Water Supply Systems Training Course

Professional Development Training Course Outline

Category	Construction Institute	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Water supply systems are the backbone of sustainable development, public health, industrial growth, and climate resilience. As urbanization, population growth, and climate change continue to increase pressure on freshwater resources, organizations require professionals who possess advanced knowledge in water supply engineering, smart water management, sustainable infrastructure, digital water technologies, hydraulic design, GIS mapping, IoT monitoring, water quality management, non-revenue water reduction, asset management, and climate-resilient water systems. Water Supply Systems Training Course equips participants with practical skills to design, operate, maintain, monitor, and optimize modern water supply systems using international standards and emerging technologies.

The course combines engineering principles with real-world applications, enabling participants to strengthen decision-making, improve operational efficiency, reduce water losses, enhance service delivery, and achieve sustainable water management goals. Through practical exercises, case studies, simulations, and interactive discussions, participants will gain expertise in smart water utilities, digital transformation, predictive maintenance, SCADA systems, integrated water resources management (IWRM), water safety planning, risk management, ESG compliance, sustainable development goals (SDGs), and climate adaptation strategies, preparing them to address current and future challenges in the water sector.

Programme Curriculum

Water Supply Systems Training Course

Introduction

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Course Duration

5 days

Course Objectives

Upon completion of this training, participants will be able to:

1. Understand modern Water Supply System Design principles.
2. Apply Smart Water Management technologies for efficient operations.
3. Improve Water Distribution Network Optimization techniques.
4. Implement effective Non-Revenue Water (NRW) Reduction strategies.
5. Conduct advanced Water Quality Monitoring and Risk Assessment.
6. Utilize GIS and Digital Mapping for infrastructure planning.
7. Apply SCADA and IoT Water Monitoring Systems for real-time operations.
8. Develop sustainable Climate-Resilient Water Infrastructure.
9. Perform effective Asset Management and Predictive Maintenance.
10. Integrate Hydraulic Modeling and Network Analysis tools.
11. Strengthen Emergency Preparedness and Water Safety Planning.
12. Promote Integrated Water Resources Management (IWRM) and sustainability.
13. Align water utility operations with ESG, SDGs, and International Best Practices.

Target Audience

- Water Supply Engineers
- Water Utility Managers and Supervisors
- Municipal Water Authority Professionals
- Civil and Environmental Engineers
- Project Managers in Water Infrastructure
- Operations and Maintenance Personnel
- Government Regulators and Policy Makers
- Consultants, Researchers, and Development Partners

Course Modules

Module 1: Fundamentals of Water Supply Systems

- Water supply system components
- Water demand forecasting

- Water source assessment
- Water supply planning principles
- International standards and regulations
- **Case Study:** Urban water supply planning for a rapidly growing metropolitan city.

Module 2: Water Sources, Treatment and Quality Management

- Surface and groundwater resources
- Water treatment technologies
- Water quality standards
- Water safety plans
- Drinking water compliance
- **Case Study:** Improving drinking water quality in a regional water utility.

Module 3: Water Distribution Network Design

- Hydraulic principles
- Pipeline design
- Pumping systems
- Storage reservoirs
- Pressure management
- **Case Study:** Hydraulic optimization of a municipal distribution network.

Module 4: Smart Water Technologies

- SCADA systems
- IoT sensors
- Smart metering
- Digital twins
- Real-time monitoring
- **Case Study:** Digital transformation of a smart water utility.

Module 5: Operation, Maintenance and Asset Management

- Preventive maintenance
- Predictive maintenance
- Asset lifecycle management
- Infrastructure inspection
- Performance monitoring
- **Case Study:** Asset management strategy for aging water infrastructure.

Module 6: Non-Revenue Water (NRW) Management

- Water loss assessment
- Leak detection technologies
- Pressure control
- Meter accuracy improvement
- Water auditing
- **Case Study:** Successful NRW reduction program in a national water utility.

Module 7: Climate Resilience and Sustainable Water Management

- Climate change impacts
- Water conservation
- Drought management
- Integrated Water Resources Management (IWRM)
- Sustainable infrastructure planning
- **Case Study:** Climate adaptation measures for resilient water supply systems.

Module 8: Risk Management, Emergency Response and Future Innovations

- Water safety risk assessment
- Emergency preparedness
- Business continuity planning
- ESG and SDG integration
- Future trends in digital water management
- **Case Study:** Emergency response during a major water supply disruption.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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