Control and Instrumentation – Transducers

Good process control having the best knowledge of instrumentation and automation devices.

Understand how measurement systems are classified based on transduction phenomenon, type of application, types of input and output signal, electrical principle involved. Understand the fundamental principles of various types of sensors including thermal, mechanical, electrical, electromechanical and optical sensors. Understand their general characteristics, terminologies, sensing and transduction principles. Be familiar with criteria for sensors and transducers selection and recognise appropriate measurement methods for industrial tasks. Have developed an awareness and understanding of the crucial part that measurement plays in industrial activities.

Target Group
operators, foremen, engineers from the oil industry, petrochemical, refinery, food industry, etc

Duration
2 days (16 hours) - one hour training session it's equal with 45 minutes

Content
- Basic requirements of transducers
- Transducers classification
- Transducers characteristics (static and dynamic characteristic)
- Electrical transducers (working principle and basic construction of resistive transducers, inductive transducers, capacitive transducers, piezoelectric transducers, strain gauge transducers)
- Thermoelectric transducers (working principle and basic construction of thermocouple, RTD, thermistor transducers)
- Electro-optical and Radio Acoustic Transducers (working principle and basic construction of IR emitter/receiver, ultrasonic transducers)
- Electro-chemical transducers (working principle and basic construction of gas analysers)
- Industrial primary transducers in oil&gas industry
- Pressure measurement (working principle, basic construction and selection criteria)
- Flow measurement (working principle, basic construction and selection criteria)
- Temperature measurement (working principle, basic construction and selection criteria)
- Level measurement (working principle, basic construction and selection criteria)
- Flammable and toxic gas measurement (working principle, basic construction and selection criteria)

Methods
- Theory: The course will be presented using exposure explanation (e.g. power point presentation, sample images, video files ..), free discussions on the real life situations, case study
- Practical: identification of appropriate measurement methods within a case study

Competences acquired
- Understand how measurement systems are classified
- Understand working principle and basic construction of different types of transducers
- Ability to recognise appropriate measurement methods for a given application
- Ability to visually recognise transducer type in field

Trainer
has high specialization and rich experience in both Adult Training and theoretical and practical activity in the field of Control and Instrumentation–Transducers

Date / City
N/A

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