

Study Programme: Computer Science – Master		
Course Unit Title: Information Retrieval		
Course Unit Code: CS715		
Name of Lecturer(s): Miloš Savić		
Type and Level of Studies: Master Academic Degree		
Course Status (compulsory/elective): Elective		
Semester (winter/summer): Summer		
Language of instruction: Serbian (primary), English (secondary)		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 6		
Prerequisites: Object-oriented programming 1, Databases 1		
Course Aims: The main objective of the course is to introduce students to modern information retrieval algorithms, techniques, models, evaluation methodologies, systems and applications.		
Learning Outcomes: <i>Minimum:</i> Successful students should be able to use modern information retrieval libraries in the development of applications requiring advanced indexing and searching facilities. <i>Desirable:</i> 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: <i>Theory</i> 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. <i>Practice</i> Practical programming tasks related to indexing and searching data structures and algorithms. Acquaintance with modern Java information retrieval libraries (Lucene and LingPipe).		
Required Reading: Christopher D. Manning, Prabhakar Raghavan, Hinrich Schütze. <i>Introduction to Information Retrieval</i> . Cambridge University Press, 2008. Bruce Croft, Donald Metzler and Trevor Strohman. <i>Search Engines: Information Retrieval in Practice</i> . Pearson, 2010. Michael McCandless, Erik Hatcher, Otis Gospodnetic. <i>Lucene in Action, Second Edition</i> . Manning Publications. 2010.		
Weekly Contact Hours: 4	Lectures: 2	Practical work: 2
Teaching Methods: 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.

Knowledge Assessment (maximum of 100 points):

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

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.