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*Efficient system control processes require a good knowledge of the nature of the processes that are the subject of the control process, then the development of functional control algorithms, which ensures the realization of set tasks and the obtaining of adequate results, as well as information in the appropriate scope of the current status of the processes taking place therein.*

Efficient control and processing system require good knowledge of the nature of the process that is the subject of the management process, then, the creation of a functional algorithm of management, which provides realization of set tasks and obtaining adequate results, as well as information in the appropriate scope of the current state of the process that takes place in it. This statement is the basis for general division of control systems, without and with feedback. With an open system feedback, the management process is being implemented through steps defined in the control algorithm. These steps are "Predicted" on the knowledge of the functioning of the system. The algorithm is defined when designing the system in order to after that, the further realization started. This approach the management process has wide application, although it has serious consequences defects. The above-mentioned feedback is the task of Returns" to the input to the system measured output system sizes. Then they are compared with reference, desired values output, which causes the error, i.e., the deviation of the nominal one from real behavior. These deviations represent the size that the control system should minimize, i.e. eliminates.

The application of PID regulators in industrial processes is remarkable big. This type of regulator is applied for wide class system, regardless of whether it is stable or, unstable systems. This paper analyzes the process PID controller settings using the PI method of the system for temperature regulation.

The training is intended for employees in producing systems where temperature regulation plays an important role. Metal recycling systems are one of such examples. PI method presents a very successful method for this purpose.

The aim of the training is to provide employees with pre-production lines for melting and transfer of solvent metal with a focus on controlling and controlling the production process based on temperature control.



### **Program of training 1: Adjustment parameters of the pi controller without bringing the system into oscillations**

**Goals:** Enable employees to effectively manage production processes. To deal with the system and their parametrizes as well as to control them in real time. Get acquainted with the PI method, and apply it to the control of production processes. Become familiar with the notion of system stability, as well as ways of controlling it.

**Outcomes:** After the training, the participants will be familiar with the concept of system stability, PI method of control and the application of PI methods in the process of stability control of the production system.

#### Theoretical part

1. Temperature phenomena.
2. Importance of temperature regulation.
3. PI method.
4. PID system.
5. Adjustment parameters of the pi controller without bringing the system into oscillations.

#### Practical part

1. Determination of system parameter.
2. Adjustment parameters of the pi controller without bringing the system into oscillations.
3. Decision making.

#### Duration of the training

- Theoretical part 3h
- Practical part 3h

#### Group size

10 participants

### **Program of training 2: Parameters determination and examination system with pi regulator**

**Goals:** Enable employees to effectively manage production processes. To determine the optimal parameters of the production process using the PI controller to control the same.

**Outcomes:** After the training, the participants will be familiar with the process of determination of system parameters and participant will be able to use a PI regulator in process of examination of system.

#### Theoretical part

Stability of system.

Parameters of systems

- Temperature
- Air flow
- Pressures.

PI method.

Parameters determination and controlling systems with pi regulator

#### Practical part

- Determination of system parameter.
- Parameters determination and controlling systems with pi regulator.
- Decision making.

Duration of the training

- Theoretical part 3h
- Practical part 3h

Group size

10 participants