UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE

DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS

FACULTY OF MATHEMATICS AND NATURAL SCIENCES

UNIVERSITAS GADJAH MADA

Module name	**Information Retrieval**
Module level	Undergraduate
Code	MIK-4551
Courses (if applicable)	Information Retrieval
Semester	Spring (Genap)
Contact person	Edi Winarko, PhD
Lecturer	Edi Winarko, PhD
Language	Bahasa Indonesia and English
Relation to curriculum	1. Undergraduate degree program, elective, 6th semester. 2. International undergraduate program, elective, 6th semester.
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students.
Workload	1. Lectures: 3 x 50 = 150 minutes per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (sks).
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Recommended prerequisites	Database

Learning outcomes and their corresponding PLOs	After completing this course, a student is expected to: **(LO-1)** be able to explain the motivation for learning IR, to provide examples of IR applications, and to explain IR technology trend **(LO-2)** be able to explain IR architecture, inverted file index structure and methods for answering boolean query. (**LO-3**) be able to explain methods for collecting documents and transforming documents. **(LO-4)** be able to explain methods for index construction and index compression. **(LO-5)** be able to explain various types of IR queries, and their index structures to answer the queries. **(LO-6)** be able to explain Vector Space Model for representing documents. **(LO-7)** be able to explain methods for ranking query result and for evaluating IR system. **(LO-8)** be able to implement IR system using Python language.
Content	The idea of using computers for finding relevant information has been made popular in an article titled 'As We May Think' by Vannevar Bush in 1945. However, it is only in 1950 and 1960 the first information retrieval systems are available. During this time information retrieval systems are only used for small document collection. With the development of information technology the amount of documents that we collect is getting bigger and bigger. In addition to its bigger size, current document collection also contains different types of data, such as text, image, audio, video, animation, etc. Because of these reasons, the field of information retrieval has been developing so rapidly so that access to large document collections can be done efficiently. Usually the focus of information retrieval developments are on how to represent, find, and manipulate document collections so that people can find information needed easily. Currently Web search engine like Google, Bing, Yahoo, etc are very popular tool to find information, people, organization, news, etc. These search engines can also be used to compare the prize of products. Other than that, library systems that can also be considered as information retrieval system can help researcher and academics to find new journal articles, conference presentation, books. Desktop based information retrieval can be used to find email, documents, files stored in laptops or PCS. All of these systems are using information retrieval technology
Study and examination requirements and forms of	Exercises in class, Assignments, Mid-terms examination, and Final examination.

examination	
Media employed	LCD, blackboard, websites, and e-learning.
Assessments and Evaluation	

LO	Evaluation Method	Type	Percentage	Total
LO1	Assignment 1	Formative	5%	**5%**
LO2	Problem 1 Mid exam	Summative	10%	**10%**
LO3	Problem 2 Mid exam Problem 3 Mid exam	Summative Summative	10% 5%	**25%**
Assignment 2	Formative	10%		
LO4	Problem 4 Mid exam	Summative	10%	**10%**
LO5	Problem 1 Final exam	Summative	15%	**15%**
LO6	Problem 2 Final exam	Summative	15%	**15%**
LO7	Problem 3 Final exam	Summative	5%	**5%**
LO8	Assignment 3	Formative	15%	**15%**

Reading List	**W1**: Introduction to information retrieval, Christopher D. Manning, Prabhakar Raghavan, Hinrich Schutze, 2009.