Versa-Tech Training

Engineering, Consulting, Expert Witness

Instrumentation and Process Control Basics

3 day course

Introduction

1. Course Objectives
2. Matter and Its Properties
3. Basic Physics
4. Energy
5. Measurement
6. **Safety**

Process Variables

1. Processes, Variables and Function of Instruments
2. Temperature
3. Weight
4. Pressure
5. Flow
6. Level

Direct-Read Instruments

1. Pressure
    a. Gauges
    b. Bourdon tubes
    c. Manometers
2. Level
    a. Float
    b. Differential pressure
3. Flow
4. Temperature
5. Weight

Elements of Control Systems

1. Basic Function of Control Systems
    a. Control Steps
    b. Control Loops
    c. Input /Output
    d. Types of Signals
2. Basic Elements of Control Loops
    a. Sensors
    b. Indicators and Recorders
    c. Flow Transmitters
    d. Controllers
    e. Final control Elements

Process Control Design

1. Purpose of System
2. Differences
3. Proportional, Integral, and Derivative Control

Maintenance Systems for Instrumentation

1. Calibration and Setup
2. Testing
3. Cleaning

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