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Module Descriptor

Enterprise Data Exchange and XML (Computing and Mathematics)

Enterprise Data Exchange and XML (A14029)

Short Title: Enterprise Data Exchange & XML
Department: Computing and Mathematics
Credits: 5 **Level:** Intermediate

Description of Module / Aims

XML is one of the most popular industry formats for business document publishing, web application development and digital content management. It is also a critical part of the web environment and web standard stacks and is the basis for emerging next-generation document, web, and e-business application strategies. This course focuses upon providing the student with an understanding of the XML standard syntax and related standards and how these can be used to build enterprise applications. Important standards associated with XML, including machine-readable business information standards which support, for example, automatic data interchange (for electronic business data sharing in EDI) are also introduced. XML documents support business intelligence and other architectures and infrastructures, as well as a variety of content management systems and processes and the student is introduced to these applications. XML also provides important web data management capabilities to firms which are covered here. Finally, as a data interchange standard on the web XML provides a basis for governance and regulation in the e-business context.

Programmes

		stage/semester/status
COMP-0969	BSc in Information Technology (WD_KINFT_D)	3 / 6 / M

Indicative Content

- XML origins and the W3C including objectives and advantages of XML
- The XML language: XML Syntax elements and components, DTs, markups and stylesheets
- Authoring an XML application: well-formed and valid XML script, XML authoring tools and interfaces, XSL, XSLT, XPath, templates
- XML Schemas: Advantages of using schemas, schema authoring (e.g RELAX NG, SCHEMATRON validator), DTD vs XML schemas, structure of a schema, namespaces, common attributes for schema elements, data types, XML types, schema element declarations, overview of a schema
- Data Exchange Standardization using DTDs, web registries, CSS and related technologies
- XML Applications and Uses: XML and Enterprise Applications Integration and automated information interchange (e.g. EDI) standards
- XML-based system engineering methodologies and design standards
- Content & Communications Management (ATOM etc.)
- Regulation and Governance: e.g XBRL and other data reporting standards
- Limitations of XML: security issues, problems associated with obtaining intelligence (semantic limitations) and supporting decision making and other related issues
- Related Standards for interoperability and automated enterprise information exchange: e.g JavaScript Object Notation, RDF and others
- Case Studies of Enterprise Data Exchange applications and systems

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Evaluate the importance of XML as a solution for enterprise data interchange across web-platforms.
2. Construct basic XML applications.
3. Appraise key ideas of XML applications engineering.
4. Appraise current examples of deployed XML systems and how they can enhance enterprise and related information interchange applications.
5. Appraise the application of XML in the modern information technology systems support environment and its relationship with other standard frameworks.

Learning and Teaching Methods

- Lectures addressing important theoretical and practical issues for web-enabled systems applications.
- Practical, hands on experience using XML authoring tools and systems engineering techniques.
- Case studies.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	
Practical	24	
Independent Learning	87	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	50%	
Practical	50%	2,3
Final Written Examination	50%	1,4,5

Assessment Criteria

<40%: Unable to interpret and describe key concepts related to XML and its applications.

40%–49%: Ability to interpret and describe key concepts of XML and its applications.

50%–59%: Ability to discuss key concepts associated with XML and its applications combined with an ability to discover and integrate related ideas (such as important applications of XML).

60%–69%: Ability to independently solve problems associated with authoring XML and applying XML in various contexts including experimentation with the appropriate skills and tools and/or external references not explicitly offered in the course materials and/or rework these references in new ways. An ability to reflect upon one's own learning and apply it in real or relevant imagined contexts.

70%–100%: All the above to an excellent level including an ability to analyse and design XML applications to a high standard. Demonstrate a high level of appreciation of how XML applications and related-standards interplay with other aspects of web systems, including those not explicitly stated in the course materials or a reworking of course material references in new way(s). Reflective learning demonstrating a deep understanding of the course materials.

Supplementary Material(s)

- Fawcett, J., D. Ayers and L.R.E. Quin. *Beginning XML.* New York: Wiley, 2012.
- Right, C. *XML Programming.* UK: CreateSpace, 2015.
- Walmsley, P. *Definitive XML Schema.* NJ: Pearson, 2013.

Requested Resources

- Room Type: Computer Lab