

**FURTHER DETAILS REGARDING MAIN TOPICS OF  
PROGRAMME No. 04/2020 (Item No: 10)**

**JUNIOR INSTRUCTOR (SHEET METAL WORKER)  
IN INDUSTRIAL TRAINING DEPARTMENT  
Category Number: 086/2019**

**Module 1: Basic Fitting Process**

- General discipline in the Institute
- Safety precautions in sheet metal work shop
- Metals and non-metals
- Specification of Steel Flats and Strips
- Raw material information CRCA, HRCA.MS

**Module 2: Basic Sheet Metal : Tools**

- Technical Terms in Sheet Metal work
- Measuring and Marking Tool
- Outside Micrometers
- Measurement of angles
- Combination set
- Scriber/Scratch awl
- Cutting Tool
- Hacksaw frame and blade
- Drill (Parts and function)
- Sheet Metal Mallets & Hammers
- Screwdriver
- Types of Vices
- Stake Holders
- Punches

**Module 3: Basic Sheet Metal Process**

- Sheet metal seams
- Folding and joining allowance
- Notches in sheet metal
- Development of surface
- Templates

**Module 4: Fastening**

- Rivets - Types & Uses
- Riveted Joints & spacing of rivets in joints
- Special sheet metal rivets and their applications
- Defect in rivetted joints
- Fastening of Sheet Metal (Various types of Fastening)

**Module 5: Soldering**

- Solders
- Soft soldering
- Soldered Joint
- Fluxes types and description
- Portable hand forge with blower

Making 90° elbow joining two equal diameter pipes by soldering  
'T' joints  
The right cylindrical 'Y' piece  
Make the square section segmental bend pipe

#### **Module 6: Welding Processes**

Sheet Metal Worker - Basic Welding Processes  
Surface Preparation  
Corrosion and Surface Protection  
Classification of welding processes  
High Pressure Oxy-acetylene welding equipment and accessories  
Welding blowpipe  
Types of oxy-acetylene flames  
Safety in manual metal arc welding  
Arc Welding Machines  
Setting up of arc welding plant  
Material preparation method  
Faults in gas welding  
Weld defects - Causes and remedies  
Defects in Arc welding - definition, causes and remedies

#### **Module 7: Fabrication**

Methods of developments. - Introduction to aluminum fabrication, and its applications.  
Ferrous and Non-Ferrous metals.  
Laying out pattern of conical elbows. pattern development of lobster back bends.  
Chemical and Physical properties of Aluminium. - Use of Aluminium and its Alloys  
Description of hand punch Machine. hand and Power operated drilling Machines.  
Drill Bits, parts and effects of cutting angles.  
Pipe Bending and Methods

#### **Module 8: Modern Machines & Materials**

Latest sheet metal cutting techniques: Plasma cutting, Laser cutting, water jet cutting and punching etc.  
Specification of aluminium channels angles, strips, tubes beadings, packing rubber, cardboard, glasses etc.  
Tools and equipments used in aluminium fabrication. - Assembly & Sub assembly: Gaurding assembly, Door assembly, Chassis assembly, Cabinet assembly, Power pack assembly etc.

#### **Module 9: Finishing**

Process of painting.  
Spray painting.  
Etch primer painting,  
Powder coating, buffing, grinding, and sanding. - Selection of different grit sizes.  
Sanding S : election of different grit sizes.

#### **Module 10: Autocad**

Auto CAD software and its uses.

Installing procedure of Auto CAD

.Auto CAD command & use of different menus of Auto CAD

**NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper**