1.2 Analogue Signal Processing

Analogue Signal Processing

Module summary

Module code: STM120

Module coordinator: Prof. Dr. Frieder Keller

Credits (ECTS): 6

Semester: 1

Pre-requisites with regard to content:

Lab: 4 ECTS Electrical Engineering at university level.

Lecture: 4 ECTS Mathematics at university level, profound knowledge in differential equations

Pre-requisites according to the examination regulations: ---

Competences:

The student is able to understand electronic circuits and to work with operational amplifiers. With this module the participants learn use mathematical transformations, have an understanding of dynamic processes, can judge stability of systems and tune controller parameters.

Assessment:

Lecture: Written examination 60 minutes with mark; Laboratory passed or failed.

Course: Control Theory
Module code: STM121
Lecturer: Prof. Dr. Samuel de Lucena, Prof. Dr. Frieder Keller
Contact hours: 30
Semester of delivery: Yearly, summer
Type/mode: Lecture
Language of instruction: English
Content:
Modelling of processes
Linearization, Laplace transformation
Evaluation of the Transfer function and the Frequency Characteristic
Stability and Stability Criteria
Control Loop evaluation
Design of Control Loops
Analogue Controller Techniques
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Recommended reading:

- 1. Frederik, Dean / Chow, Joe H. Feedback control problems using Matlab
- 2. Nise, Norman S. Control systems engineering
- 3. Lindner, Douglas Introduction to signals and systems

Comments:

Course: Analogue Signal Processing Lab

Module code: STM122

Lecturer: Prof. Dr. Ralf Herwig

Contact hours: 2 lab hours per week

Hochschule Karlsruhe – Faculty for Electrical Engineering and Information Technology Module Handbook Master Study Program Sensor Systems Technology Semester of delivery: yearly (summer)

Type/mode: lab; mode: mandatory

Language of instruction: English

Content: Experiments with Resistors, Capacitors, Inductors, Voltage Sources, Diodes and Transistors, Operational Amplifiers (OP), OP basic Circuits.

Recommended reading:

Lab textbooks "Introduction to Electrical Engineering" and "Experiments with operational Amplifiers".

Additional e-books given in the lab.

Comments: