05-07 Oct 30 Nov - 02 Dec	17-19 Aug 12-14 Oct 07-09 Dec	07-09 Sep 02-04 Nov 28-30 Dec

Prices plus local taxes.



### Course Description

XSLT (Extensible Stylesheet Language Transformations) is a language for transforming XML documents into other XML documents,[1] or other objects such as HTML for web pages, plain text or into XSL Formatting Objects which can then be converted to PDF. The XSLT processor takes one or more XML source documents, plus one or more XSLT stylesheet modules, and processes them to produce an output document. The XSLT stylesheet contains a collection of template rules: instructions and other directives that guide the processor in the production of the output document. This training starts by presenting the basic concepts of XSLT and XML processing. It then covers the variety of XSLT processing options, conditional processing, variables and paramers as well as sorting, grouping and filtering XML contents with the aid of XPath expressions. You will learn how to generate output in (X)HTML, text, and also XML.



### Course Outline

#### A. XSLT Templates

(0.75 Days) Template Rules: Defining Templates, Defining Template Rules, Applying Template Rules, Conflict Resolution for Template Rules - Templates and Modes - Named Templates - Attribute Value Templates - Built-in Template Rules - Overriding Template Rules

#### B. XPath

(0.5 Days) Basic Concepts of XPath - Usage Patterns of XPath in XSLT - Localization and Filtering of Nodes - Axes - Predicates and Filters - Functions

## **C. Complex Processing Flows using XSLT and XPath**

(0.25 Days) Repetition: Conditional Processing with `xsl:if` and `xsl:choose` - Repetition with `xsl:for-each` - Control Structures in XPath

## **D. Numbering, Sorting and Grouping**

(0.5 Days) Numbering: Formatting a Supplied Number, Numbering based on Position in a Document, Number to String Conversion Attributes - Sorting: The `xsl:sort` Element, The Sorting Process, Comparing Sort Key Values, Processing a Sequence in Sorted Order - Grouping: The Current Group, The Current Grouping Key, The `xsl:for-each-group` Element

## **E. XML and Text Construction**

(0.5 Days) Literal Result Elements - Construction of XML: Creating Element Nodes Using `xsl:element`, Creating Attribute Nodes Using `xsl:attribute`, Creating Text Nodes, Processing Instructions, Namespace Nodes, Comments - Copying Nodes - Additional Features: Multiple Source Documents, Reading Text Files - Formatting Dates and Times - Number Formatting - Text Output for SQL and CSV

## **F. Inclusion and Import in XSLT Stylesheets**

(0.25 Days) Combining Stylesheet Modules: Locating Stylesheet Modules, Stylesheet Inclusion, Stylesheet Import - Embedded Stylesheet Modules - Conditional Element Inclusion

## **G. Parameters and Variables**

(0.25 Days) Variables - Parameters - Values of Variables and Parameters - Creating implicit document nodes - Global Variables and Parameters - Local Variables and Parameters - Scope of Variables - Passing Parameters to Templates - Tunnel Parameters



## (vi) XSLT and XSL-FO Combined



### Overview

<b>Course ID</b>	2021001
<b>Language</b>	en
<b>Duration</b>	4 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,950.00 USD	1,800.00 USD	1,950.00 USD
31 Aug - 03 Sep 26-29 Oct 21-24 Dec	24-27 Aug 19-22 Oct 14-17 Dec	07-10 Sep 02-05 Nov 28-31 Dec

Prices plus local taxes.



### Course Description

XSLT (Extensible Stylesheet Language Transformations) is a language for transforming XML documents into other XML documents, or other objects such as HTML for web pages or plain text. XSL Formatting Objects, or XSL-FO, is a markup language for XML document formatting which is most often used to generate PDFs. The XSLT stylesheet contains a collection of template rules: instructions and other directives that guide the processor in the production of the output document. The general idea behind XSL-FO's use is that the user writes a document, not in FO, but in an XML language. Then, the user uses an existing XSLT stylesheet or creates one of his/her own which then transforms / converts the XML into XSL-FO. From there, an FO processor finally renders the FO-document in formats like PDF. This training starts by presenting the basic concepts of XSLT and XML processing. It then covers the variety of XSLT processing options, conditional processing, variables and paramers as well as sorting, grouping and filtering XML contents with the aid of XPath expressions. You will learn how to generate output in (X)HTML, text, and also XML. The second part of the training provides you with a substantial knowledge of the FO standard and shows you in many hands-on labs how to create an XSL-FO document so that a real-world XML file can be published as a complex book.



### Course Outline

#### A. XSLT: XSLT Templates

(0.5 Days) Template Rules: Defining Templates, Defining Template Rules, Applying Template Rules, Conflict Resolution for Template Rules - Templates and Modes - Named Templates - Attribute Value Templates - Built-in Template Rules - Overriding Template Rules

## **B. XPath**

(0.125 Days) Basic Concepts of XPath - Usage Patterns of XPath in XSLT - Localization and Filtering of Nodes - Axes - Predicates and Filters - Functions

## **C. XSLT: Complex Processing Flows using XSLT and XPath**

(0.5 Days) Repetition: Conditional Processing with `xsl:if` and `xsl:choose` - Repetition with `xsl:for-each` - Control Structures in XPath - Parameters and Variables: Values of Variables and Parameters, Creating implicit document nodes, Global Variables and Parameters, Local Variables and Parameters

## **D. Numbering, Sorting and Grouping**

(0.25 Days) Numbering: Formatting a Supplied Number, Numbering based on Position in a Document, Number to String Conversion Attributes - Sorting: The `xsl:sort` Element, The Sorting Process, Comparing Sort Key Values, Processing a Sequence in Sorted Order - Grouping: The Current Group, The Current Grouping Key, The `xsl:for-each-group` Element

## **E. XML and Text Construction**

(0.5 Days) Literal Result Elements - Construction of XML: Creating Element Nodes Using `xsl:element`, Creating Attribute Nodes Using `xsl:attribute`, Creating Text Nodes, Processing Instructions, Namespace Nodes, Comments - Copying Nodes - Additional Features: Multiple Source Documents, Reading Text Files - Formatting Dates and Times - Number Formatting - Text Output for SQL and CSV

## **F. Inclusion and Import in XSLT Stylesheets**

(0.125 Days) Combining Stylesheet Modules: Locating Stylesheet Modules, Stylesheet Inclusion, Stylesheet Import - Embedded Stylesheet Modules - Conditional Element Inclusion

## **G. FO: Page Templates and their Properties**

(0.75 Days) Page Masters - Page Sequence Masters - Regions - Complex Pagination - Page Numbers and other Static Content

## **H. FO: Text-/Block Formatting**

(0.5 Days) Font, Color, Text Decoration, and Size - Block Formatting: Padding, Indentation, Positioning, Space - Tables: Simple and Complex Tables, Formatting of Tables using Border, Padding and Positioning - Lists: Simple and Numbered Lists, Complex Lists - Graphics: Embedding of Images - Scaling and Positioning of Images

## **I. FO: Book Design**

(0.75 Days) Chapters and Sections - Page Breaks - Table of Contents - Running Headers - References and Links - Complex Transformations and Modularization: Attribute Groups, Variables and Temporary Trees for Modular Programming - XSLT Techniques for Text Formatting

## A. oXygen



### (i) XML Fundamentals (Long) using XML Developer



#### Overview

<b>Course ID</b>	2024734
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
2,550.00 USD	2,350.00 USD	2,550.00 USD
07-11 Sep 02-06 Nov 21-25 Dec	31 Aug - 04 Sep 26-30 Oct 14-18 Dec	24-28 Aug 19-23 Oct 28 Dec - 01 Jan

Prices plus local taxes.



#### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This trainings provides an overview of the big family of XML technologies incl. hands-on labs, various examples, and case studies.



#### Course Outline

##### A. XML Fundamentals and DTD

(0.75 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(1.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.25 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(1.5 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.25 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.5 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2

## **G. Querying XML using XQuery**

(0.5 Days) FLWOR Expressions: For and Let Clauses, Where Clause, Order By and Return Clauses - Constructors: Direct Element Constructors and Computed Constructors for Elements, Attributes and Other Nodes - Conditional Expressions



## (ii) XML Fundamentals (Short) using XML Developer



### Overview

<b>Course ID</b>	2024733
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture and discussion
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
03-04 Sep 29-30 Oct 24-25 Dec	10-11 Sep 05-06 Nov 31 Dec - 01 Jan	27-28 Aug 22-23 Oct 10-11 Dec

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies. Hands-on labs can be found in our other trainings presenting the same topics in more days and in greater depth. This training, however, makes use of presentations and prepared examples and case studies.



### Course Outline

#### A. XML Fundamentals and DTD

(0.25 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content



## **B. Document Modeling using XML Schema**

(0.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.125 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(0.25 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

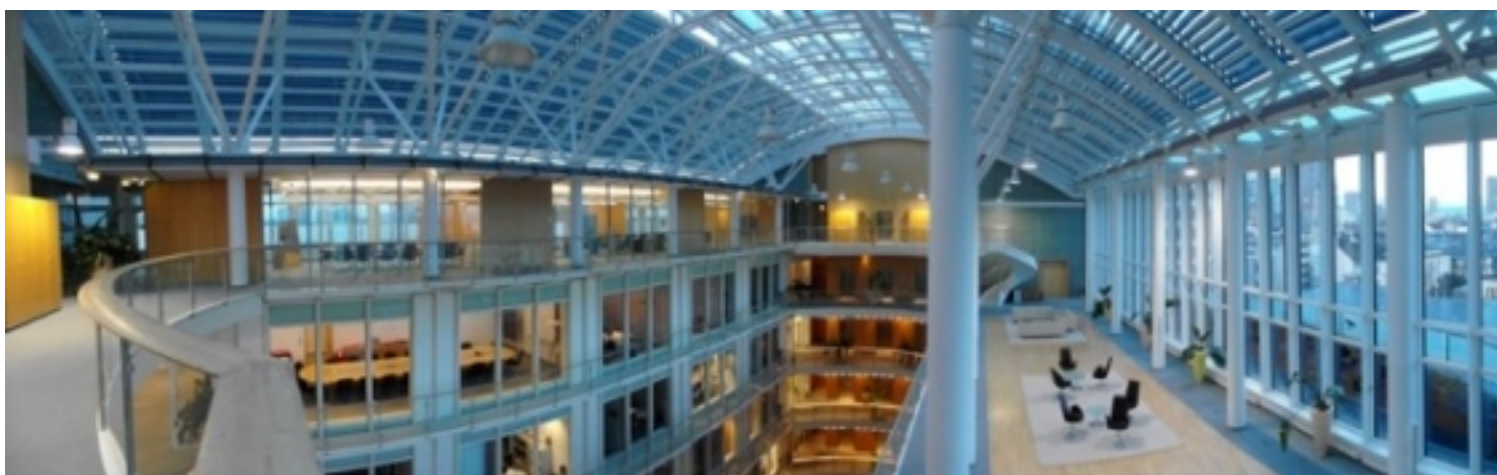
## **E. XML Standards for Web Services**

(0.125 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.125 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2

## b. Disclaimer



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