

## Module Handbook

TUK MODHB Homepage

# Module INF-24-81-M-7

Information Systems Project - Development of a Web Search Engine (Project) (M, 8.0 LP)

## Module Identification

Module Number	Module Name	CP (Effort)
INF-24-81-M-7	<i>Information Systems Project - Development of a Web Search Engine (Project)</i>	8.0 CP (240 h)

## Basedata

CP, Effort	8.0 CP = 240 h
Position of the semester	1 Sem. in WiSe
Level	[7] Master (Advanced)
Language	[EN] English
Module Manager	Michel, Sebastian, Prof. Dr. (PROF   DEPT: INF)
Lecturers	Michel, Sebastian, Prof. Dr. (PROF   DEPT: INF)
Area of study	[INF-INSY] Information Systems
Reference course of study	[INF-88.79-SG] M.Sc. Computer Science
Lifecycle-State	[NORM] Active

## Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
4L	INF-24-81-K-7	P	PRAES	no	8.0	WiSe

- About [INF-24-81-K-7]: Title: "Information Systems Project - Development of a Web Search Engine (Project)"; Presence-Time: 56 h; Self-Study: 184 h
- About [INF-24-81-K-7]: The study achievement "[PRAES] presentation" must be obtained.

## Evaluation of grades

The module is not graded (only study achievements)..

### Contents

#### From [INF-24-81-K-7] Information Systems Project - Development of a Web Search Engine (Project):

In this project, a Web Search Engine is to be developed. The core tasks are roughly the following:

- Implement an HTML Parser.
- Design and Implement a Web Crawler.
- Design the required database schema to store the contents of visited pages and the link structure.
- Write an SQL-based query processor to execute Google-style keyword queries.
- Devise/Create index structures to accelerate the querying performance.
- Implement alternate query processors using threshold algorithms.
- Realize alternate methods to compute the score of how well a document matches the query.
- For this, implement Google's Pagerank algorithm and integrate it in the scoring model.
- Implement an HTML-based user interface and a Web service
- Use the Web services of your fellow student to realize a meta search engine.

### Competencies / intended learning achievements

After successfully completing the module, students will be able to

- develop a web search engine,
- independently compile relevant technical literature on the chosen topic,
- familiarize themselves thoroughly with a technically and scientifically challenging topic
- comment on a scientific work in a well-founded and critical manner,
- place the chosen topic in its scientific context and to differentiate it appropriately
- present the results in a formally correct, structured and focused way in a written paper,
- follow and critically question a scientific presentation
- independently write a scientifically sound written paper on the chosen topic,
- design and conduct a specialized lecture on the chosen topic in a didactically appealing manner,
- assess one's own scope for action and decision-making and the associated responsibility and, if necessary, to obtain specific information, define priorities, derive tasks, develop solutions and monitor progress
- present and discuss a scientific question in English.

### Literature

#### From [INF-24-81-K-7] Information Systems Project - Development of a Web Search Engine (Project):

- Information Retrieval and Web Search Engines:

Introduction to Information Retrieval, by Christopher D. Manning, Prabhakar Raghavan Hinrich Schütze, 2008.

- Information Retrieval:

Implementing and Evaluating Search Engines, by Stefan Büttcher, Charles L. A. Clarke, Gordon V. Cormack

- Database Systems:

cf., literature for Informationssysteme and Datenbankanwendung lectures

- Datenbanksysteme:

Eine Einführung (German), by Alfons Kemper and André Eickler.

Database Management Systems, by Raghu Ramakrishnan and Johannes Gehrke

### Requirements for attendance of the module (informal)

None

Requirements for attendance of the module (formal)

None

**References to Module / Module Number [INF-24-81-M-7]**

<b>Course of Study</b>	<b>Section</b>	<b>Choice/Obligation</b>
[INF-88.79-SG] M.Sc. Computer Science	[Specialisation] Specialization 1	[WP] Compulsory Elective