



IE1204 Digital Design 7.5 credits

Digital design

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for IE1204 valid from Autumn 2009

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After completed course the student should be able to
-apply the basic theoretical knowledge for analysis and synthesis of combinatorial and sequential logic devices by

- choosing accurate practical problem solutions and simulation of designing digital devices
- describe digital components with hard description language (VHDL)
- explain the limitation of system performance designed in MOS-technology

Course contents

Number System and Codes.
 Binary Arithmetic.
 Boolean algebra.
 Boolean functions.
 Logic operations.
 Logic gates.
 Optimization methods.
 Combinatorial function blocks.
 Latches and Flips-Flops.
 Counters.
 Sequential logic devices.
 Finite state machine of Mealy and Moore type.
 Programmably logic.
 Memory.
 Introduction to the language VHDL.
 Fundamental MOS-technology.
 Fundamental opto technology.
 Digital/analog and analog/digital converters

Course literature

Digitala Kretsar av Lars-Hugo Hemert.
 Studentlitteratur. ISBN 91-44-01918-1

Examination

- LAB2 - Laboratory Work II, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work I, 3.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Grading scale: A/B/C/D/E/Fx/F

Other requirements for final grade

Written examination, 3.0 ects (TEN1)

Laboratory work with compulsory homeworks

Laboration, 3.0 ects (LAB1) Laboration, 1.5 ects (LAB2)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.