Description of Course Unit

Master in Informatics and Computing Engineering
Markup Languages and Document Processing
Instance: 2011/2012
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Institutional page

General Information

Course Unit: Markup Languages and Document Processing
Code: EIC0107
Programmes: MIEIC, 4º, xx students
Academic Year: 2011/2012
Semester: 2S
Credits: 6
ECTS: 6
Hours/Weeks: 3 TP
Teachers: Cristina Ribeiro | João Correia Lopes

Teaching Language

Suitable for English-speaking students

Objectives, Skills and Learning Outcomes

Goals

This course is aimed at obtaining markup languages for a given domain and at the realization of applications based on markup languages.

Learning Outcomes

On completion of this course, the student should be able to:

- Identify the use of markup languages in documents, in data repositories and in applications;
- Analyse an XML document and decide whether it complies to a model;
- Create models for XML documents;
- Tell the difference between a standardised language for an application domain and the ad-hoc uses of markup languages;
- Design a markup language to support a document type or the data for an application;
- Evaluate and compare XML-based and other solutions to support application data interchange;
- Design XSL stylesheets to transform documents;
- Interpret the results of document processing with XML-based technologies;
- Use a native XML database and take advantage of its query functions;
- Compare data organisation in markup models with the relational model and translate data between both

models;
- Generate a markup model for data in an application domain, store a dataset and query it;
- Compare markup languages to other document and data representations with respect to the support to data preservation along technological change;
- Develop an XML-based prototype application involving the use of a dialect and document processing.

Program

- Introduction to XML and associated technologies: models and validation of documents, logical structure and physical structure of an XML document.
- Navigation in XML documents. The XPath language.
- XML document presentation with CSS.
- XML document transformation — XSLT.
- XML presentation with XSL-FO.
- Querying XML documents. The XQuery language.
- Examples of applications based on XQuery.
- XML processing in applications. Read and write XML. DOM. JDOM. JAXB. SAX. StAX.
- Examples of XML usage. XML and data access. A Web application with XML, JAXB and DAO.
- Storage of XML: native XML databases, XML storage in databases object-relational.

Main Bibliography

- Anders Møller, Michael I. Schwartzbach; *An Introduction to XML and Web Technologies*, Addison Wesley Professional, 2006. ISBN: 0321269667 Biblioteca

Complementary Bibliography

- Neil Bradley, The XML Companion, Addison-Wesley, 3rd Edition, 2002, ISBN: 0-201-77059-8. Biblioteca
- José Carlos Ramalho, Pedro Henriques; *XML e XSL — da Teoria à Prática*, FCA Editora, 2002, ISBN: 972-722-347-8. Biblioteca
- Elliotte Rusty Harold, W. Scott Means, *XML in a Nutshell*, O'Reilly, Third Edition, 2004, ISBN: 0-596-00292-0. Biblioteca

Teaching Procedures

Lectures include theoretical presentation of the course subjects and practical sessions where proposed research topics are discussed with the students and practical coursework reported.

Software

- oXygen
- XML Spy

Keywords

Physical sciences > Computer science > Informatics

Evaluation Type

Distributed evaluation without final exam

Registered evaluation and occupation components

The evaluation includes an exam and practical work, to be done along the semester, with the components identified.

Description	Type	Time (hours)	Conclusion date
Teaching classes (estimated)	lectures	42	—
XML Language (T1)	Work	30	2012/03/09
XMLT Processing (T2)	Work	30	2012/04/13
XML based application (T3)	Work	60	2012/06/01
	Total:	162	—

Admission to Exams

The course has a practical component which results from the execution of projects, to be delivered up to their due dates established in the course plan.

The students are admitted to the final exam if they achieve 50% in each component of the project work. Success in the course requires 40% in each intermediate written test.

Final grade

Classification = 60% Practical assignments + 40% Exam, where: Practical assignments = 25% T1 + 25% T2 + 50% T3.

Special Assignments

There are no special works or tests.

Special evaluation (TE, DA, ...)

Students taking exams under special regimes are expected to previously submit the assignments required for this course.

Improvement of Final/Distributed Classification

Students may improve the mark obtained in the practical component in the subject's next edition. Exam marks may be improved in the resit exam period.

– MCR, JCL

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