



PROJACS ACADEMY
by @egis



Water Distribution Networks - Planning and Design

تخطيط وتصميم شبكات توزيع المياه

14 - 18 August 2023

London / United Kingdom

Introduction

Water distribution network is one of the most essential utilities of an urban town planning. Engineers who are interest for such facilities should have knowledge management prior planning and design phases of such projects. Design of water distribution network includes step by step modeling for different hydraulic components (Reservoirs, tanks, pumping stations, pipes, valves, nodes and junctions) are essentially. Case studies will be also included to explain the different maintenance and troubleshooting techniques related to water distribution network. Problems like design mistakes, abnormal operation, leakage, low pressure, high pressure, insufficient flow associated with water distribution network will be investigated.

Objectives

By the end of the course, participants should have a comprehensive understanding of water distribution network planning, design, and maintenance, as well as the tools and techniques necessary to manage operational problems, maintain efficient and effective systems, and troubleshoot issues.

Who Should Attend?

Staff at all levels, especially Middle and Executive Level Managers whom need to be effective leaders and are always under constant stress to cope with, or even create, change, as well as decision makers and employees whom constantly deal with different parties outside the organization.

Course Outline

Day One

- Introduction to fluid dynamics
- Pressure, energy (potential, kinetic and or pressure) Continuity and Bernoulli equations Flow in pipes (friction loss calculations) Centrifugal pumps (performance curves, NPSH, cavitation) variable frequency drivers as energy efficient technique System curves, hydraulic gradient line.
- Introduction to Knowledge Management
- Introduction to water distribution network planning

Day Two

- Water distribution network security plan
- Conceptual design of water distribution network, scenarios and options
- Main water distribution network components
- Reservoirs, Tanks, nodes and junctions, Pumping stations, valves and pipelines,

Day Three

- Design criteria for water distribution network
- Demand calculation included fire flow demand
- Design procedures for water distribution network
- Design considerations for water distribution network

Day Four

- Operation of pumping stations
- Operation of different types of valves associated with water distribution network
- Operational problems associated with water distribution network
- Leakage, leak detection techniques, High pressure, low pressure, insufficient water Surge, vacuum, air pocket, died ends Back flow prevention, cross connections

Day Five

- Preventive maintenance
- Proactive maintenance
- Troubleshooting
- Case studies for water distribution network

Training Method

- Pre-assessment
- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Group activities and tests
- Each participant receives a 7" Tablet containing a copy of the presentation, slides and handouts
- Post-assessment

Program Support

This program is supported by interactive discussions, role-play, case studies and highlight the techniques available to the participants.

Schedule

The course agenda will be as follows:

- | | |
|---------------------|------------------|
| • Technical Session | 08.30-10.00 am |
| • Coffee Break | 10.00-10.15 am |
| • Technical Session | 10.15-12.15 noon |
| • Coffee Break | 12.15-12.45 pm |
| • Technical Session | 12.45-02.30 pm |
| • Course Ends | 02.30 pm |

Course Fees*

- **5,200 USD**
**VAT is Excluded If Applicable*

المقدمة

شبكة توزيع المياه هي واحدة من أهم المرافق لتخطيط المدن الحضرية. يجب أن يكون لدى المهندسين المهتمين بهذه المرافق مراحل تخطيط وتصميم مسبقة لإدارة المعرفة لهذه المشاريع. يتضمن تصميم شبكة توزيع المياه نمذجة خطوة بخطوة للمكونات الهيدروليكية المختلفة (الخزانات ومحطات الضخ والأنابيب والصمامات والعقد والتقاطعات) بشكل أساسي. كما سيتم تضمين دراسات حالة لشرح تقنيات الصيانة واستكشاف الأخطاء وإصلاحها المختلفة المتعلقة بشبكة توزيع المياه. سيتم التحقيق في مشاكل مثل أخطاء التصميم ، والتشغيل غير الطبيعي ، والتسرب ، والضغط المنخفض ، والضغط العالي ، والتدفق غير الكافي المرتبط بشبكة توزيع المياه.

الاهداف

بحلول نهاية الدورة ، يجب أن يكون لدى المشاركين فهم شامل لتخطيط شبكة توزيع المياه وتصميمها وصيانتها ، بالإضافة إلى الأدوات والتقنيات اللازمة لإدارة المشكلات التشغيلية ، والحفاظ على أنظمة فعالة وفعالة ، واستكشاف المشكلات وإصلاحها.

الحضور

الموظفون على جميع المستويات ، وخاصة المديرين من المستوى المتوسط والتنفيذي الذين يحتاجون إلى أن يكونوا قادة فعالين ويتعرضون دائما لضغوط مستمرة للتعامل مع التغيير أو حتى خلقه ، وكذلك صناع القرار والموظفين الذين يتعاملون باستمرار مع أطراف مختلفة خارج المنظمة.