Water Flow Measurement & Control Techniques

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MasterPeak
TRAINING CENTER
MTC

Water Flow Measurement & Control Techniques

5 days training course

For detailed information on training course dates, please click the link:
Water Flow Measurement & Control Techniques.

Who should attend?

This training course is ideal for professionals involved in water systems management, but will greatly benefit:

- Project managers
- Professionals involved in the regulatory monitoring of water quality
- Engineers involved in monitoring and maintaining water systems in various industries
- Professionals drafting guidelines on water quality
- Process engineers in Sewage Treatment Plants (STPs)
- Professionals responsible for water systems in healthcare and hospitality sectors

Course Overview

This course provides a comprehensive understanding of water flow measurement and control techniques. Participants will explore the principles, applications, and technologies involved in measuring and controlling water flow in different industries. The course covers both mechanical and electronic flow meters, control devices, and smart sensor systems, equipping professionals with the skills to improve the efficiency and accuracy of water management.

Objectives

By the end of the course, participants will:

- Understand the principles and terms related to water flow measurement and control
- Be proficient in using mechanical flowmeters, including Coriolis, differential pressure, and positive displacement meters
- Gain expertise in electronic flow meters such as electromagnetic and ultrasonic meters
- Learn about control devices and the selection of control valves
- Explore smart sensors, transmitters, and advanced metering systems, including AMR and SCADA

Course Outline:

Day 1: Introduction and Mechanical Flowmeters

- Overview of course, expectations, and program review
- Introduction to sensors, transducers, and instrumentation systems
- Flow terms and definitions: mass flow, volumetric flow rate, pressure, viscosity, turbidity, laminar and turbulent flows, Reynolds number, Bernoulli's equation, and pipe velocity distributions
- Principles of water flow measurement and control

Day 2: Mechanical Flowmeters

- Coriolis flowmeter: principle of operation, application, installation considerations
- Differential pressure flow meters: orifice plate, venturi tube, flow nozzle
- Positive displacement flow meters: Volumetric rotary piston type
- Turbine flow meters: single jet, multijet, Woltman
- Testing, calibration, installation, and maintenance of water meters

Day 3: Electronic Flow Meters and Control Devices

- Electromagnetic flow meter: theory, applications, limitations, installation
- Ultrasonic flow meter (transit time measurement): operating principles, performance, installation, and troubleshooting
- Insertion magnetic flow meters: operating principles, advantages, installation
- Maintenance and calibration techniques

Day 4: Control Devices

- General categories of control valves and sizing considerations
- Control valve performance: rangeability, shutoff capability, cavitation, noise
- Actuators: piston, electric, hydraulic types
- Diagnostic testing of control loops and air-operated valve diagnostics
- Motor-operated valve diagnostics

Day 5: Smart Sensors, Transmitters, and AMR Systems

- Introduction to microprocessors, microcomputer systems, and smart sensors
- Intelligent (smart) transmitters and their advantages
- Comparison between intelligent and non-intelligent instrumentation
- Communication protocols: HART, Fieldbus, Wireless HART
- Supervisory Control and Data Acquisition (SCADA) systems
- Automatic meter reading (AMR) and wireless measurement systems

DOCUMENTATION

The **MTC team** has meticulously prepared **high-quality training materials** for distribution to all delegates.

CERTIFICATES

An **accredited Certificate of Completion** will be awarded to participants who successfully attend and complete the program.

SCHEDULE

Course sessions are scheduled as follows:

- **Morning Session:** 09:00 AM – 1:00 PM
- **Afternoon Session:** 01:00 PM – 05:00 PM

REGISTRATION & PAYMENT

To register, please complete the **registration form** available on the course page and submit it with your **preferred payment method**. Alternatively, you can contact us via **email or WhatsApp** for assistance.

TRAVEL & TRANSPORT

We ensure a **seamless travel experience** by providing **airport-hotel-airport** transfers for all participants.