Data Structures and Algorithms

Programme course

2 credits

Datastrukturer och algoritmer

TDDD71

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial Engineering and Logistics

Date determined
2017-01-25

Main field of study
Computer Science and Engineering

Course level
First cycle

Advancement level
G2X

Course offered for
- Industrial Engineering and Management, M Sc in Engineering
- Industrial Engineering and Management - International, M Sc in Engineering

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Programming in Java, basic course in data structures and algorithms.

Intended learning outcomes
After completing the course, the student shall be able to use, explain and analyze data structures and algorithms for representing maps and dictionaries as well as data structures and basic algorithms for graphs.
The further studies in data structures and algorithms shall give the student the opportunity to choose courses from the D and IT programs in year 4.

Course content
Data structures:
- Advanced tree structures
- Hash tables
- Skip lists
- Graphs

Algorithms:
- Algorithms for balancing search trees
- Graph algorithms

Teaching and working methods

Lectures present the theory. Laboratory assignments are mainly computer based, but comprise some small written parts, and integrates theory and gives practical skill.

Examination

LAB1	Lab course	2 credits	U, G

The course only gives the grades Fail/Pass.

Grades

Two-grade scale, U, G

Other information

Supplementary courses:
Software Engineering

Department

Institutionen för datavetenskap

Director of Studies or equivalent

Ahmed Rezine

Examiner

Christer Bäckström

Course website and other links

http://www.ida.liu.se/~TDDD71/

Education components

Preliminary scheduled hours: 22 h
Recommended self-study hours: 31 h

Course literature

Additional literature

Books

Michael T. Goodrich, Roberto Tamassia, *Data Structures and Algorithms in Java*

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.