Using XML and XSD Schemas detailed Course Contents

Positioning (XML,HTML,EDI,SGML)
- Where does XML come from?
- Separating structure from presentation.
- HTML and XML
- Move from EDI to XML?

Modeling tools and usage of UML
- Making a model.
- Important case tools.
- Why is the data model so important?
- Discussion: elements or attributes

XML documents
- The root element
- Empty elements
- Mixed content
- Well formed XML and Valid XML.
- Markup and content rules.
- Using processing instructions
- Usage of external entities
- Internal and external DTD

Schemas
- Why use schemas?
- Pointing to a schema from within the XML file
- DTD's and Schemas compared
- Using a validating or non-validating parser?

Schemas and UML
- The importance of a data model
- Modeling the business process
- Using UML for data modeling
- Automating the creation of a schema
- OO concepts within a schema
- Schemas and encapsulation
- Schemas and re-use
- Schemas and instantiation

Simple Types
- What is a Simple Type?
- Overview of the XSD Type tree
- Using Primitive built-in types
- Using derived built-in types
- Creating user-derived types
- Overview of the built-in primitive types
- When to build simple types?
- No access to attributes and element content, why?
- Simple Type tips and tricks

Derivation
- Deriving by restriction
- Using the 'base' keyword
- Making a Simple Type based on a string
- restrictions and patterns
- using Regular expressions
- Making a whitespace delimited list of items
- using the 'itemType' keyword
- Deriving by Union
- Crating a Union of different Simple Types
- Derivation tips and tricks

Complex Types
- What is a Complex Type?
- Overview of the XSD Type tree
- Using Complex Content
- Adding elements to the Complex Type
- Usage of the Content Model
- The 'sequence' element content model
- Using Simple Content
- Adding attributes to the Complex Type
- A Complex type referring to Simple types
- Derivation by Extension
- Deriving from an existing type by extension
- When to use Complex/Simple Content?
- Visualizing complex types in the graphical interface
- Building an element tree with complex types
- Complex Type tips and tricks

Re-Use
- Saving Schemas for later use
- Including existing Schemas
- Paying attention to namespaces
- When to import or include a schema?
- Real-world example using 3 different schemas
- Representing namespaces by using packages (UML)
- Guidelines for better re-use
- Applying OO-concepts for modularization

XSD Namespaces
- What are XSD namespaces?
- Why are Namespaces important?
- The TargetNamespace keyword
- How to use the 'elementFormDefault' attribute?
- How to set the 'attributeFormDefault' attribute?
- Instantiating a schema, and validating the XML file
- The XSI namespace in the XML file
- Including Namespaces from within your company
- Importing Namespaces from other companies
- Different namespaces within the same company
- Organizing your schemas and making them reusable
- Qualifying the elements in the schema
- Advanced Namespace topics
- Schema and Namespace tips and tricks

Advanced
- Overview of Advanced topics
- Using Attribute groups
- Using the ref keyword
- Creating links between elements
- Using Key and Keyref keywords
- Notation and Annotation usage
- Inheritance and schemas
- Examples using the 'redefine' keyword
- Examples using the 'unique' keyword
- Organizing your elements by using 'groups'
- Abstract schemas
- Concrete schemas
- What about reverse engineering?
- Schema tips and tricks
- Examining the most recent W3C XSD recommendation
- Conclusions

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