Distributed Parameter Systems

Dates and time

Winter 2026 12-01, 19-01, 26-01 and 02-02

Morning 10.15 – 11.15 & 11.30 – 12.30

Course location
Utrecht

ECTS
3

Lecturers
H. Zwart & O.V. Iftime

Objective
After successfully completing this course, the student understands the concepts of linear distributed parameter systems (DPS) and port-Hamiltonian DPSs, and can
- design an input-state-output model of a system described by a partial differential equation,
- check the existence of solutions and calculate the homogeneous solution,
- calculate the transfer function of a DPS,
- study stability of a DPS,
- apply the theory to DPS in the port-Hamiltonian formulation.

Contents
- Solutions of linear partial differential equations
- Inputs and outputs
- Transfer functions
- Stability of distributed parameter systems
- Port-Hamiltonian partial differential equations

Course materials
Lecture notes.

Prerequisites
Basic knowledge of linear system theory.

Homework assignments
Two take-home homework assignments.