

SD2125 SIGNALS AND MECHANICAL SYSTEMS 2020

General information regarding the 2020 course

Due to the Covid-19 pandemic situation most of the course will be online using ZOOM. Links will be provided on the course Canvas page and are given below. Most lectures will be pre-recorded and available on Canvas. It is assumed that the students have watched the videos corresponding to each lecture before the scheduled lecture time. The scheduled lecture times will be used for questions and answers and additional help with the Matlab home assignment tasks corresponding to the lecture topics.

The tutorials are sessions where you can get help with the Matlab home assignments. The lab exercise will be in place at the MWL lab (Teknikringen 8, ground floor). Due to the Covid-19 restrictions the group size will be limited to one student.

The seminars will be online using ZOOM and are the examination of the Matlab home assignments.

The written tests will be at KTH.

Course material

Applied Signal Analysis by Hans Bodén, Kjell Ahlin and Ulf Carlsson is available as pdf on Canvas. Instructions for the home assignments, lab exercise and examples of old written tests and exams will be put on Canvas.

Home assignments / project work

Two mandatory, Matlab based, home assignments is part of the course. There will be online tutorials where you will be able to get help with solving the home assignments. The results will be reported as written reports submitted through Canvas by Tuesday November 10 for the first project assignment and Monday November 30 for the second one. Seminars for the home assignments will be scheduled right after the deadlines. The seminars will be 45 minutes long and 8-12 students from different groups will attend each seminar. It is permitted for two students to submit a joint report.

You can sign up for a seminar time in Canvas. The lists can be found under People/Groups/

Lab exercise

The laboratory exercise will be held in the MWL lab, Teknikringen 8 ground floor.

You can sign up for a lab time in Canvas. The lists can be found under People/Groups/

Examination

Requirements for a passing grade:

- 1 laboratory exercise.
- 2 home assignment reports plus seminars.
- 2 written tests or final exam.

The grade will be set using the result of the written tests. The maximum number of points on each written test is 15. To get the passing grade (E) it is required to get at least 5 points on each written test. In addition the following requirements apply for the total result from both tests:

Grade F (Fail)	below 10 points
Grade Fx	10 points
Grade E	12 points
Grade D	15 points
Grade C	18 points
Grade B	21 points
Grade A	25 points

In the case of grade Fx it is possible to get an E by handing in a correct solution to an extra home assignment. A result on the two written tests can replace the exam in January. It is possible to take just part of the examination corresponding to written test 1 or 2 at the final exam. If you re-take one of the written tests at the exam the best result is counted.

Course Schedule.

L = Lecture, TU = Tutorial home assignment, Lab = Laboratory exercise,
SEM = Seminar for home assignments, WT = Written Test

Item	Time	Place	Program
L1	Monday 26 October 10:15-12:00 https://kth-se.zoom.us/j/69249646189	ZOOM	Course information, Introduction Ch 2: Signal descriptions, time histories. Ch 3: Fourier analysis
L2	Thursday 29 October 10:15-12:00 https://kth-se.zoom.us/j/68603997346	ZOOM	Ch 3: Fourier analysis Ch 4: Laplace transform, the s-domain
TU	Monday 2 November 13:15-15:00 https://kth-se.zoom.us/j/66720211883	ZOOM	Tutorial for home assignments
TU	Tuesday 3 November 10:15-12:00 https://kth-se.zoom.us/j/63438503958	ZOOM	Tutorial for home assignments
L3	Thursday 5 November 14:15-16:00 https://kth-se.zoom.us/j/67709634943	ZOOM	Ch 5: Time discrete signals, DFT and FFT
L4	Friday 6 November 10:15-12:00 https://kth-se.zoom.us/j/63841467834	ZOOM	Ch 6: Signals and linear systems
L5	Monday 9 November 08:15-10:00 https://kth-se.zoom.us/j/69819413776	ZOOM	Ch 7: Correlation
TU	Monday 9 November 10:15-12:00 https://kth-se.zoom.us/j/62677807064	ZOOM	Tutorial for home assignments
TU	Tuesday 10 November 10:15-12:00 https://kth-se.zoom.us/j/67648783665	ZOOM	Tutorial for home assignments
Deadline	Tuesday 10 November	Canvas	Deadline for submitting the report for home assignment 1

SEM	Tuesday 10 November 15:15-16:00 Tuesday 10 November 16:15-17:00 Wednesday 11 November 10:15-11:00 Wednesday 11 November 11:15-12:00 Wednesday 11 November 15:15-16:00	ZOOM	Seminar: Home assignment 1
WT1	Tuesday 17 November 08:00-10:00	L41, L42, L43, L51, L52	Written Test 1: Ch 2,3,4,5,6,7
L6	Wednesday 18 November 15:15-17:00 https://kth-se.zoom.us/j/64455142298	ZOOM	Ch 8: Power spectral density, PSD
L7	Friday 20 November 08:15-10:00 https://kth-se.zoom.us/j/64397301130	ZOOM	Ch 9: Spectrum analysis with FFT Ch 11: Spectrum analysis with filters
TU	Monday 23 November 15:15-17:00 https://kth-se.zoom.us/j/61663700879	ZOOM	Tutorial for home assignments
TU	Tuesday 24 November 15:15-17:00 https://kth-se.zoom.us/j/63550764809	ZOOM	Tutorial for home assignments
L8	Wednesday 25 November 10:15-12:00 https://kth-se.zoom.us/j/67647248746	ZOOM	Ch 10: Digital filters, z-transform Ch 12: Active control of sound
L9	Thursday 26 November 10:15-12:00 https://kth-se.zoom.us/j/64434281116	ZOOM	Signal analysis an efficient tool – A showcase from the industry. Shiva Sander Tavallaey Applications of Signal Analysis Elias Zea Marcano
TU	Thursday 26 November 13:15-15:00 https://kth-se.zoom.us/j/63967412043	ZOOM	Tutorial for home assignments
TU	Friday 27 November 13:15-15:00 https://kth-se.zoom.us/j/66071257777	ZOOM	Tutorial for home assignments
Deadline	Monday 30 November 08:00	Canvas	Deadline for submitting the report for home assignment 2

SEM	Monday 30 November 13:15-14:00 Monday 30 November 14:15-15:00 Wednesday 2 December 15:15-16:00 Wednesday 2 December 16:15-17:00 Thursday 3 December 10:15-11:00	ZOOM	Seminar: Home assignment 2
Lab	Friday 4 December 08:15-10:00 Friday 4 December 10:15-12:00 Friday 4 December 13:15-15:00 Friday 4 December 15:15-17:00 Monday 7 December 08:15-10:00 Monday 7 December 10:15-12:00 Monday 7 December 13:15-15:00 Monday 7 December 15:15-17:00 Tuesday 8 December 08:15-10:00 Tuesday 8 December 10:15-12:00 Tuesday 8 December 13:15-15:00 Tuesday 8 December 15:15-17:00 Wednesday 9 December 08:15-10:00 Wednesday 9 December 10:15-12:00 Wednesday 9 December 13:15-15:00 Wednesday 9 December 15:15-17:00 Thursday 10 December 08:15-10:00 Thursday 10 December 10:15-12:00 Thursday 10 December 13:15-15:00 Thursday 10 December 15:15-17:00 Friday 11 December 08:15-10:00 Friday 11 December 10:15-12:00	MWL	Lab exercise: Active control of sound
WT2	Friday 11 December 13:00-15:00	L41, L42, L43, L51, L52	Written Test 2: Ch 8,9,10,11,12
EXAM	Thursday 14 January 14:00-18:00	D32, D33, D34, D35, D41, D42, E34	Ch 2-12

Examiner
Hans Bodén

Teachers

Lectures: Hans Bodén, Karl Bolin, Shiva Sander Tavallaey, Elias Zea Marcano
Tutorials: Maria del Mar, Shail Shah, Hans Bodén, Karl Bolin
Seminars: Hans Bodén, Karl Bolin, Maria del Mar, Shail Shah
Lab exercises: Maria del Mar, Shail Shah

WELCOME !

Hans Bodén

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