

Module Description Basic Elements of Feedback Control Technology

Name of module:	Basic Elements of Feedback Control Technology
Keywords:	Modelling of transfer systems; Controller design and control loop synthesis
Module number:	Not compulsory
Target groups:	3- 7 semester exchange students
ECTS Credits:	4
Language of instructions:	English
Module owner:	Prof. Dr.-Ing. Joachim Berkemer
Last update	17 January 2023

Extent of work (hours)

Workload	Contact hours	Self-Study	Exam Preparation
80	40	20	20

Prerequisites:	<ul style="list-style-type: none"> • Mathematics • Mechanical Engineering • Electrical Engineering
Total target:	The course should give the basic theoretical knowledge necessary for the use of modern applications of control technology.
Module contents:	<ul style="list-style-type: none"> • Introduction to continuous-time control • Descriptions of control loop elements • Elementary transfer elements (P, I, D, dead time) • Lag elements (PT1, IT1, DT1, PT2) • Composition of transfer elements for control equipment • Modelling of transfer systems • Nyquist plots, Bode diagrams, stability • Controller design and control loop synthesis
Reference material:	Lecture notes
Offered:	Winter semester
Relevance for other study programmes:	Electrical Engineering, Mechatronics

Submodules and assessments

Type of instruction/ form of learning:	Lectures, practices and exam preparation
Duration:	12 weeks: September/October – December
Hours per week:	4
Aims, learning outcomes:	See above
Estimated student workload:	40
Type of Assessment:	Written Midterm and Final exam (2x 90 min) (graded)
Number of participants:	Due to the limited number of participants, please register in advance by email to: kremena.daneva@hs-esslingen.de