



GOVERNMENT OF INDIA  
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP  
DIRECTORATE GENERAL OF TRAINING

**COMPETENCY BASED CURRICULUM**

# PLUMBER

(Duration: One Year)

**CRAFTSMEN TRAINING SCHEME (CTS)  
NSQF LEVEL- 4**



**SECTOR – PLUMBING**



Directorate General of Training

# PLUMBER

(Engineering Trade)

(Revised in 2019)

Version: 1.2

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL- 4**

Developed By

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Directorate General of Training  
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## 1. COURSE INFORMATION

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During the one-year duration a candidate of Plumber trade is trained on subjects Professional Skill, Professional Knowledge, Engineering Drawing, Workshop Science & Calculation and Employability Skills related to job role. In addition to this a candidate is entrusted to make/do project work and Extra Curricular Activities to build up confidence. The practical skills are imparted in simple to complex manner & simultaneously theory subject is taught in the same fashion to apply cognitive knowledge while executing task. The practical part starts with basic pipe work viz. cutting of pipes, threading, joining, etc. and finally to fitting, fixing and laying of hot & cold water pipe line, repairing and reconditioning of waste pipe line at the end of the course. The broad components covered under Professional Skill subject are as below:

The practical part starts with basic fitting in the beginning and the candidate imparted training on allied trades viz., carpenter, Welding (Gas & Arc), Masonry which leads to multi-skilling. In the basic fitting the skills imparted are marking, sawing, chipping, filing, measurement, soldering, brazing, drilling, grinding and observation of all safety aspects is mandatory. The accuracy achieved is of  $\pm 0.25$  mm. The safety aspects covers components like OSH&E, PPE, Fire extinguisher, First Aid etc. Cutting Pipes in different angle. Joining of pipes of different diameter and angles by gas welding, thread cutting on different types of pipes & fittings accessories. Making of brick wall and RCC casting. Brick wall cutting for concealing pipe line. Bending of Pipes, Making of pipe line circuit for water distribution, fixing Cocks & valve, Water analysis test, Water Pressure test are being taught. Alignment and laying of humid asbestos pipeline & maintenance of drainage pipe line. Installation and maintenance of Electric pumps, Construction of inspection chamber, manhole, gutter, septic tank, socket etc. Testing of drainage pipe, Removal of leakage pipe line, Installation, fixing & maintenance of valve & cock, water meter, Fixtures, hot & cold water pipe line, Repairing & reconditioning of waste pipe line, Repairing & reconditioning, scraping & painting of sanitary fittings are being taught in the practical.

Professional Knowledge subject is simultaneously taught in the same fashion to apply cognitive knowledge while executing task. In addition, components like Physical properties of engineering materials, different types of iron, properties and uses, Heat & Temperature are also covered under theory part.

Total three projects need to be completed by the candidates in a group. In addition to above components the core skills components viz., Workshop calculation & science, Engineering drawing, employability skills are also covered. These core skills are essential skills which are necessary to perform the job in any given situation.

## 5. LEARNING OUTCOME

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*Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.*

### 5.1 LEARNING OUTCOMES (TRADE SPECIFIC)

1. Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy following safety precautions.*[Basic fitting operation – marking, Hacksawing, Chiselling, Filing, Drilling, Taping and Grinding etc. Accuracy:  $\pm 0.25\text{mm}$ ]*
2. Perform Inner & Outer Thread cutting on Metal & Studs and thread cutting on different types of pipes & fittings accessories.
3. Join wood with carpenter's tools.
4. Carry out cutting of Pipes of different Dia in different angle and Joining of pipes by gas welding, Soldering and Brazing.
5. Construct Masonry brick wall and RCC casting. Brick wall cutting for concealing pipe line.
6. Carry out Cutting and Bending of Pipes using Plumber's tools and equipment.
7. Join various type of PVC pipe by heat process or Welding.
8. Construct complete pipe line circuit with different types of Joints and fixing Cocks & valve on Pipe line.
9. Carry out cutting of different Types of PVC Pipe, joining and laying.
10. Perform Water analysis test, Water Pressure test and Water distribution system by using Pipe line.
11. Align and lay humid asbestos pipe line of different dia. and fitting & maintenance of drainage pipe line.
12. Install and maintain different Electric pumps.
13. Join fittings for different purposes on PVC pipe line.
14. Construct inspection chamber, manhole, gutter, septic tank, socket etc.
15. Test pipe line as per site drainage pipe line layout.
16. Perform removal of leakage pipe line.
17. Install, fix & maintain different valve & cock.
18. Install & maintain water metre and water supply for fixture.
19. Demonstrate method of bending for different materials & different pipe joint.
20. Perform fitting and maintenance of Fixture at different place.
21. Carry out fitting, fixing & laying installation of hot & cold water pipe line and symbolizing.
22. Perform repairing & reconditioning of waste pipe line.
23. Perform repairing & reconditioning, scraping & painting of sanitary fittings pipe line.