



Industrial Welder

QP Code: HYC/Q9101

Full Curriculum

Module 1: Basic, Health, Safety & Security Procedures

64 hrs

In this module the trainees will be guided with all the health, safety & security procedures that need to be followed throughout the training period. It also covers 5S that needs to be maintained throughout to maintain a clean and safe working environment.

Topics:

- 5S
- Workshop Safety
- Welding Safety
- Fire Safety
- Health and Hygiene
- Basics of electricity

Module 2: Revision Of Basics Mathematics

64 hrs

In this module the trainees will be taught the basic mathematics that will be required for workshop related calculations:

Topics:

- Units of Metric, ISO and FPS
- Addition Subtraction Multiplication and Division
- Basic Calculation of area and volume
- Skills to solve problems in Fractions, Decimals, Percentage and ratio
- Basics of Algebra and understand Simple algebraic equations
- Techniques of solving simple Trigonometric problems

Module 3: Basic Manual Metal Working Skills

64 hrs

This module covers the knowledge about the basic hand tools and power tools and their operating process with specification

Topics:

- Filing
- Hacksawing
- Marking
- Number and Letter Punching, Centre punching
- Scribing profiles
- Drilling
- Counter Boring and Counter sinking
- Tapping
- Chiselling

Module 4: Measuring

40 hrs

This module covers the knowledge about the basic measuring tools used in the workshop as per job role.

Topics:

- Steel rule
- Tape
- Callipers, Vernier Calliper
- Micrometre, Bevel Protractor
- Gauges for checking welds
- Scribing profiles

Module 5: Arc Welding

184 hrs

This module includes Performing manual metal arc welding (MMAW) also known as shielded metal arc welding (SMAW) for producing a fillet and groove joints on carbon and low alloy steels in a range of welding positions as per detailed instructions received Metal Arc Welding / Shielded Metal Arc Welding.

Topics:

- Familiarisation of machine and controls
- Selection of machine and current setting
- Care and Maintenance of machine
- Preparation of work piece

- Selection of electrode
- Striking arc, maintaining and laying short beads
- Straight line beads- Flat position
- Weaved beads- Flat position
- Fillet joint - 1F and 2F
- Corner Joint – 1F and 2F
- Butt Joint – 1G and 2G
- Fillet Joint – 3F
- Butt Joint – 3G
- Fillet Joint – 4F
- Butt Joint – 4G
- Pipe joints
- Pipe to plate 1F,2F,5F and 6F
- Pipe to Pipe 1G, 2G, 5G and 6G

Module 6: MIG Welding

128 hrs

This unit is about performing manual (semi-automatic) operations for metal inert gas welding (MIG)/metal active gas welding (MAG) also known as gas metal arc welding (GMAW) for welding joints in all positions as per welding procedure

Topics:

- Familiarisation of Machine and Controls
- Setting Machine- current, wire feed rate, gas flow and pressure
- Striking Arc and bead formation
- Fillet Joint – 2F and 3F
- Butt Joints – 2G and 3G
- Butt Joint – 4G
- Pipe joints
- Pipe to plate 1F,2F,5F and 6F
- Pipe to Pipe 1G, 2G, 5G and 6G

Module 7: Manual Oxy Acetylene Cutting

136 hrs

This unit is about manual cutting using oxy-acetylene gas.

Topics:

- Safety
- Setting of cutting system
- Straight line cutting

Module 8: Oxy Fuel Machine Cutting

40 hrs

This unit includes cutting material with the help of Automatic Machine using oxy-acetylene gas.

Topics:

- Setting Equipment
- Straight cutting
- Circular cutting

Module 9: Plasma Cutting

40 hrs

Plasma arc cutting, also referred to as plasma fusion cutting or plasma cutting, is a fabrication process which employs superheated, ionized gas funnelled through a plasma torch to heat, melt and, ultimately, cut electrically conductive material into custom shapes and designs.

Topics:

- Setting equipment
- Straight cutting
- Profile cutting

Module 10: Inspection Of Welds

24 hrs

This module identifies various weld defects by using appropriate methods and equipment to check the quality, and that all dimensional and geometrical aspects of the weld are to the specification. It also checks that the welded joint conforms to the specification, by checking various quality parameters by visual inspection.

Topics:

- Visual Inspection
- Die penetration
- Magnetic Particle Testing

Module 11: Heat Treating Operations

40 hrs

This module explains the different heat treatment operations and their role in Welding Operation

Topics:

- Heat treatment principles
- Different Heat treatment operations and their purpose
- Post-weld heat treatment
- Purpose and importance of post-heating in welding
- Methods to achieve pre-heat and post heat requirements

Module 12: Non Technical Skills

64 hrs

This module explains the different heat treatment operations and their role in Welding Operation

Topics:

- Communication Skills
- Basic Computer Literacy
- Health and Hygiene
- Team Work
- 5S
- Etiquette