

eduGI e-learning Course on GI Standards

Syllabus

Contact:



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Goal

The overall goals of this module are:

- ⇒ Create awareness of the importance of standards in the field of Geoinformation
- ⇒ Inform about the standardization bodies, their standardization processes and results
- ⇒ Inform about the content of important standards which cover issues like data quality, spatial schema and the concept of map and feature services (WMS and WFS)
- ⇒ Create more detailed knowledge about the usage of spatial schema as well as WMS and WFS by specific examples

Content

- XML and UML tutorial (only for ISEGI-UNL students)
 - Introduction into XML
 - Introduction into UML class diagrams
- Introduction and motivation for standardization
 - Standards in every day life
 - Current requirements, trends in the GI market
 - De-facto versus de jure standards
 - Understanding the process of standardization
 - Topics of standardization
 - National and international institutes for standardization
- Standardization by ISO and OGC
 - ISO - the International Organization for Standardization
 - The ISO process of standardization
 - Standardization bodies dealing with GI
 - ISO TC 211 and ISO 191xx
 - ISO 19107 Spatial schema - An example of an ISO document
 - OGC - the Open Geospatial Consortium Inc.
 - The OGC process of standardization
 - Cooperation between ISO and OGC
- Syntactical and semantic interoperability
 - Data exchange difficulties
 - The concept of interoperability
 - Definitions: interoperability, syntax, semantics
 - Different stages of interoperability: syntactical, schema-based and semantic
 - Introduction to ontologies
- Geodata quality
 - The concept of quality according to ISO 8402
 - Quality as part of metadata - ISO 19115
 - Appraisal factors for geodata quality - ISO 19113
 - Quality conformance testing
 - Quality management according to ISO 9000 and ISO 9001
- ISO and OGC geometry structures
 - OGC Abstract Specifications – an overview
 - Definitions: feature, feature collection, element property, geometric property
 - Simple Features
 - Geometry Collections
 - Geography Markup Language (GML)
- Accessing geodata via the Internet
 - Principles of standardizing protocols
 - Overview on OpenGIS Web Service (OWS) Interfaces
 - Understanding the purposes of OWS
 - Combination of OWS in a Spatial Data Infrastructure
 - Exemplifying functionality of Web Map Services and partly Web Feature Services

- Application scenario 1: ISO and OGC conformal modeling of cadastral data
 - Enhance the knowledge of ISO conformant modeling
 - ISO standards applied in a practical example
- Application scenario 2: OGC conformal access to cadastral data via the Internet
 - Overview: Cadastral data
 - Repetition of WMS and WFS concepts
 - Example for a WMS
 - Example for a WFS
- Exercise: Geo Web Services
 - Working with Web Map Services
 - Working with Web Feature Services

Style

- Active knowledge acquisition
- Asynchronous part: self study based on online material and text book, self-tests at the end of each unit, exercises
- Synchronous part: discussion of problems and questions in 4 synchronous sessions
- Access to teacher and tutors via E-Mail
- Students' interaction via forum
- One exam at the end of the course
- Student workload:
 - ISEGI-UNL students: 120 hours, equivalent to 4 credit points
 - TU Vienna students: 90 hours, equivalent to 3 credit points

Organization

- Start and end of the course: March 5th to April 16th 2007
- Dates of synchronous sessions
 - Monday, March 5th 2007, 19:00-20:00 h (German time), 18:00-19:00 h (Portuguese time); welcome and test session
 - Thursday, March 15th 2007, 19:00-20:00 h (German time), 18:00-19:00 h (Portuguese time)
 - Thursday, March 29th 2007, 19:00-20:00 h (German time), 18:00-19:00 h (Portuguese time)
 - Thursday, April 12th 2007, 19:00-20:00 h (German time), 18:00-19:00 h (Portuguese time)
- Assignments due to Thursday, April 12th 2007, 24:00 h (German time), 23:00 h (Portuguese time)
 - complete the comprehension controls of the courses 1-6 with at least 90 points each
 - finalize and submit the WMS / WFS exercise
- Final exam at Monday, April 16th 2007

