Course: Maintenance & Control — credits: 5

Course code	WBVB26MC
Name	Maintenance & Control
Study year	2026-2027
ECTS credits	5
Language	English
Coordinator	I.V. Houwing
Modes of delivery	Education
Assessments	Process modelling & data analysis - Assignment

Learning outcomes

Learning outcome 1: System analysis
- The student can: analyse a technical production or energy system by identifying the relevant input, process and output parameters and defining the system boundary.
- Explanation: This involves understanding how a system works, what variables affect it, and how they interact.

Learning outcome 2: Modelling systems
- The student can establish a model structure of a production or energy system and translate it into a mathematical or data-driven model.
- Note: Consider setting up equations, block diagrams or using any software tools.

Learning outcome 3: Data acquisition and sensor integration
- The student can collect relevant data from an existing system using sensors and measurement systems, and process this data for analysis.
- Note: This includes the use of measurement instruments, data logging and understanding signal processing.

Learning outcome 4: Predicting system behaviour and product quality
- Based on a model and collected data, the student can make predictions about the behaviour of the system and/or the quality of the product produced.
- Explanation: For example, predicting failures, deviations in product quality or energy consumption.

Learning outcome 5: Critical reflection and optimisation
- The student can evaluate the performance of the model, explain deviations and suggest optimisation of the system or model.
- Explanation: This promotes critical thinking and the ability to improve models based on real-world data.

Content

Analysis and modelling of production systems, predicting the behaviour of systems (process scharacteristics/product quality)

This module deals with describing, analysing and modelling energy and/or production systems and/or the resulting products. Modelling systems starts with a model structure of the system. It defines the input and output of the system and how to build a relationship between the input and output parameters. Sensors and data collection from an existing system are used to predict system behaviour and/or product quality.

Included in programme(s)

Mechanical Engineering VWO a 3-year variant
Mechanical Engineering
Exchange Research, Design & Engineering (spring)

School(s)

Engineering, Life Sciences & ICT

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