Hanze University of Applied Sciences Groningen

Course: Control Systems — credits: 5

Course code	ELVH17ACS
Name	Control Systems
Study year	2022-2023
ECTS credits	5
Language	English
Coordinator	J. Bout

Modes of delivery	Assignment Lecture Practical / Training
Assessments	Control Systems - Computer, organised by STAD examinations

Learning outcomes

The student can:

- Develop and analyse 1st and 2nd order system models (focusing on mechanical and electrical systems) by means of, or resulting in the corresponding differential equation; and can derive the transfer function of such systems, identifying their characteristic values.
- Construct system models using block diagrams, and identify the different forms of transfer functions.
- Determine the dynamic response of system components to different inputs and disturbances using the method of Laplace transforms and transfer functions.
- Use and apply basic methods for stability and error analysis in order to analyse steady state errors
- Identify the poles and zeros of a dynamic system, and use these methods to analyse the stability behaviour of systems.
- Apply basic methods (e.g. proportional-integral-derivative control [PID]) to design feedback systems.
- Apply the concepts of frequency response to construct and interpret Bode diagrams.
- Calibrate a sensor and determine the transfer function of a sensor controlled process by comparing practical results to theory.
- Evaluate control error and control instability in a control system and relate this to theoretical considerations.

Content

During this study unit you will have labs and theory.

Included in programme(s)

Electrical Engineering Major Sensor Technology

School(s)

Institute of Engineering