

MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI - 51

1	Name of Course	C.C.in Denting / Painting & Welding of Automobiles (306114)																																								
2	Max.Nos. of Student	25 Students																																								
3	Duration	6 Months																																								
4	Type	Full Time																																								
5	Nos Of Days / Week	6 Days																																								
6	Nos Of Hours /Days	7 Hrs																																								
7	Space Required	Laboratory = 1000 Sq feet <u>Class Room = 200 Sq feet</u> TOTAL = 1200 Sq feet																																								
8	Entry Qualification	S.S.C.																																								
9	Objective Of Syllabus/ introduction	Awareness of Safety precautions. Awareness of Various Types of Denting/ Painting & Welding of Automobiles. Awareness of various types of Painting in Automobiles. Awareness of Types of Denting process in Automobile. Awareness of various welding methods in Automobile. Awareness of Repair & Maintenance of Body in Automobiles.																																								
10	Employment Opportunity	The trainee will either to be able to take up jobs with agencies which Develop, maintain and repair such Denting/ Painting & Welding of Automobiles or with working experience will be in a position to start his own independent Business.																																								
11	Teacher’s Qualification	Diploma in Mechanical/Automobile Engineering.																																								
12	Training System	Training System Per Week <table><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>12 Hours</td><td>30 Hours</td><td>42 Hours</td></tr></table>						Theory	Practical	Total	12 Hours	30 Hours	42 Hours																													
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SYLLABUS

Denting / Painting & Welding of Automobiles

Practical - II	Theory - I
<ul style="list-style-type: none"> > Dismantle body > Checking & repairing of body shell > Checking & repairing of front door, rear floor & wheel boxes 	<p>Safety measures during denting - painting & welding Different type of structure of vehicle</p> <p>Introduction & function of body & panels</p> <p>Function & types of frames.</p> <p>Types and uses of sander. Dry and wet sander.</p> <p>Denting procedure.</p>
<ul style="list-style-type: none"> > Checking & repairing of right side & left side panel with fender > Checking & repairing of roof panel & rear lower panel > Touch up work on the body of vehicle 	<p>Anti-rusted treatment under body of vehicle.</p> <p>Body prepare coating. Surface application.</p> <p>Putty / filling applications.</p>
<ul style="list-style-type: none"> > Preparation of body before painting > Use of different types of sanders (Sand type). 	<p>Priming</p> <p>Paint application.</p> <p>Clear coat application.</p> <p>Rubbing and polishing application.</p> <p>Body construction, on crash repair system & alignment</p>
<ul style="list-style-type: none"> > Painting an accidental vehicle 	<p>Checking frame alignment (car - o - liner)</p> <p>Method & types of painting.</p>
<ul style="list-style-type: none"> > Fixation of wind screen glass. 	<p>Masking of non-painting area.</p>
	<p>Paint protection treatment.</p>
	<p>Method of fixation of wind screen glass.</p>
<ul style="list-style-type: none"> > Practice on gas welding, gas brazing & gas soldering > Practice on arc welding 	<p>GAS WELDING : - Gas Welding, brazing & Soldering procedures Gas cutting practice</p> <p>ARC WELDING : - Basic Electricity and welding power source Electrodes - types, description & Specification Arc Welding procedure</p>
<ul style="list-style-type: none"> > Practice on MIG / MAG welding > Practice on TIG welding > Practice on Resistance spot welding > Practice on plastic welding 	<p>MIG / MAG WELDING: - Principles of MIG/MAG Welding MIG Welding Procedure</p> <p>TIG WELDING: - Introduction to TIG Welding Methods of Welding</p> <p>RESISTANCE & PLASTIC WELDING :- Resistance welding process - spot, seam and Butt welding. Plastic welding procedure</p>

BASIC SHEET METAL WORK and WELDING

Practical - I
Use of protective safety devices on shop floor. Identification of Tools & Equipments. Practice in Scribing of straight line, Bisection of straight lines with marking tools. Practice in cutting sheet metal to different shapes using various types of snips Folding/Bending sheet metal to 90° using wooden mallet. Practice On hard soldering method (Lead & Tin)
Making holes in sheet metal using punching machine. Making hole in sheet metal with a twist drill. Riveting practice using various types of rivet heads. Making a dust pan. Corner and handle riveted
Practice on removing dents of spherical and hemi – spherical articles. Practice on cutting cylinder obliquely. To make 90° L piece of equal diameter and join them at right angle. Practice on pipe bending by hand. Making 60° off set “T” piece (round)
Setting up of gas welding plant. Opening and closing procedure of gas welding plant. Lighting and adjustment of flame Setting up of beading practices. Setting of Arc welding plant Striking an Arc. Beading practices
Brazing, soldering & silver soldering by oxy- Ace. Process. Fusion run with / without filler rods Square butt joint on M S plate Oxy acetylene, hand cutting on M S plate Pipe Butt joint on M S pipe Production jobs as per drawing such as Furniture items, Windows, Grills.
Straight bend on M S plate. Horizontal bead on M S plate Fillet Tee joint on M S plate, open corner joint on MS plate Square butt joint on M S Single V Butt joint.

List of tools, machineries & equipments

Sl No	Item	Qty
a) TRAINEES TOOL KIT		
01	Try Square 10 cm Blade	10 Nos.
02	Callipers outside 15 cm spring	10 Nos.
03	Calliper inside 15 cm Spring	10 Nos.
04	Dividers 15 cm Spring	10 Nos.
05	Callipers 15 cm Hermaphrodite	10 Nos.
06	Scriber 15 cm	10 Nos.
07	Punch center 10 cm	10 Nos.
08	Screw driver 15 cm	10 Nos.
09	Chisel cold 20 cm	10 Nos.
10	Trammel 30 cm	10 Nos.
11	Hammer ball peen 0.5 kg with handle	10 Nos.
12	Hammer Mallet	10 Nos.
13	Hammer Plastic	10 Nos.
14	Hammer ball peen 0.25 kg with handle	10 Nos.
15	File flat 25 cm second cut	10 Nos.
16	File flat 25 cm second cut	10 Nos.
17	Hacksaw frame adjustable 20-30 cm	10 Nos.
18	Dot slot punch	10 Nos.
19	Steel rule 15 cm English and metric	10 Nos.
20	Steel rule 30 cm English and metric	10 Nos.
21	Try square 20 cm Blade	10 Nos.
22	Steel tool box	10 Nos.
23	Senber	10 Nos.
24	Lock and keys	10 Nos.
25	Combination plier	10 Nos.
26	Jenny calipers	10 Nos.