

**SIX MONTH CERTIFICATE COURSE**  
**IN**  
**FITTING & PLUMBING**

<b>Sl. No.</b>	<b>Module</b>	<b>Duration</b>
1.	Module 1	12 weeks
2.	Module 2	12 weeks

**MAIN FEATURES OF THE CURRICULUM**

1. Title of the Course : Certificate course in **FITTING & PLUMBING**
2. Duration of the Course : Six Month
3. Type of the Course : Full Time Institutional

# SYLLABUS FOR FITTING & PLUMBING

## MODULE:1

### THEORY

#### 1. Introduction to Tools & Equipment:

- \* Hand tools of the trade
- \* Stock and dies
- \* Pipe vice
- \* Bench vice
- \* Blow lamp stove
- \* Ferrule m/c
- \* Bending m/c

#### 2. Documentation :

- \* Glossary of terms
- \* Basic engineering drawings / sketches
- \* Info sheets / job cards
- \* Time sheets
- \* Record book / log book
- \* Store requisition

#### 3. Basic Materials :

- \* Galvanized pipes
- \* Cast iron pipes
- \* PVC pipe
- \* SW pipes
- \* Fittings
- \* Fixtures
- \* Solder / Lead

#### 4. Testing :

- \* Water test
- \* Pressure test
- \* Smoke test
- \* Ball test

## **Practicals :**

### **1. Taps & Valves :**

- \* Understanding working principles
- \* Understanding methods of testing
- \* Use of basic tools and bench vice
- \* Selection of taps and valves
- \* Dismantling taps & valves
- \* Inspecting glands, washer
- \* Assembling taps and valves in position
- \* Ensuring no leaks when tested
- \* Safety
- \* Site tidiness

### **2. Cutting / Threading / Bending / GI Pipes :**

- \* Use of hand tools
- \* Use of cutting tools
- \* Use of bending machine
- \* Use of pipe Dies & Vice
- \* Lubrication
- \* Understanding basic sketches & drawing
- \* Mark out and cut to size
- \* Threading and bending
- \* Awareness of tolerance
- \* Safety
- \* Site tidiness

### **3. Jointing / Assembling GI Pipes :**

- \* Understanding types of pipes & fittings
- \* Understanding methods of joining
- \* Use of chain wrench
- \* Interpretation of sketches & drawings
- \* Joining and assembling GI pipes with supplied fittings
- \* Importance of line & level
- \* Awareness of tolerance
- \* Safety
- \* Site tidiness

### **4. PVC Pipe Bending :**

- \* Understanding types of PVC pipes and fittings
- \* Understanding methods of bending
- \* Use blow lamp & flame control
- \* Interpretation of sketches & drawings
- \* Mark out and cut to size
- \* Bend PVC pipes
- \* Importance of line & level
- \* Awareness of tolerance
- \* Safety

- \* Site tidiness

#### **5. PVC Jointing :**

- \* Understanding types of PVC pipe joints
- \* Understanding methods of jointing
- \* Use of hand tools
- \* Use of beveling reamer
- \* Use of blow lamp & flame control
- \* Application of solvents
- \* Assembly methods
- \* Interpretation of sketches & drawings
- \* Join PVC pipe
- \* Importance of line & level
- \* Awareness of tolerance
- \* Safety
- \* Site tidiness

#### **6. S.W. Pipe laying / jointing :**

- \* Understanding types of SW pipe
- \* Understanding methods of laying / jointing
- \* Use of hand tools
- \* Use of sight rails
- \* Assembly methods
- \* Interpretation of sketches & drawings
- \* Importance of gradient / alignment
- \* Understanding self cleansing gradients
- \* Join SW pipe
- \* Testing methods
- \* Awareness of tolerance
- \* Safety
- \* Site tidiness

## **MODULE:2**

### **1. Basic Materials :**

- \* Galvanized pipes
- \* Cast iron pipes
- \* PVC pipe
- \* SW pipes
- \* Fittings
- \* Fixtures
- \* Solder / Lead

### **2. Testing :**

- \* Water test
- \* Pressure test
- \* Smoke test
- \* Ball test

### **3. Safety :**

- \* Health & Safety
- \* Eye protection
- \* Hand & Foot protection
- \* Overall personal safety
- \* Moving
- \* Lifting
- \* Carrying
- \* Stacking
- \* Working at heights (Ladders / scaffold)
- \* Electricity

## **Practicals :**

### **1. Cast Iron Cutting / Jointing :**

- \* Understanding methods of cutting
- \* Use of hand tools
- \* Interpretation of sketches & drawings
- \* Importance of alignment
- \* Understanding methods of jointing
- \* Use of chain wheel
- \* Introduction to gasket
- \* Handling lead
- \* Testing methods
- \* Awareness of tolerance
- \* Safety
- \* Site tidiness

### **2. Alkathene Flanging / Jointing :**

- \* Understanding Alkathene Flange
- \* Forming tools
- \* Assembly methods
- \* Types of fittings
- \* Connecting Alkathene to G.I. pipe
- \* Interpretation of sketches & drawings
- \* Importance of alignment
- \* Understanding methods of jointing
- \* Testing methods
- \* Awareness of tolerance
- \* Safety
- \* Site tidiness

### **3. Making service connections :**

- \* Understanding service connections
- \* Understanding ferrules, water meter
- \* Introduction local authority by-laws
- \* Connect cast iron main with domestic service
- \* Using ferrule, valve and water meter
- \* Testing methods
- \* Safety
- \* Site tidiness

### **4. Connecting house sewer to main :**

- \* Understanding sewer connection to main
- \* Understanding interceptor traps
- \* Introduction local authority by-laws
- \* Connect interceptor manhole with main sewer using SW pipes
- \* Testing methods
- \* Safety

- \* Site tidiness

#### **5. Fixing Sanitary Fixtures :**

- \* Understanding, handling, lifting sanitary fixtures
- \* Care in fitting and leveling
- \* Introduction local authority by-laws
- \* Fix low level water closet
- \* Connect to soil stack, seal connections
- \* Testing methods
- \* Safety
- \* Site tidiness

#### **6. Installing Water Pump, connecting supply pipe :**

- \* Understanding handling water pump
- \* Understanding working principle of Water pump and foot valve
- \* Methods of connections
- \* Connect pump to pump base
- \* Connect supply pipes, foot valves, etc.
- \* Care in fitting and leveling
- \* Introduction local authority by-laws
- \* Testing methods
- \* Safety
- \* Site tidiness

#### **7. Skill Consolidation Installation Work Project :**

- \* Interpretation of working drawings
- \* Types of sanitary fixtures and appliances
- \* Storage cistern, tanks
- \* Understanding local authority by-laws
- \* Distribution water supply pipe connections
- \* Position install sanitary fixtures and appliances
- \* Testing methods
- \* Safety
- \* Site tidiness

**List of Tools and Equipments ( for batch of 16 student)**

Sr. No.	Items	Quantity
1.	Rule steel 300 mm both in inch and mm	1 no.
2.	Rule wooden 4 fold. 600 mm	1 no.
3.	Hacksaw frame adjustable for 250 to 300 mm	1 no.
4.	Scriber 200 mm	1 no.
5.	Centre punch 100 mm	1 no.
6.	Chisel Cold flat 20 mm	1 no.
7.	Hammer ball pein 800 grams	1 no.
8.	Hammer ball pein 50 grams	1 no.
9.	File flat rough 300 mm	1 no.
10.	Level spirit wooden 300 mm	1 no.
11.	Plumb bob 50 grams	1 no.
12.	Trowel C- 125-IS : 6013	1 no.
13.	Stilson wrench 200 & 350 mm	1 each
14.	Screw driver 50 mm	1 no.
15.	Wooden Mallet small IS : 2022	1 no.
16.	Cutting pliers 200 IS : 3650	1 no.
17.	Steel tape	1 no.

**List of Materials Required ( for batch of 16 student)**

Sr. No.	Items	Size
1.	G.I. Pipe "B" ( I.S.I.)	½"
2.	- do -	¾"
3.	- do -	1"
4.	P.V.C. Pipe	
5.	C.I. Pipe	3"
6.	- do -	100mm
7.	S.W.G. pipe	4"
8.	A.C. pipe	100mm
9.	G.I. Socket	½", ¾", 1"
10.	G.I. Reducing Socket	½" x ¾", ½" x 1", ¾" x 1"
11.	G.I. Elbow	½", ¾", 1"
12.	G.I.R. Elbow	½" x ¾", ½" x 1", ¾" x 1"
13.	G.I. Tee	½", ¾", 1"
14.	G.I.R. Tee	½" x ¾", ½" x 1"
15.	G.I. Union	½", ¾", 1"
16.	G.I. Bend	½", ¾"
17.	G.I. Flange	2"
18.	G.I. Jam Nut	½", ¾", 1"
19.	Stop Cock G.I. and Brass	½"
20.	Bile Cock C.I. , Brass and P.V.C.	½"
21.	Gate Valve	½"
22.	Wheel Valve	½"
23.	W.C. Indian	
24.	W.V. European	
25.	Sinks	
26.	Wash Basin	630x450 mm



27.	Flushing cisterns	
28.	Hack Saw Blade	1/2" x 12"
29.	G.I. Nipple	1/2" x 2", 1/2" x 4", 1/2" x 6, 1/2" x 9"
30.	"S" Trap	1 x 1/4"
31.	"P" Tap	4"