

Water Distribution Systems Operations & Maintenance

Course general description:

Advanced training program covering water network systems design principles, methodologies, and practical applications. Focuses on system planning, hydraulic design, component selection, and modern design tools.

Audience:

This course is designed for:

1. Civil/Environmental Engineers
2. Project Designers
3. Construction Managers
4. Municipal Engineers
5. Engineering Consultants

Course objectives:

Upon completion, participants will:

1. Master water systems design fundamentals
2. Develop proficiency in design software
3. Learn regulatory compliance requirements
4. Apply optimization techniques
5. Understand construction considerations

Course duration:

5 days

Course location:

Dubai

Course contents:

Day-1

- Pretest
- Establish design criteria, standards, and perform population projections.
- Calculate water demand, analyze hydraulic principles, and flow mechanics.
- Perform head loss calculations, determine pipe sizing, and select materials.
- Create effective design layouts for water distribution systems.

Day-2

- Plan distribution networks and develop loop and branch system designs.
- Design storage facilities, pump stations, and valve placement strategies.
- Address pressure zone design, ensure system redundancy, and optimize designs.

Day-3

- Learn the basics of computer modeling and key software applications.
- Perform hydraulic modeling, scenario analysis, and calibration of models.
- Integrate GIS, apply AutoCAD tools, and prepare thorough design documentation.

Day-4

- Incorporate treatment facilities, booster stations, and PRV installations.
- Design fire protection systems, emergency connections, and metering systems.
- Implement SCADA integration, smart systems, and advanced monitoring tools.

Day-5

- Develop construction specifications and estimate project costs.
- Apply effective project management techniques for implementation.

- Conclude with a final evaluation and review of design projects.

Methodology:

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

Course code: (TPRS055)