



# HÖGSKOLAN I GÄVLE

## Statistical Signal Processing 7.5cr

*Statistisk signalbehandling 7,5hp*

Set by Faculty of Engineering and Sustainable Development

**Version**

**Set at**

**Valid from**

5/27/19

**HT2019**

<b>Level</b>	A1N
<b>Education level</b>	Second cycle
<b>Course identifier</b>	EEA005
<b>Credits</b>	7.5cr
<b>Main field of study</b>	Electronics
<b>Subject group</b>	Electrical Engineering
<b>Disciplinary domain</b>	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
<b>Teaching</b>	Lectures and exercises
<b>Prerequisites</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
<b>Examination</b>	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
<b>Grade</b>	A, B, C, D, E, Fx, F
<b>Other regulations</b>	Degree Criteria for final grade will be given by course responsible or examiner latest at the beginning of the course.
<b>Sustainable environment</b>	A minor part of the course content deals with sustainable development.
<b>Module</b>	
	0010 Written Examination 5.5cr Grade: AF
	0020 Assignments 1.5cr Grade: AF
	0030 Quiz 0.5cr Grade: UG