



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

COMPETENCY BASED CURRICULUM

WELDER (PIPE)

(Duration: One Year)

**CRAFTSMEN TRAINING SCHEME (CTS)
NSQF LEVEL- 3**



SECTOR – CAPITAL GOODS AND MANUFACTURING



Directorate General of Training

WELDER (PIPE)

(Engineering Trade)

(Revised in 2019)

Version: 1.2

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL- 3

Developed By

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1. COURSE INFORMATION

During the one-year duration of “Welder (Pipe)” trade, a candidate is trained on Professional Skill, Professional Knowledge, Engineering Drawing, Workshop Calculation & Science and Employability Skill related to job role. In addition to this, a candidate is entrusted to undertake project work, extracurricular activities and on-the-job training to build up confidence. The broad components covered under Professional Skill subject are as below:-

In the one-year duration, trainee learns about elementary first aid, firefighting, environment regulation and housekeeping etc. The practical part starts with basic pipe work viz. cutting of pipes, threading, joining, etc. Cutting Pipes in different angles, joining of pipes of different diameter and angles by gas welding, thread cutting on different types of pipes & fittings accessories. On completion of each job the trainees will also evaluate their jobs by visual inspection, and identify the defects for further correction/improvement. They learn to adapt precautionary measures such as preheating; maintaining inter-pass temperature and post weld heat treatment for Welding Alloy steel, Cast Iron etc. The Work Shop calculation taught will help them to plan and cut the required jobs economically without wasting the material and also used in estimating the Electrodes, filler metals etc. The Workshop Science taught will help them to understand the materials and properties, effect of alloying elements etc. Engineering Drawing taught will be applied while reading the job drawings and will be useful in understanding the location, type and size of weld to be carried out.

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, introduction to GTAW & GMAW, Heat & Temperature are also covered under theory part. 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

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. Join MS plates by SMAW in different positions following safety precautions.
2. Join MS sheet by Gas welding in different positions following safety precautions.
3. Perform straight, bevel & circular cutting on MS plate by Oxy-acetylene cutting process.
4. Perform different types of MS pipe joints by Gas welding (OAW).
5. Weld different types of MS pipe joints by SMAW.
6. Perform welding of Stainless steel, Cast iron, Aluminium and Brass by OAW.
7. Perform Arc gauging on MS plate.
8. Perform Plasma cutting.
9. Carry out single V groove welds on MS plates by SMAW in 1G, 2G, 3G and 4G positions.
10. Carry out single V groove welds on MS pipes by SMAW in 1G, 2G, 5G and 6G positions.
11. Perform Root pass welds in Weld single Vee butt joints on schedule 40 pipes in 1G, 2G and 5G positions by GTAW.
12. Perform Root pass welds in Weld single Vee butt joints on schedule 60 pipes and schedule 80 pipes in 6G positions by GTAW and intermediate and cover pass weld by SMAW.
13. Perform single Vee butt joint welding on MS pipes by GMAW in 1G position.
14. Carry out Dimensional inspection and testing of weldments.