Fakulta strojní VŠB – TUO

Katedra automatizační techniky a řízení

Control Instrumentation

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Lectures

1. Basic system concepts, control, regulation, system, element, connection, measurement chain, control types, description of program and software resources.
2. Static and dynamic properties of elements and systems.
3. Standardized signals and types of modulations for information transfer, A/D and D/A converters, serial interface.
4. Division of sensors and examples for measuring quantities in engineering and their evaluation.
5. Electric drives for actuators.
6. PLC, control systems and single chip computers.

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Lecture no. 1
(Support for notes)

Basic system concepts, control, regulation, system, element, connection, measurement chain, control types, description of program and software resources

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What do you find out?

- Basic system concepts (system, element, connection).
- Measuring chain, procedure for designing a measuring chain.
- Control circuit (quantities, elements, control equation).
- Types of control.
- Description of program and software resources.
- Ways of converting a measured quantity into a measurable one.
- ... .

Basic system concepts

- System
- Element
- Connection
- System neighborhood
- Information
- Signal
- Resolution level
- ...

System

Element

Connection

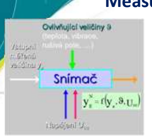
System neighborhood

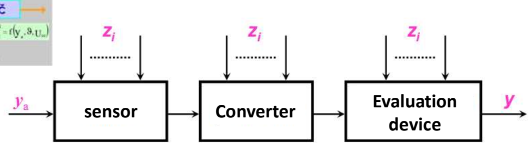
Information

Signal

Resolution level

Measuring chain, procedure for designing a measuring chain





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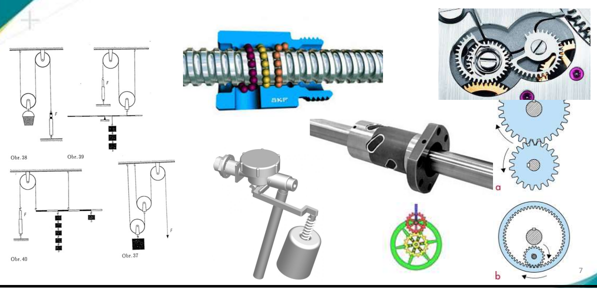
Measuring chain - its composition



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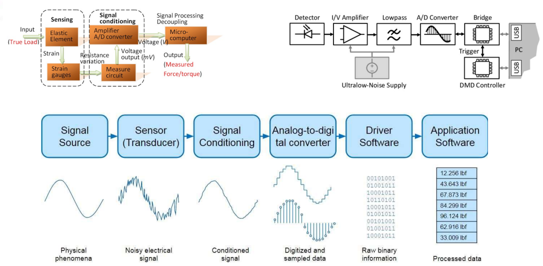
Measuring chain, procedure for designing a measuring chain



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Measuring chain, procedure for designing a measuring chain

Basic requirements for measurement

- type of measured quantities

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Measuring technology as part of automation technology

measurement is a source of information:

about the state of the technological

about the safety parameters

elements of measuring technology

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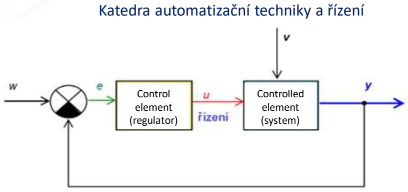

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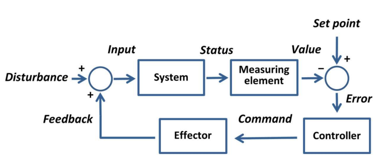
System of control



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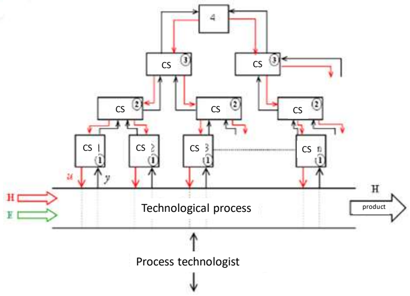

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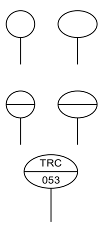
Marks of measuring and control circuits for technological diagrams

device (sensor, encoder, transducer)



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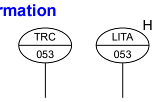
Letter code

- **type of monitored value**
- **symbol for value name:**
- **např. T (temperature),**

- **way of processing information**
- **informative – I**



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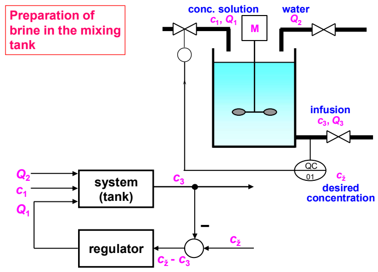

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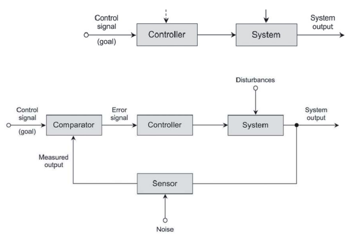
Type of control

- Control
  - **Control -**
  - **Regulation -**



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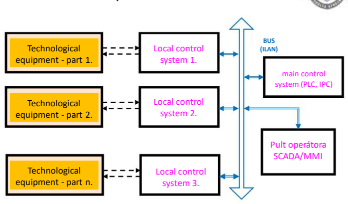
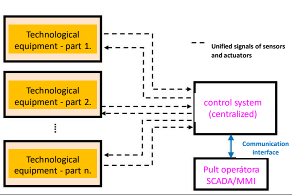
Type of control





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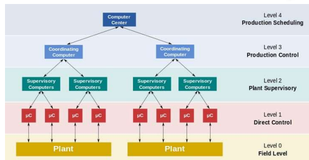
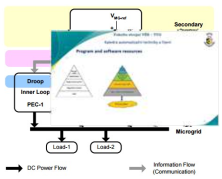
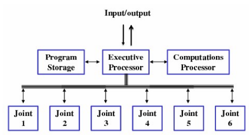
Type of control







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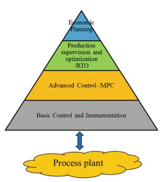
Program and software resources



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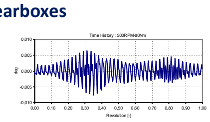
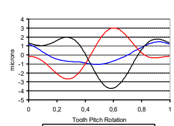
Examples - measurements on gearboxes





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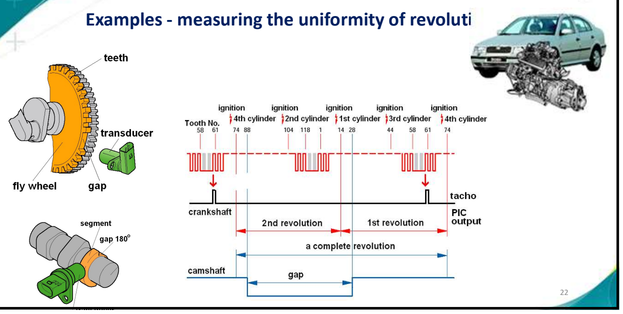
Examples - measuring the uniformity of revoluti



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What was the content of the lecture

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