

1	Name of Syllabus	<b>CERTIFICATE COURSE IN ADVANCED WELDING. (303117)</b>																																								
2	Max. No's of Student	25 students																																								
3	Duration	6 Month																																								
4	Type	Part Time																																								
5	No's Of Days / Week	6 Days																																								
6	No's Of Hours /Days	4 Hrs																																								
7	Space Required	Workshop = 600 Sq feet Class Room = 200 Sq feet TOTAL = 800 Sq feet																																								
8	Entry Qualification	Any Course Pass of MSBVE in Welding OR ITI Welding / COE in P&M / Fabrication / HSC Vocational / Diploma / Degree in Mechanical / Production Group																																								
9	Objective Of Syllabus/ introduction	Introduction – the syllabus of C.C. In Advance Welding has been evolved in such a way that after completion of course of 6 months , the student would acquire good working skill suited to work as Welder workshop .He would also gain confidence to operate arc and gas welding , TIG /MIG Welding develop . <b>Objective:-</b> . 1) Develop skill in Fabrication by providing adequate knowledge of welding. 2) Develop confidence and entrepreneurship by arranging industrial visit and arranging study lecture of personnel from industries																																								
10	Employment Opportunity	self employment & employment																																								
11	Teacher's Qualification	ITI/NCVT in Welder & 2 Year experience.																																								
12	Training System	<table><tr><th colspan="7">Training System Per Week</th></tr><tr><th colspan="2">Theory</th><th colspan="2">Practical</th><th colspan="2">Total</th><th></th></tr><tr><td colspan="2">6 Hours</td><td colspan="2">18 Hours</td><td colspan="2">24 Hours</td><td></td></tr></table>						Training System Per Week							Theory		Practical		Total			6 Hours		18 Hours		24 Hours																
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13	Exam. System	<table><tr><th>Sr. No.</th><th>Paper Code</th><th>Name of Subject</th><th>TH/PR</th><th>Hours</th><th>Max. Marks</th><th>Min. Marks</th></tr><tr><td>1</td><td>30311711</td><td>ADVANCE WELDING</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30311721</td><td>ARC WELDING</td><td>PR- I</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td>3</td><td>30311722</td><td>GAS WELDING</td><td>PR-II</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td></td><td></td><td>TOTAL</td><td></td><td></td><td>400</td><td>185</td></tr></table>						Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	30311711	ADVANCE WELDING	TH-I	3 hrs	100	35	2	30311721	ARC WELDING	PR- I	6 hrs	200	100	3	30311722	GAS WELDING	PR-II	3 hrs	100	50			TOTAL			400	185
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**Syllabus :- ADVANCED WELDING**

<b>Sr.no</b>	<b>THEORY - I ADVANCE WELDING</b>
1	HEAT AND Temperature.
2	Method of cleaning and preparation base metals before welding.
3	Chemistry of oxy-acetylene flame.
4	Gas cutting process Principle of Gas cutting.
5	Coding Electrode as per A. W. S. IS.
6	Filer rods and Flux.
7	Testing of weld, methods, Non-destructive and Destructive.
8	Oxy-Acetylene hand cutting piercing hole and profile cutting.
9	Welding symbols, Elementary symbol and supplementary symbol.
10	Oxidation :- its causes and effects in welding and Defects
11	Difference between plate welding and pipe welding.
12	Various types of pipe Joints.
13	Submerged Arc welding.
14	Resistance welding machine spur, seem, Butt, Flash,
15	Pipe welding method of pipe development for elbow, joint.
16	Fusion welding Cast Iron.
17	Bronze welding of cost iron.
18	Bronze welding of copper.
19	a. M. I. G. Welding. b. (TIG) Tungsten Arc Welding.
20	Welding of Stainless Steel.
21	Aluminum Welding and Its Allay.
22	Soft solder hard solder and silver brazing.
23	Metallic arc cutting and gauging.
24	P. V. C. Welding technique.
25	Revision and Test.

<b>SR.NO</b>	<b>PRACTICAL - I ARC WELDING</b>
1	Ex-1 E / One Fillet weld, M.S plate – 10 mm, thick flat position..
2	Ex-3-Arc. Out side corner joint M. S. plate 2 mm. thick vertical positions.
3	Ex-4-E/Arc. Fillet welds M.s.plate 10 mm, thick vertical position.
4	Ex-5-E/Arc. Fillet weld in sheet to pipe in flat position. (flange) pipe and 50 mm.
5	Ex-7-E/Arc. Double 'V' Butt M. S. plate 12 mm. Thick flat position.
6	Ex-9-E/Arc. Pipe Butt Weld on M.S. pipe and 50 mm.'1G8' position.
7	Ex-11-E/ Arc. mPipe Tee joint on M. S. pipe and 50 mm. flat position.
8	Ex-18-E/Arc. Deposition Hand facing (material ) Beads on M.S. plate (10 mm. in flat position.
9	Ex-20-E/ Arc. Fillet Joint on stainless steel plate 10 mm. flat position.

10	Ex-22-E/Arc. P. V. C. welding Butt Joint on P.V. C. plate ( 2mm thick ) position.
11	Ex-23-F/Arc. P. V. C. welding pipe Butt Joint (plate p. v. c. pipe and 50 mm.) flat position.
12	Ex-24-E/Arc. T. I. G. welding aluminum Butt Joint (plate 3 mm, thick) flat position.
13	Ex-25-E/Arc. M. I. G. welding square Butt Joint on M. S. plate (6 mm. thick ) flat position.

SR.NO	PRACTICAL - II GAS WELDING
1	Ex-2- Gas. Square butt joint M. S. plate-2 mm.. Thick flat position.
2	Ex-6-Gas. Oxy- Acetylene Manual Hand cutting straight and bevel cut. M. S. plate 10, 12, 15, mm.
3	Ex-8-E/Gas. Pipe Butt weld on M.S. pipe and 50 mm. '1G' position.
4	Ex-10-Gas. Fusion welding in single vee butt on cast Iron plate in flat position.
5	Ex.12-Gas. Bronze welding of east iron plate in flat position C.I. plate 10mm, thick.
6	Ex. -13-Gas.Bronze weld on copper sheet in lap fillet flat position.. Copper sheet 3 mm. thick.
7	Ex .-14-Gas.Square butt joint on Brass sheet 3 mm, position flat.
8	Ex.-15-Gas. Brass welding Butt joint (Brass sheet 3,4,mm. thick) position flat.
9	Ex-16-Gas. Aluminum welding butt joint plate 3,4,5, mm. flat position.
10	Ex-17-Gas. Oxy-Acetylene-Machine cutting straight and Bevel M. S. plate 10 to 15 mm. thick.
11	Ex-19-Gas. Square Butt Joint on stainless steel plate 2 mm. flat position.
12	Ex-21-Gas. Oxy-Acetylene flame gouging on M.S. plate (12 mm. thick ) removing weld and cutting rivets.
13	Ex-26. Project 1) Iron Table 2) Metal Rack.

### LIST OF TOOLS AND EQUIPMENTS

Sr. No.	Trainees Kit	For Trainees
1	Gloves Pair leather.	15
2	Apron Leather.	15
3	Screen welding Helmet, Screen welding Hand,	06
4	Goggles pair welder.	06
5	Chisel cold flat 19 mm, 25 mm, X200 Long.	3 each
6	Centre punch 9 mm X 127m mm.	06
7	Dividers 20 cm.	02
8	Caliper outside spring 20 cm.	02
9	Wire Brush 15 cm X 3.7. cm.	15
10	Spark lighter.	02
11	Chipping screen Hand.	06
12	Safety Boots for welder.	15
13	Safety goggles.	15
14	Shop our fit.	--

15	Rule 30 cm. (Brass or steel)	05
16	Square Blade 15 cm.	05
17	Scriber 15 cm.	05
18	Tongs Holding 30 m.	05
19	Hammer Ball pen with handle 800 grm.	03
20	Chisel cold cross 9 mm.	03
21	Screw driver 25 cm blade and 20 cm blade.	02
22	Number punch 6 mm and letter punch,	1 set each.
23	Hack saw frame adjustable	06 no
24	Magnifying glass 15 cm -	01 no
25	Weld measuring gauge fillet and butt.	01 no
26	File Half round, Bastard 30 cm,	04 nos
27	File flat 35 cm rough.	04 nos
28	Spanner set D. E. 6 mm. to 15 mm. 15 mm.	01 set
29	Clamps 'C' 10 cm, 20cm, 30cm.	02 each
30	Hammer Sledge double faced.	01 no.
31	Pipe Wrench 15 cn, and 35 cm.	01 no
32	Steel tape 182 cm flexible.	02 no
33	Welding Touches with 5 to 6 nozzles (High Pressure)	02 set
34	Earth Clamps.	01 no
35	Pipe Cutter.	01 no
36	Cutting torch, oxy-acetylene, with cutting and gauging tip.	02 set
37	Electrode Holder 300 Amp Cap.	06 no
38	Welding rubber hose axygone & Acetylene (7 mm)	10 Meter Red 10 Meter Black
39	Rubber house Clips 10 mm	05 nos
40	Spindle key for Opening Cylinder.	02 nos
41	PRESSURE REGULATOR OXYGON Double stage. Pressure regulator acetylene Double stage.	04 nos 04 nos
42	Tip Cleaner.	02 set
43	Glasses clear 50 mm Dia Glasses white 108 mm X 58 mm.	05 nos 05 nos
44	Glasses clear 50 mm Dia. Glasses colored 50 mm Dia.	10 nos 10 nos
45	Glasses clear 108 X 82 mm. Glasses colored 108 X 82.	10 nos 10 nos
46	Out fit spanner	02 nos
47	Leather Sleeves 58 cm.	15 pair
48	Dies Grinder Portable 100 mm dia.	01 nos
49	Transformer Welding 200-300 amp with all accessories	2 set
50	Arc welding Set, rectifier type 200-300 amps continues welding current.	1 set
51	Lungs for cables 300 amp	05 no
52	Oxygen cutting Machine (line and Circle)	1
53	Gas welding tangle 122 cm X 92 cm X 60 cm. fire bricks on stand with positional	1
54	Arc welding table all metal with positioned 122 cm X 92 cm	3 set

	X 60 cm. welding Booth.	
55	Trolley for cylinders (H. P. unit)	1 no
56	Bench shear hand capacity up to 10 mm.	1 no
57	D. E. Grinder 30 cm wheel motorized pedestal type/ bench	1 no
58	Vice Bench 15 cm jab	6 no
59	Bench working 182cmX 122cm X62 cm.	1 no
60	Steel almirah 182 X 122 cm X 45 cm	1 no
61	Lockers steel with for 18 holes pigeon.	1 no
62	Fire Buckets with stand	1 no
63	Fire extinguishers (foam type and co2 type)	1 no
64	Metal rack 182 cm X 45 cm.	1 no
65	Instructors table	1
66	Black Board with stand	1
67	Chair	1
68	First Aid Box	1
69	Gas cutting table	1 table
70	Fire Bricks	10 Bricks
71	Welding cable 300 amp copper.	20 Meter

• **REFERENCE BOOK**

1. WELDING TECHNOLOGY ; M. B. DANDGAWAL.
2. TRADE THEORY : CIMI ( CENTRAL INSTRUCTIONAL MEDIA INSTITUTE.)  
MADRAS.
3. TRADE PRACTICAL : -----DO-----
4. WEDLIDING TRADE THEROY :- S.K.SINGH
5. WELDING THEORY:- TATA MACGRAW

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