



# EL2820 Modelling of Dynamical Systems 7.5 credits

Modellering av dynamiska system

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

## Establishment

On 04/21/2020, the Head of the EECS School has decided to establish this official course syllabus to apply from autumn semester 2020, registration number: J-2020-0538.

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Electrical Engineering

## Specific prerequisites

General entry requirements. Recommended background: Elementary physics and Mathematical Statistics, general course or the equivalent knowledge

## Language of instruction

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

# Intended learning outcomes

After passing the course, the student should be able to

- formulate basic theory and definitions of important concepts in mathematical modelling of dynamic systems
- retrieve mathematical models for engineering systems based on fundamental physical relations and based on measurement data.

# Course contents

- model types
- overview of different physical domains (physics, mechanics, electronics)
- model simplification, differential-algebraic equations
- systematic modelling methods
- object-oriented modelling
- disturbances and disturbance models
- parameter estimation and statistical properties

# Examination

- TEN1 - Exam, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB3 - Lab 3, 2.0 credits, grading scale: P, F
- LAB2 - Lab 2, 0.5 credits, grading scale: P, F
- LAB1 - Lab 1, 0.5 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.

# 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.