

CURRICULUM FOR SIX MONTH CERTIFICATE COURSE

IN

FITTING & PLUMBING

UNDER DEVELOPMENT

Prepared By

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SIX MONTH CERTIFICATE COURSE

IN

FITTING & PLUMBING

| Sl. No. | Module | Duration |
|----------------|---------------|-----------------|
| 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 | 1no. |
| 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" |