

Plumbing & Firefighting Curriculum

PLUMBING

MODULE 1: FUNDAMENTALS

- Introduction to Plumbing system
- Plumbing Codes
- Plumbing standards
- Water quality problems
- Water purification
- Ground water treatment
- Surface water treatment

MODULE 2: PLUMBING FIXTURES

- Supply water fixtures
- Drainage water fixtures
- Water closet
- Lavatory
- Bidet
- Urinals
- Shower

- Kitchen sink

MODULE 3 :WATER SUPPLY SYSTEM

- Cold water Supply system
- Hot Water supply system

MODULE 4 :PLUMBING DESIGN

- Water demand calculation
- Manhole & Sock pit Design
- Overhead tank sizing
- Plumbing Formulas
- Swimming pool
- Pump head calculation
- Drainage pipe sizing
- Rain water Harvesting

MODULE 5: 2D DESIGN

- Introduction to AutoCAD
- Getting Started with AutoCAD
- AutoCAD Commands & Short keys
- Plumbing Legends
- Study of Civil drawings
- Plumbing system drafting
- Manhole & sock pit design

- Cold water system design
- Hot water system design
- Drainage design

MODULE 6: 3D DESIGN

- Introduction to Revit
- Revit Civil Layout
- Insert Plumbing Fixtures
- Creating Piping Systems
- Cold water piping
- Hot Water Piping
- Plumbing layout
- Bathroom design

MODULE 7: PROJECT

FIRE FIGHTING

MODULE 1: FUNDAMENTALS

- Introduction to Fire fighting
- Fire Triangle
- Fire Tetrahedron
- NFPA standards
- UL, FM standards
- Classification of fire
- Principles of Extinction
- 3A rule

MODULE 2: FIRE FIGHTING SYSTEMS

- Active Fire Protection Systems
- Water based Fire Protection Systems
- Gas based Fire Protection Systems
- Foam based Fire Protection Systems
- Chemical based Fire Protection Systems
- Passive Fire Fighting Systems

MODULE 3 :MANUAL FIREFIGHTING SYSTEM

- NFPA 10 standards
- Fuel Classification

- Types of Fire Extinguishers
- Portable fire Extinguishers
- How to use Fire Extinguishers
- Fire Hose Reel
- Fire Hose Cabinet

MODULE 4 :SPRINKLERS

- Introduction to Sprinklers
- Sprinkler Head
- Upright sprinkler
- Pendant Sprinkler
- Sidewall Sprinkler
- Quick response Sprinkler
- Standard response sprinkler
- Extended coverage Sprinkler
- Large drop sprinkler
- ESFR Sprinkler
- In-Rack Sprinkler
- Concealed Sprinkler
- Temperature Ratings of Sprinklers
- Color Codes of Sprinkler
- Response Time Index, RTI
- K Factor
- Sprinkler head equation
- Sprinkler head sizes

MODULE 5 : SPRINKLERSYSTEM

- Wet Sprinkler System
- Dry Sprinkler System
- Pre – Action Sprinkler System
- Deluge Sprinkler System
- Hybrid Sprinkler System
- Fire Pumps
- Fire department connection
- Alarm check valve
- Zone control valve
- Inspectors test connection
- Hazard classification

MODULE 6 : SPRINKLER SYSTEM DESIGN

- Introduction to Sprinkler Layout
- Tree Sprinkler Layout
- Loop Sprinkler Layout
- Grid Sprinkler Layout
- Sprinklers Area coverage
- Sprinkler pipe sizing
- Sprinkler Spacing
- Feed main sizing

MODULE 7 : PIPING

- Classification of Piping
- Sprinkler Pipe sizing
- Stand Pipes
- Classes of Stand pipes

- Pipe Schedules
- Pipe fittings

MODULE 8 :HYDRAULIC ANALYSIS

- Pressure Requirements
- Hazen-Williams Friction Equation
- Area – Density Chart
- Fire pump classification
- Pump Head calculation
- Fire Pump Selection
- Fire Water tank sizing
- Elite Fire Software

MODULE 9: FIRE DETECTION SYSTEM

- Fire detection zones
- Alarm Zones
- Smoke detectors
- Heat Detectors
- Ionisation Detector
- Flame detectors
- Beam Detectors
- Fire Alarm
- Fire Alarm control panel

MODULE 10 :SMOKE MANAGEMENT SYSTEM

- Stairwell Pressurization
- Lift Pressurization

MODULE 11 :WATERLESS SYSTEMS

- CO₂System
- FM200 System
- Foam System

MODULE 12 :2D DESIGN

- Introduction to AutoCAD
- Getting Started with AutoCAD
- AutoCAD Commands & Short keys
- Study of Civil drawings
- Firefighting system drafting
- Sprinkler system Design
- Standpipe system Design

MODULE 13 : 3D DESIGN

- Introduction to Revit
- Revit Civil Layout
- Insert Mechanical Systems
- Adding Sprinklers
- Creating Piping Systems
- Fire Protection Wet Systems
- Sprinkler Layout Design

MODULE 14: PROJECT