



T-401-LISY

LÍNULEG KVIK KERFI (enska: LINEAR DYNAMIC SYSTEMS)

6 ECTS

Year of study: 2nd year.

Semester: Spring. *Kennt í fyrsta sinn á vorönn 2021.*

Level of course: 2. Undergraduate (First cycle), intermediate.

Type of course: Core for all programs in engineering.

Prerequisites (mandatory): Knowledge of linear algebra and differential equations is essential (equivalent to the courses Linear algebra (T-211-LINA) and Mathematics III (T-301-MATH)).

Schedule: Runs for 12 weeks – 6 teaching hours a week.

Supervising teacher: Eliahu August.

Lecturer: Eliahu August.

Learning outcome:

Having completed this course, you should be able to

- Explain, using own words, the concept of (linear) dynamical systems
- Apply simple modelling & simulation techniques
- Apply the optimisation techniques presented to various problems
- Solve autonomous linear differential equations
- Solve simple control problems
- Apply different techniques to analyse linear dynamical systems and time series

Description:

This course is an introduction to applied linear algebra and linear dynamical systems, with applications to circuits, data analysis, and control systems. The course topics are as follows:

- Introduction to dynamical systems, modelling & simulation
- Least-squares and applications
- Least-norm solutions of underdetermined equations
- Autonomous linear dynamical systems: solution via Laplace transform and matrix exponential
- Linear dynamical systems with inputs and outputs: controllability and observability.

Reading material: To be decided.

Teaching and learning activities: To be decided.

Assessment methods: To be decided.

Language of instruction: English/Icelandic.

Birt með fyrirvara um breytingar.

Uppfærðar upplýsingar um námsmat og kennsluáðferðir eru birtar í kennslukerfinu Canvas í upphafi hvorrar annar.