Discrete Structures

Programme course

8 credits

Diskreta strukturer

TDDC75

Valid from: 2017 Spring semester

Determined by

Board of Studies for Computer Science
and Media Technology

Date determined

2017-01-25

Main field of study

Information Technology

Course level

First cycle

Advancement level

G1N

Course offered for

- Information Technology, 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.

Intended learning outcomes

After completing the course the student should have achieved basic understanding of concepts and methods from discrete mathematics and be able to carry out simple mathematical proofs about sets, relations, functions, number systems and boolean algebra; the student should also be able to put the theory into action and apply basic concepts and methods to support structured construction methods of digital systems, and understanding and ability to construct digital systems.

Course content

Sets, functions, number systems, coding and decoding, relations, algebras, Boolean algebra. Combinatorial circuits, minimization, Karnaugh maps, NAND- and NOR-synthesis, normal forms, tri-state, verification, incompletely specified circuits, circuits with multiple outputs, special circuits (adders, comparators, demultiplexers, multiplexers), state automata, sequential circuits, clocked flip-flops, asynchronous signals, counters, shift registers, control units.

Teaching and working methods

Lectures cover the theoretical foundations, while solving of exercises is done during supervised tutorials. The ability to apply theoretical foundations to solve concrete problems is done at laboratory classes.

Examination

LAB3	Laboratory work	3 credits	U, G
LAB2	Laboratory work	1 credits	U, G
TEN2	A written examination	3 credits	U, 3, 4, 5
BAS1	Work in PBL-group	1 credits	U, G

Grades

Four-grade scale, LiU, U, 3, 4, 5

Department

Institutionen för datavetenskap

Director of Studies or equivalent

Ahmed Rezine

Examiner

Mikael Asplund

Course website and other links

http://www.ida.liu.se/education/ugrad/index.sv.shtml

Education components

Preliminary scheduled hours: 72 h
Recommended self-study hours: 141 h

Course literature

Additional literature

Books

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.