

**WELDER-COMBINATION, FITTER, ARC MACHINE OPERATOR
AND TECHNICIAN
STUDENT INTERNSHIP SKILLS LIST
Provo School District**

This list is designed to help you obtain considerable information during your internship program. The column on the left will designate various procedures used in your job. When you have performed a procedure, record the date and have your mentor or sponsor initial the square.

PROCEDURES OR SKILLS	DATE	INITIAL	DATE	INITIAL	DATE	INITIAL
WELDER, COMBINATION						
SHIELDED METAL ARC WELDING						
1. Machine settings, polarity used, voltage, amperages, cable size selection						
2. Electrodes identification and uses (American Welding Society number system) coating flux analysis						
3. Manual horizontal welding						
4. Manual vertical up and down welding						
5. Manual overhead welding						
6. Manual pipe welding all positions						
7. Hardfacing electrodes						
GAS METAL ARC WELDING						
8. Machine settings, polarity uses, voltage, amperage, slope and inductance uses						
9. Short arc, spray arc, pulse arc uses and selections						
10. Uses and selections of shielding gases						
11. Selection of alloy wires, solid and tubular, and flux cored						
12. Hardfacing wires						
13. Actual welding time experience						
SUBMERGED ARC WELDING						
14. Machine settings, polarity uses, voltage, amperage, slope and inductance uses						
15. Granular and agglomerated fluxes and their uses and selections						
16. Operation of flux recovery and processing equipment						
17. Care and operation of solid state electrical systems in submerged arc welding console and welding positioner						

18. Selection of solid wires and tubular wires and their uses			
19. Actual welding time and experience			
GAS TUNGSTEN ARC WELDING			
20. Machine settings, polarity uses, voltage, amperage, high frequency uses and gas functions and selection			
21. Selection of shielding gases, and their effect on various metals and alloys			
22. Actual welding tie experience			
OXYGEN ACETYLENE CUTTING AND WELDING			
23. Selection of equipment and gas regulation, cylinder manifolding, pressure settings			
24. Cylinder gas handling and physics of gases			
25. "Safety in Welding and Cutting" (AWS handbook)			
26. Actual time and experience welding			
29. Machine torch cutting			
30. Hardface weld cladding			
31. Powder spray torch fusewelding			
METALIZING, FUSED METALIZING COATINGS AND ARC-SPRAY METALIZING			
32. Setting up equipment and preparation of parts to be processed			
33. Selection and identification of materials in wire form, powdered alloy form			
34. Machine settings and operations			
35. Actual time and experience			

ELECTRICAL PRACTICES			
36. Maintenance and repair of electrical welding power source units			
37. Basic wiring of primary electric current			
38.			
39.			
40.			
WELDER-FITTER			
SHOP INFORMATION			
1. Safety procedures			
2. Stocking and storage procedures			
3. Tool and equipment maintenance			
4. Job ticket information			
RIGGING			
5. Safety procedures			
6. Use of ropes, cables, chains			
7. Cranes, derricks, jacks			
8. Cable splicing			
9. Field rigging			
10. Moving, loading, lashing			
MAINTENANCE OF EQUIPMENT			
11. Care and use of tools			
12. Dismantling			
13. Field rigging			
14. Moving field equipment			
LAYOUT AND FABRICATION			
15. Cutting			
16. Bending			
17. Assembling			
18. Tacking and welding			

WELDING			
19. Acetylene			
20. Electric arc welding			
21. Cutting and burning			
22. Mig and Tig			
23.			
24.			
25.			
WELDING-MACHINE OPERATOR, ARC			
1. Set-up and operation of equipment			
2. Selection of proper rods and fluxes			
3. Welding of hub equipment- (molds, trimmers, etc)			
4. Weld repair of press forming equipment			
5. Pre-heat and post-heat of glass forming equipment			
STUD WELDING			
6. Set-up and operation of electric-arc stud welder			
7. Set-up and operation of capacitor discharge stud welder			
8. Locating stud position by use of templates and drawings			
OXYGEN, ACETYLENE WELDING			
9. Use and maintenance of oxygen/acetylene welding equipment			
10. Weld repairing super alloy and precision case mold equipment			
FUSEWELDING (POWDER)			
11. Use and maintenance of fusewelding torch and related equipment			
12. Repairs to cast iron mold equipment where build-up type repair or alteration is required.			
PLASMA SPRAY			
13. Set-up as required for mold, roll, plunger, and related forming equipment spraying			
14. Dimensional checks of items prior to, between coatings, and after coating			
15. Spraying techniques in horizontal and vertical positions			
16. Equipment preparation prior to coating application			

WIRE SPRAY			
17. Set-up and maintenance of equipment			
18. Surface build-up of forming related equipment			
ELECTRIC WELDING			
19. Set-up and operation of various electrical welding equipment			
20. Welding non-ferrous and ferrous alloys including: cast iron, root and cold rolled steel, stainless steel, and aluminum			
21. Job preparation			
MISCELLANEOUS			
22. Grinding			
23. Preheat			
24. Safety involved			
25. Operation of blase cleaning equipment			
26.			
27.			
28.			
WELDING TECHNICIAN			
BEGINNER			
1. Introduction: Set-up and adjustment of oxygen/acetylene equipment			
2. Running a bead without a filler rod			
3. Running a bead with a filler rod			
4. Open-butt joint, flat position			
5. Open-butt joint, vertical position			
6. Flat-lap joint			
7. Fillet or "T" joint, flat position			
8. Oxygen/acetylene cutting			
9. Brazing, flat position			
10. Brazing, vertical position			
11. Introduction: Set-up and adjustment of electrical welder			
12. Running a bead with 5/32" E6010 and 1/8" E7018 L.H.			

13. Flat-lap joint with 5/32" E6010 and 1/8" E7018 L.H.			
14. Fillet or "T" joint, flat position with 5/32" E6010 and 1/8" E7018 L.H.			
15. Vertical up hand and down with 5/32" E6010 and 1/8" E7018 L.H.			
16. Horizontal lap with 5/32" E6010 and 1/8" E7018 L.H.			
17. Overhead "T" with 5/32" E6010 and 1/8" E7018 L.H.			
18. Introduction: Set-up and adjustment of MIG welder			
19. Fillet or "T" joint, flat position			
20. Fillet or "T" joint, horizontal position			
21. Fillet or "T" joint, vertical up position			
22. Fillet or "T" joint, vertical down position			
23.			
24.			
25.			
ADVANCED			
26. Vertical up-open butt with backing strip-first passes with 5/32" E6010, remainder with 1/8" E7018 L.H.			
27. Over-head-open butt with backing strip-first two passes with 5/32" E6010, remainder with 1/8" E7018 L.H.			
28. Introduction, set-up and adjustment of T.I.G. welder for aluminum			
29. Aluminum bead welding with filler rod			
30. Aluminum lap weld, flat position			
31. Aluminum lap weld, horizontal position			
32. Aluminum lap weld, vertical position			
33. Aluminum fillet or "T" joint, flat position			
34. Aluminum fillet or "T" joint, vertical position			
35. Introduction, set-up and adjustment of T.I.G.			
36. Stainless steel bead welding			
37. Stainless steel lap joint, flat position			
38. Stainless steel lap joint, horizontal position			
39. Stainless steel lap joint, vertical position			

40. Stainless steel fillet or "T" joint, vertical position			
41. Stainless steel fillet or "T" joint, flat position			
42. Introduction, set-up and adjustment of T.I.G. welder for A.S. 18 filler rod			
43. Running a bead with A.S. 18 filler rod			
44. Open butt "U" groove 1/4" mildsteel, flat position			
45. Open butt "U" groove 1/4" mildsteel, horizontal position			
46. Open butt "U" groove 1/4" mildsteel, vertical position			
47. Open butt "U" groove 1/4" mildsteel, overhead position			
48. Pipe fixed position open butt in 60 position unhand root and hot passes with 1/8" E6010, remaining passes with 1/8" E7018 L.H.			
49. Pipe fixed position open butt in 60 position downhand root and hot passes with 1/8" E6010, remaining passes with 1/8" E7018 L.H.			
50. Pipe fixed position open butt in 6G position T.I.G. root and hot passes with A.S. 18 filler rod, remaining passes with 1/8" E7018 L.H.			
51. Pipe fixed position open butt in 6G position with consumable backing ring T.I.G. root			
52. Pipe fixed position open butt in 6G position with non-consumable backing ring, 1/8" E6010 for root and hot passes, remaining passes with 1/8" E7018 L.H.			
53.			
54.			
55.			