Study programme(s): Computer Science	
Level: Master of Science	
Course title: Information Retrieval	
Lecturer: Miloš Savić	
Status: elective	
ECTS: 6	
Requirements: Object-oriented programming 1, Databases 1	

Learning objectives

The main objective of the course is to introduce students to modern information retreival algorithms, techniques, models, evaluation methodologies, systems and applications.

Learning outcomes

Minimum: Successful students should be able to use modern information retrieval libraries in the development of applications requiring advanced indexing and searching facilities.

Desirable: At the end of the course it is expected that successful students deeply understands modern information retrieval algorithms, techniques and models, and that they are able to implement and evaluate them in a wide-range of practical applications.

Syllabus

Theoretical instruction

Introduction to modern information retrieval systems and search engines. The Boolean information retrieval model. Basic data structures and algorithms for indexing. Text similarity measures and tolerant information retrieval. Distributed indexing. Index compression techniques. The vector space information retrieval model. Ranking search results. Evaluation of information retrieval systems. Relevance feedback and query expansion. Probabilistic information retrieval models. Language models for information retrieval. Intelligent techniques for ranking, classifying, categorization and filtering of search results. Architecture of web search engines. Web crawling, indexing and ranking of search results.

Practical instruction

Practical programming tasks related to indexing and searching data structures and algorithms. Acquintance with modern Java information retrieval libraries (Lucene and LingPipe).

Literature

Recomended

Christopher D. Manning, Prabhakar Raghavan, Hinrich Schütze. *Introduction to Information Retrieval*. Cambridge University Press, 2008.

Bruce Croft, Donald Metzler and Trevor Strohman. *Search Engines: Information Retrieval in Practice*. Pearson, 2010.

Michael McCandless, Erik Hatcher, Otis Gospodnetic. *Lucene in Action, Second Edition*. Manning Publications. 2010.

Weekly teaching load				
Lectures: 2	Exercises: 2	Practical Exercises:	Student research:	Other:

Teaching methodology

Theoretical classes are based on the classical teaching model involving a projector. At theoretical exercises, solutions of practical problems related to information retrieval are presented and discussed with students. Student's knowledge is checked through a written test, practical problems, and preparation of a seminar paper that is defended at the end of the course.

Grading method (maximal number of points 100)

Pre-exam oblications	points	Final exam	points
Test	20	Seminar paper	50
Practical problems	30		