



شركة ميرك العربية السعودية  
MEIRC Saudi Arabia

## Metering Pumps Operation

### Duration 5 Days

### Introduction

The seminar is intended for engineers and technicians who operate and do the planning of metering pumps

### Who Should Attend

Engineers & Technicians

### Objectives

- To know the basics mechanical and hydraulically rules of metering pumps
- To know the evolution from a simple plunger pump up to latest diaphragm metering pumps
- To be able to recognize the danger of resonance effects in pipe lines
- To be able to fulfil maintenance and repair tasks referring to operating manual

### Course Outlines:

- Basics of metering using metering pumps
- Introduction into the metering technique using pumps
- Properties and characteristic curves of metering pumps
- Metering accuracy, reliability and power requirements
- Designs and different types of metering and process pumps
- Modular system
- Drive elements, drives, stroke actuators
- Pump heads and their operating elements
- Triplex diaphragm pumps, laboratory pumps
- Control technology for metering systems
- Closed loop control
- Sensoric
- FIS Dialog; SPS; PC Control
- Incorporation of metering pumps into the overall system
- Plant characteristics, output characteristic of pumps
- Co-operation between pump and plant pumps
- Pressure pulsation in case of undercritical operation
- Pressure shocks
- Hydraulic oscillations in pipe lines, resonances, \undercritical and overcritical operation
- Examination of the operating data, NPSHvalues
- Pulsation damping
- Experimental demonstrations on test stands
- Applications of metering pumps
- Task of a metering pump in a whole system
- Influences on the right pump sizing
- Safe operation and monitoring
- Examples of production systems