

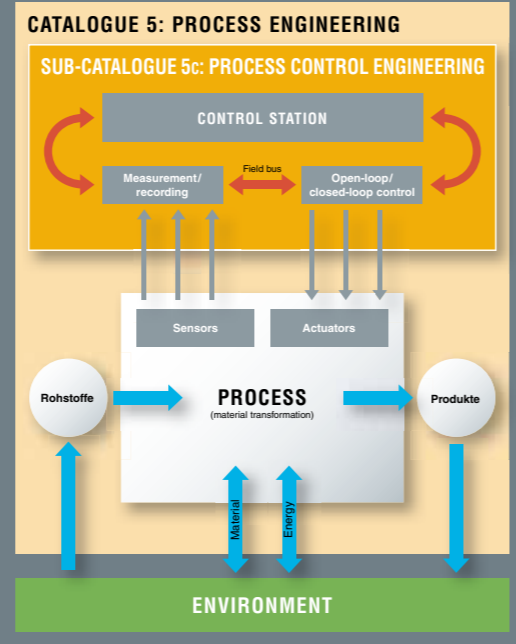
PROCESS CONTROL ENGINEERING LEARNING CONTENT

CATALOGUE 5c PROCESS CONTROL ENGINEERING

A KEY ELEMENT OF PROCESS ENGINEERING

The diagram on the right clearly shows how process control engineering is integrated into the wider field of process engineering. Process control engineering is a key aspect of all process engineering teaching and vocational training.

This catalogue number 5c forms part of our **PROCESS ENGINEERING** series, and as such is a key element within our overall concept.



DETAILED PRESENTATION OF LEARNING OBJECTIVES

On each product data sheet you will find a section headed **Learning Objectives / Experiments**. It provides detailed information on the laboratory experiments you can perform with a given experimental unit and the specific learning content you can teach.

GUNT EXPERIMENTAL UNITS FOR PROCESS CONTROL ENGINEERING TRAINING

The experimental units – ideal teaching aids

All the experimental units contained in this sub-catalogue together provide complete teaching support for a standard process control engineering curriculum.

Adjacent you will find specimen extracts from the curriculum for a technician's course in "Process control engineering / Instrumentation and control technology".

All our fundamentals teaching systems are equally suitable for:

- Mechanical engineering
- Electrical engineering / automation
- Mechatronics
- Supply engineering
- Environmental engineering

TYPICAL PROCESS CONTROL ENGINEERING CURRICULUM

PROCESS CONTROL ENGINEERING	CONTROL ENGINEERING
Process Control and Visualisation <ul style="list-style-type: none"> ■ Structures of process control systems ■ Man-machine communication 	Automation of Technical Processes with Continuous Controllers <ul style="list-style-type: none"> ■ Time response ■ Controller parameters ■ Key components of digital controller structures ■ Control and disturbance response
Planning a Process Control System <ul style="list-style-type: none"> ■ Basic types of technical processes <ul style="list-style-type: none"> ▶ continuous-flow, batch or single-item process ■ Process description <ul style="list-style-type: none"> ▶ flow diagram ▶ measurement and control system diagram ▶ function diagram ■ Function blocks 	Automation of Technical Processes with Switching Controllers <ul style="list-style-type: none"> ■ Two-point controller ■ Three-point controller ■ Actuators for switching controllers
Communication in Automation Systems <ul style="list-style-type: none"> ■ Network topologies ■ Bus protocols ■ Interfaces ■ Transfer standards 	Process Automation with Advanced Structures <ul style="list-style-type: none"> ■ Assessment of multivariable control loops in control and process terms ■ Cascade control ■ Disturbance feedforward control
OPEN-LOOP CONTROL AND ACTUATION SYSTEMS	METROLOGY
Structure-Oriented Design Methods and Implementation of Controls <ul style="list-style-type: none"> ■ PLC ■ Circuit diagram, wiring diagram 	Measurement and Processing of Process Variables <ul style="list-style-type: none"> ■ Description of the underlying physical principles of the measurement methods used for typical process variables ■ Measurement circuits ■ Smart transducers
Open-Loop and Closed-Loop Control of Electric Drives <ul style="list-style-type: none"> ■ Single and multi-quadrant mode ■ Frequency control ■ Actuators 	Transfer and Processing of Measured Values <ul style="list-style-type: none"> ■ AD/DA converter ■ Field bus system