PUMPS OPERATION MAINTENANCE & TROUBLESHOOTING

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MAESTRO CONSULTANTS

TRAINING TITLE
PUMPS OPERATION MAINTENANCE & TROUBLESHOOTING

VENUE
Dubai, UAE

DURATION
5 Days

DATES
28 March - 01 April 2021

PRICE
US$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet.

TRAINING INTRODUCTION
Control valves, actuators, and pumps are a vital component of modern industrial operations around the world. Today's control valves incorporate a number of impressive design and materials enhancements which allow higher flow capacity and overall compactness with improved dynamic and sealing performance. In addition, recent improvements in actuators and petitioners have made control valve performance and economy an attractive benefit and incentive for their use. Care must be taken, however, to ensure that a control valve-actuator system can handle the pressure, temperature, flow rate, and medium required without noise or cavitation, corrosion, erosion or leakage. Pumps are mainly the driving forces in the system; hence their operation, technology, and maintenance are vital parameters for the overall system to run smoothly. Properly selected and maintained control valves and pumps increase efficiency, safety, profitability, and ecology.
The course covers control valve types and designs, materials, specification selection, actuators and controllers, preventive maintenance procedures, operation and troubleshooting. Also, it discusses various types of pumps: operation, technology, and troubleshooting.
A number of different instructional methods are used throughout the course to allow for interactive learning and to give practical examples from manufacturing and service industry to enable the delegates to operate, select and troubleshoot control and safety valves upon course completion.

TRAINING OBJECTIVES
Control valves, actuators, and pumps are a vital component of modern industrial operations around the world. Today's control valves incorporate a number of impressive design and

materials enhancements which allow higher flow capacity and overall compactness with improved dynamic and sealing performance. In addition, recent improvements in actuators and petitioners have made control valve performance and economy an attractive benefit and incentive for their use. Care must be taken, however, to ensure that a control valve-actuator system can handle the pressure, temperature, flow rate, and medium required without noise or cavitation, corrosion, erosion or leakage. Pumps are mainly the driving forces in the system; hence their operation, technology, and maintenance are vital parameters for the overall system to run smoothly. Properly selected and maintained control valves and pumps increase efficiency, safety, profitability, and ecology.

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TRAINING AUDIENCE

The course is designed for plant safety specialists, maintenance engineers and technicians, maintenance planners, system engineers and operators in the power generation, oil, chemical, paper and other processing industries involved in control valve selection, specification, procurement, inspection, troubleshooting or repair.

TRAINING OUTLINE

- Introduction to control valves: Valve functions and service conditions, body ratings, materials and body styles, linear and rotary action valves, globe valves, gate valves, plug valves, ball valves, butterfly valves, cavitation, water hammer, noise, vibration.
- Control valve dynamics: Control of automatic valves, control functions and relevant terminology, safety, stability & accuracy, on/off and continuous control modes. Proportional, integral and derivative control actions, control loops and feedback systems.
- Sizing of control valves: Control valve flow characteristics, fast opening characteristics, linear characteristics, equal percentage characteristics, matching characteristics, capacity and flow coefficients, control valve sizing for water systems, control valve sizing for steam systems, control valve sizing for oil and gas systems.
- Actuators and positioners: Pneumatic actuators, operation and options of pneumatic actuators, piston actuators, diaphragm actuators, direct acting and reverse acting actuators, positioners, electric actuators, valve motor drives, modulating, hydraulic actuators, forces on actuator, sizing and selection of valve actuator.

- Pumps: Pumping methods; Centrifugal pumps, Reciprocating pumps, and Rotary pumps. Pump operation, control and performance curves. Pump Technology and design.
- Auxiliary Pump Systems: Bearings, seals, oil lobes…etc.

Quality standards and maintenance: Standards organizations, ISA, ASME, NACE and ISO, installation, commissioning, routine maintenance, troubleshooting diagrams, modes of failure and fault finding.

TRAINING CERTIFICATE

MAESTRO CONSULTANTS Certificate of Completion for delegates who attend and complete the training course

METHODOLOGY

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of "real life" issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.