Description of Course Unit

Master in Informatics and Computing Engineering
Markup Languages and Document Processing
Instance: 2012/2013
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[Institutional page](#)

General information

Course Unit: Markup Languages and Document Processing
Code: EIC0107
Programmes: MIEIC, 4º, 21 students
Academic Year: 2012/2013
Semester: 2S
Credits: 6
ECTS: 6
Hours/Weeks: 3 TP
Teachers: Cristina Ribeiro | João Correia Lopes

Teaching language

Portuguese. Suitable for English-speaking students.

Objectives

BACKGROUND

The "Markup Languages and Document Processing" unit assumes as its context the widespread use of markup languages for representing semi-structured information and the existence of standardized tools for their treatment.

SPECIFIC OBJECTIVES

1. Make the students aware of the multiple non-trivial applications of markup languages;
2. Make the students familiar with the technologies of processing and storage of semi-structured information;
3. Explore the technologies in defining an annotation language and in the development of an application.

Skills and 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;
- 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.

Work mode

Classroom.

Previous knowledge

Students must have basic skills in markup languages and technologies.

Program

- Design of markup languages. Analysis of existing languages for different domains.
- Querying XML documents. The XPath language. The XQuery language.
- XML document transformation with XSLT. XML presentation with XSL-FO.
- XML processing in applications. The standard interfaces DOM and SAX.
- 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 and learning activities

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

Support software

- oXygen
- XML Spy
- eXist

Keywords

Physical sciences > Computer science > Informatics

Evaluation type

Distributed evaluation without final exam

Evaluation and occupation components

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

Evaluation components

Description	Type	Time (hours)	Conclusion date
Teaching classes (estimated)	lectures	42	—
Project proposal (E1)	Work	30	2013/03/18
Project solution (E2)	Work	30	2013/04/29
XML-based Projet (E3)	Work	60	2013/06/03
	Total:	162	—

Occupation components

Admission to exams

n/a

Final grade

Classification = 70% Practical assignments + 30% Questionnaires, where: Practical assignments = 20% E1 + 30% E2 + 50% E3.

The practical work will be assessed through the documentation submitted up to their due dates established in the course plan, the participation in the presentations and through the developed XML-based application.

The theoretical concepts are evaluated through the individual response to 4 20 minutes during the interval between theoretical classes and practical work.

The minimum required to pass the course is 40% in each of the deliverables and presentations of practical assessment (E1 to E3) and 40% on average of the Q1 to Q4 questionnaires related theoretical subjects.

This course, given its nature, is not eligible for evaluation in a single moment, so the practical work evaluation cannot be replaced by taking an exam.

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 in the course's next edition.

– JCL, MCR

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