

# Description of Course Unit

**Master in Informatics and Computing Engineering**  
**Information Description, Storage and Retrieval**  
**Instance: 2012/2013**

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*[Institutional page](#)*

## General Information

**Course Unit:** Information Description, Storage and Retrieval

**Code:** EIC0108

**Programmes:** MIEIC, 5º, xx students/PRODEI yy students

**Academic Year:** 2012/2013

**Semester:** 1S

**Credits:** 6/7,5 ECTS

**Hours/Weeks:** 3 TP

**Teachers:** [Cristina Ribeiro](#) | [João Correia Lopes](#)

## Teaching Language

Suitable for English-speaking students

## Objectives, Skills and Learning Outcomes

### 1 - BACKGROUND

The "Information Description, Storage and Retrieval" unit assumes as its context the existence of large collections of heterogeneous information which needs to be organized, described, stored and retrieved.

### 2 - SPECIFIC OBJECTIVES

1. Make the students aware of the main issues in the organization and storage of large data collections.
2. Make the students familiar with the main concepts in textual information retrieval and their application in retrieval tools.
3. Explore the semantic web methods and tools, and use web resources and their descriptions in applications that make use of data semantics.

### 3 - PREVIOUS KNOWLEDGE

Knowledge and practice in programming languages for application development.

### 4 - PERCENTAGE DISTRIBUTION

Scientific Component: 50%

Technological Component: 50%

### 5 - LEARNING OUTCOMES

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

- Identify data sources in data repositories, online services APIs and user logs;
- Decide on the quality of the data sources and briefly characterize a selected dataset;
- Choose the document granularity and a storage model for the dataset;
- Use data manipulation tools to select appropriate data subsets and to fit the data to their intended applications;
- Describe the models used in information retrieval, specifically in web retrieval;
- Recognize the various tasks considered in information retrieval;
- Apply information retrieval evaluation measures to the comparison of web retrieval tools;
- Relate web documents with the metadata that describes or links them;
- Treat ontologies as providers of description tools;
- Explore the applications which manipulate semantic web information descriptions and create metadata sets for a chosen domain;
- Compare semantic web- based services with simpler approaches to resource description.

## Program

- Introduction to datasets; tools for dataset collection, preparation and access; data models and dataset storage.
- Text information retrieval; retrieval models; evaluation; web information retrieval.
- Information description: semantic web languages; RDF, RDF-Schema, OWL; ontologies for data in a domain.

## Main Bibliography

- Anders Møller, Michael I. Schwartzbach; An Introduction to XML and Web Technologies, Addison Wesley Professional, 2006. ISBN: 0321269667 [Biblioteca](#)
- Christopher D. Manning, Prabhakar Raghavan, Hinrich Schütze; Introduction to Information Retrieval, Cambridge University Press, 2008. ISBN: 0521865719 [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

- Apache Lucene + Solr
- oXygen XML editor
- Protégé

## Keywords

Physical sciences > Computer science > Informatics

## Evaluation Type

Distributed evaluation without final exam

## Registered evaluation and occupation components

| Description            | Type             | Time (hours) | Date of conclusion |
|------------------------|------------------|--------------|--------------------|
| Attendance (estimated) | Lectures         | 39           |                    |
| 1st Project Delivery   | Project Work     | 15           | 2012-10-11         |
| 2nd Project Delivery   | Project Work     | 30           | 2012-11-22         |
| 3rd Project Delivery   | Project Work     | 30           | 2013-01-03         |
| Test 1                 | Test/Examination | 1            | 2012-11-29         |
| Test 2                 | Test/Examination | 1            | n/a                |
| Study                  | Test/Examination | 46/84        | n/a                |
|                        | Total:           | 162/200      |                    |

## Admission to Exams

The course has a practical component which results from the execution of projects, to be delivered up to the 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

The final grade is computed using the formula:  $\text{GRADE} = 60\% \text{ Projects} + 40\% \text{ Tests}$ .

The Projects component is the result of the practical evaluation and can be obtained:

- completing three practical assignments according to the proposed scripts;
- proposing a semester-long project and reporting its results in the same sessions as the assignments.

The project and its workplan must be validated by the course instructors.

## Special Assignments

None. All students have to complete the projects and present them as scheduled.

## Special evaluation (TE, DA, ...)

Distributed evaluation, performed during the semester, is required of all students, regardless of their enrollment status.

## Improvement of Final/Distributed Classification

Improving the classification requires a new enrollment in the course, taking the course projects and tests again.

- MCR, JCL

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