

SYLLABUS

Advanced Data Structures

7.5 credits D7067E

Avancerade datastrukturer

Course syllabus admitted: Autumn 2023 Sp 1 - Present

DECISION DATE
2023-02-15

Advanced Data Structures 7.5 credits D7067E

Avancerade datastrukturer

Second cycle, D7067E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	U G VG	Datalogi	Computer Technology

Entry requirements

The student should have knowledge about basic algorithms and data structures, and discrete mathematics, equivalent to the courses D0012E Algorithms and Data Structures 7.5 credits and M0009M Discrete Mathematics 7.5 credits.

Good knowledge in English equivalent to English 6.

Selection

The selection is based on 30-285 credits

Course Aim

After the course the student should be able to:

- demonstrate knowledge of the disciplinary foundation and of proven experience in the design and analysis of advanced data structures
- demonstrate the ability to construct, analyze and critically evaluate various advanced data structures with respect to correctness, efficiency, and reliability
- demonstrate the ability to represent high-dimensional data and spatial data with respect to resource efficiency
- demonstrate the ability to identify, formulate, and manage algorithmic problems by develop appropriate data structures that use computer resources efficiently
- demonstrate the ability to plan and use appropriate methods to undertake advanced tasks within predetermined parameters

Contents

Potential topics include difference classes of advanced data structures such as multidimensional search structures, hierarchical spatial data structures, dynamic nearest-neighbors data structures, external data structures, parallel data structures, and persistent data structures.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures, project work, and seminars.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Compulsory attendance, assignments, oral and written presentation of projects. The final grade will be based on performance in all modules. There are no elective course elements. Unapproved students must retake the unsuccessful examination moment next time the course is given.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Remarks

The credits for this course cannot be combined with the credits for D7036E Algorithms for Big Data Processing 7.5 credits.

Overlap

The course D7067E is equal to D7036E

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Individual assignments and project work	U G VG	7.5	Mandatory	A23	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Syllabus established

by Robert Brännström 2023-02-15