



## Course syllabus

Faculty Board of Science and Engineering  
School of Computer Science, Physics and Mathematics

4ED044 Signalbehandling, 7,5 högskolepoäng  
Signal Processing, 7.5 credits

**Main field of study**

Electrical Engineering

**Subject Group**

Electrical Engineering

**Level of classification**

Second Level

**Progression**

A1N

**Date of Ratification**

Approved by Organisational Committee 2009-08-11

The course syllabus is valid from spring semester 2010

**Prerequisites**

Digital signals and systems, 7,5 hp (1ED052), Calculus in several variables and vector calculus, 7,5 hp (1MA165), Probability theory, 7,5 hp (1MA201), or equivalent.

### Expected learning outcomes

After completion of the course, the student should be able to:

- combine knowledge within mathematics and signal theory to get acquainted with modern methods within the area of adaptive and statistical signal processing.
- independently solve several different types of programming tasks using a numerical/mathematical tool such as MATLAB.
- comprehend the mathematical formulation as well as its technical significance.
- present and discuss the solution and application areas of these programming tasks.

### Content

The course will give the students deeper knowledge in signal theory and stochastic processes with applications in adaptive and statistical signal processing. The course comprises the following items:

- Adaptive and statistical signal processing
- Basic signal theory
- Complex stochastic processes
- Spectrum estimation

- Optimum and adaptive filters
- The digital radio receiver
- Digital down-conversion
- Under sampling

## Type of Instruction

Lectures

## Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

A translation of the grade to the ECTS scale may be obtained upon request. The request for a translation should be made before the final grade of the course is awarded.

Written assignments/written exam. Current form of examination is determined at the course start.

## Course Evaluation

A written course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The course evaluation will be filed at the department.

## Other

After completed training students will receive a degree certificate from the Examination Department upon request.

Students who receive a passing grade in the course may download a course certificate through the Student Portal. Otherwise they may request a course certificate from the secretary of the School of Mathematics and Systems Engineering.

## Required Reading and Additional Study Material

### **Required reading**

Sven Nordebo, *Signal Processing*, (material from the school) ). Pages 100.