Course number	U-LAS30 20030 LE10		
Course title (and course title in English)	Introduction to Algorithms-E2 Introduction to Algorithms-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,Jesper Jansson

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)	Year/semesters	2025・First semester

Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

An algorithm is a well-defined procedure for solving a computational problem.
Reliable algorithms have become crucial components of people's daily lives; for example, the Internet or our smartphones would not work without them.
The purpose of this course is to provide a basic introduction to algorithms for non-computer science students. General techniques for designing algorithms and analyzing their efficiency, as well as examples of widely used algorithms with important real-life applications, will be presented.

[Course objectives]

After completing this course, the student should be able to:
- Apply various algorithm design techniques for solving computational problems.
- Measure the efficiency of an algorithm.
- Explain how famous algorithms such as Google's PageRank, Quicksort, and Dijkstra's shortest-path algorithm work.

[Course schedule and contents)]

The course will cover the following topics:
1. Introduction
2. Graph traversal
3. Data compression
4. Cryptography
5. Topological sort
6. Shortest paths
7. PageRank
8. Voting systems
9. Searching
10. Sorting
11. Hash tables
12. String matching
13. Randomization
14. Course summary and Q & A session
<<Final examination>>
15. Feedback

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Introduction to Algorithms-E2(2)

[Course requirements]

An ability to think abstractly and to solve problems of a mathematical nature will be required for this course. No programming skills are needed.

[Evaluation methods and policy]

A written examination at the end of the course.

[Textbooks]

P. Louridas 『Real-World Algorithms - A Beginner's Guide』 (The MIT Press, 2017. ISBN-13: 978-0262035705.)

[Study outside of class (preparation and review)]

Students will be expected to spend about 3 hours per week to prepare for and review the lessons.

[Other information (office hours, etc.)]