Plumbing Systems Engineering Training Course

Professional Development Training Course Outline

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

Course Introduction

Plumbing Systems Engineering is a critical discipline in modern building design, construction, and infrastructure development, focusing on the efficient planning, installation, maintenance, and optimization of water supply, drainage, sanitation, and fire protection systems. Plumbing Systems Engineering Training Course is designed to equip professionals with advanced competencies in hydraulic systems design, BIM integration, sustainable plumbing technologies, and smart water management systems. With the rapid growth of smart cities and green buildings, mastering plumbing engineering has become essential for ensuring safety, efficiency, and compliance with international building codes.

This course provides a comprehensive blend of theoretical foundations and practical applications, integrating latest CAD/BIM software, IoT-enabled plumbing systems, water conservation technologies, and energy-efficient piping solutions. Participants will gain hands-on expertise in designing complex plumbing systems for residential, commercial, and industrial infrastructures while aligning with LEED certification standards, green building regulations, and digital construction transformation trends.

Programme Curriculum

Plumbing Systems Engineering Training Course

Introduction

Plumbing Systems Engineering is a critical discipline in modern building design, construction, and infrastructure development, focusing on the efficient planning, installation, maintenance, and optimization of water supply, drainage, sanitation, and fire protection systems. Plumbing Systems Engineering Training Course is designed to equip professionals with advanced competencies in hydraulic systems design, BIM integration, sustainable plumbing technologies, and smart water management systems. With the rapid growth of smart cities and green buildings, mastering plumbing engineering has become essential for ensuring safety, efficiency, and

compliance with international building codes.

This course provides a comprehensive blend of theoretical foundations and practical applications, integrating latest CAD/BIM software, IoT-enabled plumbing systems, water conservation technologies, and energy-efficient piping solutions. Participants will gain hands-on expertise in designing complex plumbing systems for residential, commercial, and industrial infrastructures while aligning with LEED certification standards, green building regulations, and digital construction transformation trends.

Course Duration

5 days

Course Objectives

1. Master advanced plumbing system design and hydraulic modeling
2. Apply BIM (Building Information Modeling) for plumbing coordination
3. Understand smart water management and IoT-based monitoring systems
4. Design sustainable water supply and drainage networks
5. Implement green building plumbing standards (LEED & BREEAM)
6. Develop skills in fire protection and sprinkler system engineering
7. Analyze pressure loss, flow dynamics, and pipe sizing optimization
8. Integrate CAD software for plumbing layout design
9. Learn wastewater treatment and recycling systems engineering
10. Apply energy-efficient plumbing technologies in modern buildings
11. Ensure compliance with international plumbing codes and standards (IPC, BS, EN)
12. Develop expertise in smart city infrastructure plumbing solutions
13. Enhance project management skills in construction MEP coordination

Target Audience

1. Civil and Mechanical Engineering Students
2. Plumbing Technicians and Contractors
3. MEP (Mechanical, Electrical, Plumbing) Engineers
4. Construction Project Managers
5. Building Consultants and Designers
6. Facility Maintenance Engineers
7. Urban Infrastructure Planners
8. Sustainability and Green Building Professionals

Course Modules

Module 1: Fundamentals of Plumbing Engineering

- Introduction to plumbing systems design principles
- Water supply system fundamentals
- Drainage and waste disposal basics
- Pipe materials and selection criteria
- Plumbing symbols and schematics
- **Case Study:** Residential apartment water distribution system design optimization

Module 2: Hydraulic Design & Flow Analysis

- Fluid mechanics in plumbing systems
- Pressure loss calculation techniques
- Pipe sizing and velocity control
- Pump selection and performance curves
- Gravity vs pressurized systems
- **Case Study:** High-rise building water pressure balancing system

Module 3: BIM for Plumbing Systems

- BIM integration in MEP design
- 3D plumbing modeling techniques
- Clash detection and coordination
- Digital twin applications
- Collaborative engineering workflows
- **Case Study:** BIM coordination in commercial skyscraper plumbing installation

Module 4: Water Supply Systems Engineering

- Municipal and building water supply design
- Storage tank systems and distribution networks
- Water demand forecasting
- Booster pump systems
- Backflow prevention systems
- **Case Study:** Urban water distribution network optimization

Module 5: Drainage & Wastewater Systems

- Sanitary drainage design principles
- Stormwater management systems
- Sewer network engineering
- Wastewater treatment basics
- Environmental discharge standards
- **Case Study:** Smart drainage system for flood-prone urban area

Module 6: Fire Protection & Safety Systems

- Sprinkler system design standards
- Fire hydrant network planning
- Smoke control systems
- Emergency water supply systems
- Safety compliance regulations
- **Case Study:** Fire protection system design in a shopping mall complex

Module 7: Sustainable & Green Plumbing Systems

- Water conservation technologies
- Rainwater harvesting systems
- Greywater recycling solutions
- Energy-efficient plumbing systems
- Green building certification compliance
- **Case Study:** LEED-certified eco-friendly residential development

Module 8: Smart Plumbing & IoT Integration

- Smart sensors for leak detection
- IoT-based water monitoring systems
- Automated control valves
- Data analytics in plumbing systems
- Smart city infrastructure integration
- **Case Study:** Smart water management system in a modern smart city district

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
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com