Linnæus University

Jnr: UGA 2013/1916-3.1.2

# Course syllabus

Faculty of Technology
Department of Computer Science

## 1DT201 Datorstödd elektronikkonstruktion, 7,5 högskolepoäng
## Computer Assisted Electronic Design, 7.5 credits

**Main field of study**
Computer Engineering

**Subject Group**
Computer Science

**Level of classification**
First Level

**Progression**
G1F

**Date of Ratification**
Approved by Faculty of Technology 2013-09-11
The course syllabus is valid from spring semester 2014

**Prerequisites**
60 credits in the field of Electrical and Computer Engineering including Electronics 7.5 credits (1ED041) and Logic Circuit Design 7.5 credits (1ED021) or the equivalent.

## Objectives
Upon completion of the course the student should have:

- general knowledge about modern computer assisted tools for electronic design
- good ability to handle these tools
- good knowledge about how to use hardware description language for electronic design
- good knowledge about the the language VHDL (Very High Speed Integrated Circuit Harware Description Language)
- sufficient knowledge in electronic design to make design, layout, test, construction and production of a printed circuit board from a schematic in laboratory environment.

## Content
Electronic design:

- methods
- CAD system for electronic design
- schematic entry
- simulation
- PCB layout
- design task

- simulation with Pspice
- EMC, Electromagnetic Compatibility
- ESD, Electrostatic Discharge

Hardware description language VHDL:

- description of digital designs in VHDL
- simulation of the structure described in VHDL
- from VHDL description to functioning PLD
- design tasks

Project:

- alone or in groups of two students make an electronics design in which design and manufacture of a printed circuit board is included

## Type of Instruction
Lectures, seminars, practicals and project work. Practicals are carried out individually or in groups. Participation in practicals and project work is mandatory.

## Examination
The course is assessed with the grades U,3,4 or 5.
Assessment of student performance is made through written test and/or oral examinations and/or presentation of mandatory assignments. The assessment method is decided at the start of the course.

Students who do not pass the regular examination will be offered retrials close to the regular examination.

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

## Course Evaluation
A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed by the coordinating department.

## Required Reading and Additional Study Material
**Required reading**
Hans Danielsson, BYGGSÄTT FÖR ELEKTRONIK : från ytmontering till 3-dimensionell byggteknik. Pages 300 (386).

**Recommended reading**
Esbjörn Johansson, Mönsterkort : från CAD till kort. Pages 200 (286).
Birgitta Andersson, Dag Stranneby, Esd - elektrostatiska urladdningar : risker och skydd vid elektronikhantering. Pages 160 (160).
Sjöholm S, Lindh, L, *VHDL En introduktion*, Studentlitteratur, 2003. Pages 121 (121).
Sjöholm S, Lindh, L, *VHDL för konstruktion*, Studentlitteratur, 2003. Pages 453 (453).