

# Syllabus

for course at first level

**Digital System Construction I**  
**Digital systemkonstruktion I**

**7.5 Higher Education  
Credits**  
**7.5 ECTS credits**

<b>Course code:</b>	FK4003
<b>Valid from:</b>	Autumn 2007
<b>Date of approval:</b>	2006-09-27
<b>Department</b>	Department of Physics
<b>Subject</b>	Physics
<b>Specialisation:</b>	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

## Decision

## Prerequisites and special admittance requirements

Basic electronics (FK2001)

## Course structure

Examination code	Name	Higher Education Credits
1100	Digital System Construction I	7.5

## Course content

This course covers essential topics in digital system design, and provides the skills necessary to design, implement, analyze and verify digital designs in integrated circuits, using computer-aided design tools and high-level hardware description language. Laboratory work is an important part of the course, and exercises of increasing complexity provide experience in VHDL programming, design simulation, synthesis, implementation and testing. Lectures complement the lab assignments. Two larger projects comprise the latter part of the course.

## Learning outcomes

After having passed the course the student is expected to:

- \* understand be able to explain the basics of digital electronics like gates etc
- \* be able to plan and describe in VHDL simple digital systems and simulate them using modern tools
- \* be able to implement and test digital systems on modern FPGA circuits

## Education

The education consists of lectures, presentations and laborations.

Participation in the laborations is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

## Forms of examination

- a. The student's knowledge will be tested by written and/or oral presentations of the laboratory excercises.

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent  
B = Very Good  
C = Good  
D = Satisfactory  
E = Sufficient  
Fx = Fail  
F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course.

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term “examination” here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

#### **Interim**

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

#### **Limitations**

The course may not be included as a part of a degree together with the course FY6180.

#### **Misc**

The course is given as an individual course.

#### **Required reading**

Course literature is decided by the departmental board and is described in an appendix to the syllabus.