EL2320 Applied Estimation 7.5 credits

Tillämpad estimering

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

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

The official course syllabus is valid from the autumn semester 2024 in accordance with the decision from the director of first and second cycle education: J-2024-0556.Decision date: 2024-04-05

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Knowledge in probability theory and statistics, 6 higher education credits, equivalent to completed course SF1910-SF1924/SF1935.

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 shall be able to

- describe the parts in recursive Bayesian filtering in terms of probabilities reflect on the relationships between measurement uncertainty, probability theory and estimation methods
- describe parametric estimation technician and choose and apply appropriate method on problems
- describe Monte Carlo estimation methods and choose and apply appropriate method on problems

in order to be able to work with estimation.

Course contents

The course focuses on to give participants practical experience of to use different estimation methods on real problems. Examples that are used in the course been for example from navigation with mobile robots.

The course covers the following: Observability, the Markov assumption, data association, estimation methods such as Kalman Filter, Extended Kalman filters, particle filter, Rao-Black-wellized particle filters, Unscented Kalman filter.

Examination

- KON1 - Written partial exams, 3.5 credits, grading scale: P, F
- PRO1 - Project, 2.0 credits, grading scale: P, F
- PRO2 - Project, 2.0 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.

The possibility of re-examination of all written partial exams (KON1) is given during the examination period at the end of the course.

The final mark is based on how the well student has carried out KON1, PRO1 and PRO2 in combination.

Transitional regulations

The previous module TEN1 has been replaced by KON1.

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.