

## Water Distribution Systems Operations & Maintenance

### Course general description:

Comprehensive training program covering fundamental and advanced aspects of water distribution systems operations and maintenance. Combines theoretical knowledge with practical applications to ensure efficient, reliable, and safe water distribution.

### Audience:

This course is designed for:

1. Water utility operators and technicians
2. Maintenance personnel
3. Municipal engineers
4. Water quality specialists
5. Infrastructure managers.

### Course objectives:

Upon completion, participants will:

1. Master core principles of water distribution systems
2. Develop practical skills in system operations
3. Learn preventive and corrective maintenance procedures
4. Understand water quality management and monitoring
5. Apply safety protocols and emergency response procedures

### Course duration:

5 days

### Course location:

Cairo-Dubai-Istanbul

### Course contents:

#### **Day-1**

- Pretest
- Overview of water distribution systems, network components, and infrastructure.
- Basics of system hydraulics and operations of pumping systems and storage facilities.
- Valve types, piping materials, network configurations, and system mapping.

#### **Day-2**

- Techniques for flow measurement, pressure management, and SCADA systems.
- Monitoring water quality, sampling procedures, and disinfection practices.
- Strategies for operational efficiency, energy management, and demand management

#### **Day-3**

- Setting up preventive maintenance programs and scheduling inspections.
- Leak detection, repair techniques, and pipeline rehabilitation.
- Principles of asset management, maintenance documentation, and cost-effective strategies.

#### **Day-4**

- Planning for emergencies, assessing risks, and establishing communication protocols.
- Troubleshooting system failures and contingency planning.
- Implementing safety procedures, using personal protective equipment, and managing confined space entry.

#### **Day-5**

- Exploring system optimization techniques and emerging technologies.
- Reviewing course material and evaluating participants' understanding.

**Methodology:**

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

**Course code: (TPRS054)**