

**Course Overview:**

This highly relevant seminar is intended for all operators and technicians involved in operation and maintenance, and those are responsible for general mechanical, electrical management for maintenance, operation in different aspects of mechanical maintenance or electrical procedures, and persons who are interested to work plant area.

**Course Objective:**

- Understanding basic information level of processes and equipment (Valves,Pumps,Compressors) in order to apply suitable techniques and to be familiar with principles of mechanical and electrical (Instrumentation Diagrams,Basics of reading P & ID)
- Have an overview on the evolution of Electrical, Mechanical (Thermal Radiation,Heat Transfer Analysis,) and Safety Work Standards and its recent advancements

**Course Outline:**

Day-1. Introduction to Valves. Valves materials of construction. Gate, Globe, and Needle Valves. Plug, Ball, and Butterfly Valves. Introduction to Fluids. Fluid Properties. Types of Pumps. Compressors Component. Types of Compressors

Day-2. Types of flow diagrams. Flow diagram symbols. Process & Instrumentation Diagrams. Basics of reading P & ID. Samples of P & ID as per Sharq real diagrams. Written Assessment

Day-3. Thermal Radiation. Tools for Heat Transfer Analysis· Shell and Tube Heat Exchangers· Shell and Tube Heat Exchanger Applications

Day-4

- Diaphragm, Pinch, and Check Valves
- Relief Valves and Safety Valves
- Introduction to Actuators
- Pneumatic, Electric, Hydraulic Actuators
- Control Valves Principles & components

Day-5. Pump Auxiliaries · Single Stage Centrifugal Pumps· Inspecting an Operating Pump · Compressed Gas Systems· Reciprocating Pumps · Compressor selection and testing· Rotary Pumps · Centrifugal Compressors· Introduction to Centrifugal Pumps · Axial Compressors· Centrifugal Pump Parts and Functions

**Who Should Attend:**

All operators and technicians involved in operation and maintenance, and those are responsible for general mechanical, electrical, operation in different aspects of mechanical maintenance or electrical procedures, and persons who are interested to work plant area.

**Training Language:**

EN / AR

**Training Methodology:**

- Presentation & Slides
- Audio Visual Aids
- Interactive Discussion
- Participatory Exercise
- Action Learning
- Class Activities
- Case Studies
- Workshops
- Simulation