



FIL3111 Advanced Topics in SOC Design 7.5 credits

Avancerade ämnen i SOC-design

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

Establishment

Course syllabus for FIL3111 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Admitted as doctoral student

Language of instruction

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

Intended learning outcomes

1. To be able to analyze the functional requirements
2. Dimension a system in terms of RTL blocks

3. Design Verification Plan and architect complex test benches
4. Master constrained based stimuli generation and formal assertions
5. Perform Logic and Physical synthesis
6. Analyze timing and power for complex SOC functionalities
7. Analyze verification reports to check for coverage

Course contents

1. Requirements Analysis for ASIC Design, Implementation and Verificaiton
2. Modeling as efficient RTL
3. Able to control and write complex Logic and Physical Synthesis Scripts
4. Perform Static Timing and Power Analysis
5. Verification using constraint stimuli generation and assertions
6. Apply the above to a complex real life example assigned by the examiner related to the PhD topic of the student

Disposition

Exams for either IL2225 or IL2450

Labs for either IL2225 or IL2450

Complex Project assigned by the examiner

Note that IL2450 will be discontinued but the doctoral student will be assigned project work that will compensate the IL2450 contents.

Course literature

IL2225 Lecture Slides or IL2450 Lectures

Equipment

Synopsys, Cadence and Mentor EDA Tools

Examination

- EXA1 - Examination, 7.5 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.

Same written exam and lab as IL2225 or IL2450

Complex Project Example assigned by the Examiner

Other requirements for final grade

Clearing the IL2225 or IL2450 exam and labs

Satisfactory completion of the Project Example assigned by the Examiner

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.