Multivariable Control: Stirred Tank

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**PROCESS CONTROL 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.

**CATALOGUE 5c PROCESS CONTROL ENGINEERING**

**A KEY ELEMENT OF PROCESS ENGINEERING**

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**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

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.

**TYPICAL PROCESS CONTROL ENGINEERING CURRICULUM**

**CONTROL ENGINEERING**

- Automation of Technical Processes with Continuous Controllers
  - Structures of process control systems
  - Man-machine communication
  - Time response
  - Controller parameters
  - Key components of digital controller structures
  - Control and disturbance response

- Automation of Technical Processes with Switching Controllers
  - Two-point controller
  - Three-point controller
  - Actuators for switching controllers

**Communication in Automation Systems**

- Assessment of multivariable control loops in control and process terms
- Cascade control
- Disturbance feedforward control

**OPEN-LOOP CONTROL AND ACTUATION SYSTEMS**

- Process Automation with Advanced Structures
  - Measurement and Processing of Process Variables
  - Description of the underlying physical principles of the measurement methods used for typical process variables
  - Measurement circuits
  - Smart transducers

**OPEN-LOOP CONTROL AND ACTUATION SYSTEMS**

- Measurement and Processing of Process Variables
  - AD/DA converter
  - Field bus system

- Single and multi-quadrant mode
- Frequency control
- Actuators