

30233 - Information Retrieval

Syllabus Information

Academic year: 2023/24

Subject: 30233 - Information Retrieval

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 439 - Bachelor's Degree in Informatics Engineering

ECTS: 6.0

Year: 4

Semester: First semester

Subject type:

Module:

1. General information

The purpose of this subject is that the student acquires the necessary knowledge to know the fundamentals and applications of Information Retrieval, a discipline of Computer Science on which the development of computer-based search tools is based. This subject will present the models and algorithms that allow to deal with such diverse facets as the representation, storage, organization and access to information elements extracted from large and unstructured data sources.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of United Nations (<https://www.un.org/sustainabledevelopment/es/>); specifically, the learning activities planned in this subject will contribute to the achievement of target 9.c of Goal 9.

2. Learning results

- Master the techniques for retrieving information about data collections stored in different repositories (including hypermedia and multimedia repositories).
- Be able to apply information retrieval techniques to new problems that arise.
- Master ontology-based techniques to represent the information available in a specific domain.
- Be able to apply semantic retrieval techniques to develop search applications.

3. Syllabus

Block I - Traditional information retrieval:

- Topic 1: Introduction to information retrieval: the Boolean model.
- Topic 2: The indexing process.
- Topic 3: The vector model.
- Topic 4: The probabilistic model.
- Topic 5: Evaluation of search engines.
- Topic 6: Advanced aspects of information retrieval.

Block II - Hypermedia and multimedia systems:

- Topic 7: Web search.
- Topic 8: User interface and visualization.

Block III - Semantic retrieval:

- Topic 9: Introduction to semantic retrieval.
- Topic 10: Semantic representation of information.

- Topic 11: Semantic query systems.
- Topic 12: Information inference systems.

4. Academic activities

- Participatory lectures 30 hours.
- Problem solving and case studies: 12 hours.
- Laboratory practices: 18 hours.
- Study and personal work: 84 hours.
- Assessment tests. 6 hours.

5. Assessment system

First call. The assessment of the subject is based on two tests:

- **P1.** Written test on the basic concepts of the subject in which the student will have to answer short questions and solve small exercises. A minimum grade of 5.0 points is required in this test to pass the subject. If this minimum grade is obtained, then the test will be weighted 50% in the grade of the subject . The date of this test will be determined by EINA's management for the global test of the subject.
- **P2.** Work associated with laboratory practices carried out in teams. A minimum grade of 5.0 points is required in this test to pass the subject. If this minimum grade is obtained, then the test will be weighted 50% in the grade of the subject . Each team, consisting of 2 students (with justified exceptions), should attend each practice session and make the deliveries indicated. If the student has not attended the practical laboratory sessions or has not made the required deliveries in each practical session, in addition to sending all the deliverable, the exam on the date that the EINA management establishes for the overall test of the subject must be taken.

It is mandatory to take and submit both tests in order to pass the subject. If in one of the tests, or in both of them, the grade obtained is lower than 5.0, the final grade of the subject will be the weighted average of the two grades (50% P1 and 50% P2), with a maximum of 4.0.

Second call. The assessment of the subject is based on two analogous tests of the first call, with the same weightings and minimum grade requirements.