



HÖGSKOLAN I GÄVLE

Statistical Signal Processing 7.5 cr

Statistisk signalbehandling 7,5 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at

Valid from

5/27/19

HT2019

Level	A1N
Education level	Second cycle
Course identifier	EEA005
Credits	7.5 cr
Main field of study	Electronics
Subject group	Electrical Engineering
Disciplinary domain	Technology 100.0 %

Learning outcomes After completion of the course the student shall be able to

Knowledge and understanding

1. understand and have a good overview of spectral estimations methods
2. understand and have a good overview of classification methods
3. state commonly used mathematical tools for statistical digital signal processing

Skills and abilities

4. understand and use different methods for model based signal processing
5. be capable of implementing digital filters and predictors in software

Values and attitudes

6. design and evaluate optimal filters and adaptive filters
7. be capable of benefiting from scientific reports.

Course content

Sampling and quantization of continuous signals
Deterministic and stochastic signals
Parametric and non-parametric spectral estimation
Effects of quantization

Model based signal processing
Classification and regression
Prediction and estimation
Wienerfilter
Kalman filter
Adaptiv filtrering

Teaching

Lectures and exercises

Prerequisites

English language proficiency equivalent to (the Swedish upper secondary school) English course 6/B.
Degree of Bachelor of Science 180 credits or Degree of Bachelor of Engineering 180 credits including Control Theory 7,5 credits or Signal Processing 7,5 credits or equivalent

Examination

Written Examination, assignments and quiz

Module 0010 Written Examination 5.5 credits, examines learning outcomes 1-5 and 7, grades A-F

Module 0020 Assignments 1.5 credits, examines learning outcomes 4-6, grades A-F

Module 0030 Quiz 0.5 credits, examines learning outcome 3, grades Pass, Fail

Grade

A, B, C, D, E, Fx, F

Other regulations

Degree Criteria for final grade will be given by course responsible or examiner latest at the beginning of the course.

Sustainable environment

A minor part of the course content deals with sustainable development.

Module

0010	Written Examination	5.5 cr	Grade: AF
0020	Assignments	1.5 cr	Grade: AF
0030	Quiz	0.5 cr	Grade: UG