

Welder Syllabus

Trade Theory (Professional Knowledge)

- Importance of Trade Training
- Importance of Welding in Industry
- Metal Arc Welding, and Oxy-Acetylene Welding and Cutting
- Definition of Welding
- Arc and Gas Welding
- Process of Metal Joining Methods
- Types of Welding Joints
- Surface Cleaning
- Basic Electricity Application
- Principle of Arc Welding
- Chemistry of Oxy-Acetylene Flame
- Arc Welding Power Sources
- A.C. and D.C. Welding Machines
- Polarity
- Weld Gauges & Their Uses
- Calcium Carbide Properties and Uses
- Hydraulic Back Pressure Valve
- Oxygen Gas and Its Properties
- Gas Regulators
- Gas Welding Techniques
- Arc Blow
- Difference between Pipe Welding and Plate Welding
- Manifold System
- Gas Brazing & Soldering
- Electrode
- Classification of Steel
- Stainless Steel Types
- Welding Methods of Cast Iron
- Safety Precautions in Gas Metal Arc Welding
- Advantages of GMAW Welding
- Electro Slag and Electro Gas
- Thermit Welding Process
- Tungsten Electrodes
- Resistance Welding Process

Trade Practical (Professional Skills)

- Demonstration of Machinery used in the Trade
- Identification of Safety Equipment
- Hack Sawing
- Marking out on MS plate and Punching
- Setting of Oxy-Acetylene
- Deposit Straight Line Bead on MS plate in Flat Position

- Edge Joint on MS Sheet 2mm Thick in Flat Position without Filler Rod
- Weaved Bead on MS plate 10mm thick in Flat Position
- Setting Up of Oxy-Acetylene and Make Straight Cuts
- Beveling of MS plates 10 mm Thick
- Circular Gas Cutting on MS plate 10mm thick by profile cutting machine
- Square Butt Joint on M.S. Sheet 2 mm Thick in Flat Position
- Open Corner Joint on MS Sheet 2 mm Thick in Flat Position
- Testing of Weld Joints by Using Weld Gauges
- Inspection of Welds by Using Weld Gauges
- Square Butt Joint on M.S. Sheet 2mm Thick in Horizontal Position
- Fillet Lap Joint on M.S. Plate 10mm Thick in Horizontal Position
- Square Butt Joint on M.S. Sheet 2mm Thick in Vertical Position
- Structural Pipe Welding
- Fillet Lap Joint on M.S. Plate 10mm in Vertical Position
- Pipe Welding
- Square Butt Joint on S.S. Sheet
- Square Butt Joint on Aluminium Sheet
- Bronze Welding of Cast Iron

Workshop Calculation and Science

- Systems of Unit
- Fractions
- Ratio and Proportion
- Percentage
- Material Science
- Mass, Weight and Density
- Work, Power and Energy
- Basic Algebra
- Mensuration
- Trigonometry
- Elasticity
- Heat and Temperature
- Basic Electricity

Engineering Drawing

- Introduction and Its Importance
- Drawing Instruments
- Lines
- Free Hand Drawing
- Lettering and Numbering as per BIS SP46-2003
- Drawing of Geometrical Figures
- Sizes and Layout of Drawing Sheets
- Method of Presentation of Engineering Drawing
- Symbolic Representation used in the Related Trade
- Dimensioning Practice
- Projections
- Drawing of Orthographic Projection in 3rd Angle

Employability Skills

- Pronunciation
- Functional Grammar
- Reading
- Writing
- Speaking/Spoken English
- Basics of Computer
- Computer Operating System
- Word Processing and Worksheet
- Computer Networking and Internet
- Introduction to Communication Skills
- Listening Skills
- Motivational Training
- Facing Interviews
- Behavioural Skills
- Concept of Entrepreneurship
- Project Preparation & Marketing Analysis
- Institutions Support
- Investment Procurement
- Benefits
- Affecting Factors
- Comparison with Developed Countries
- Personal Finance Management
- Safety & Health
- Occupational Hazards
- Accident & Safety
- First Aid
- Basic Provisions
- Ecosystem
- Pollution
- Energy Conservation
- Global Warming
- Ground Water
- Environment
- Welfare Acts
- Quality Consciousness
- Quality Circles
- Quality Management System
- House Keeping
- Quality Tools