

PLANT MAINTENANCE – WELDER

APPENDIX A

O*NET CODE 51-4121.06

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

WORK PROCESSES

	Approximate Hours
A. Basic Techniques	1,000
1. Following all safety procedures and policies	
2. Understanding oral or written work instructions	
3. Using hand tools and measuring devices	
4. Performing simple welding with different processes	
5. Simple burning by hand with oxy-acetylene	
6. Assisting journey-level welders	
7. Simple blueprint reading and fabrication/repair	
8. Simple welding to meet American Welding Society (AWS) codes and standards	
9. Cosmetic grinding (if applicable)	
10. Performing preventive maintenance and minor repair of welding equipment	
B. Oxy-acetylene Welding and Cutting	1,000
1. Following all safety procedures and policies	
2. Performing a variety of cutting operations on different thicknesses of steel	
3. Setting up templates and using burning table	
4. Performing oxy-acetylene welding	
C. Soldering and Brazing	200
1. Following all safety procedures and policies	
2. Soldering	
3. Brazing	

D. G.T.A.W. (T.I.G.)	1,950
1. Following all safety procedures and policies	
2. Reading blueprints for advanced welding	
3. Setting up fixtures for complex welding assemblies	
4. Using inert gas as a backing	
5. Setting up and using an automatic voltage-controlled welding head and automatic wire feed	
6. Welding of carbon steel and stainless steel	
7. Welding of dissimilar metals	
8. Demonstrating knowledge of filler metals and their applications	
9. Using G.T.A.W. process and conforming to AWS codes and standards	
10. Demonstrating basic knowledge of T.I.G. torches, parts, machines	
E. G.M.A.W. (M.I.G.)	1,950
1. Following all safety procedures and policies	
2. Setting up machines and wire	
3. Welding carbon steel and stainless steel	
4. Demonstrating knowledge of filler metals required for carbon steel and stainless steel	
5. Welding to AWS codes and standards	
6. Demonstrating basic knowledge of M.I.G. torches, parts, machinery	
F. Rigging	400
1. Following all safety procedures and policies	
2. Using such devices as chain fall, lift, hoist, jack	
3. Recognizing load limits	
G. Layout and Fixtures	1,000
1. Layouts (simple to complex)	
2. Designing and building appropriate and effective fixtures	
3. Using machine tools such as mill, lathe, drill press	
H. Inspection and Quality Control	500
1. Using precision measuring instruments, such as gauges, calipers, comparators	

2. Working with thin-gauge materials (if applicable)
3. Working to close tolerances (such as .015 inch)

Approximate Total Hours 8,000

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <https://dol.ny.gov/public-work-and-prevailing-wage>

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APPENDIX B

RELATED INSTRUCTION

Safety and Health

1. Avoiding Overexposure to Fumes
2. Burn Protection
3. Electrical Safety
4. Lockout/Tagout
5. Fire and Explosion Prevention
6. First Aid – minimum 6.5 hours every 3 years
7. Good Housekeeping
8. Proper Lifting Techniques
9. Proper Use of Personal Protective Equipment (PPE)
10. Protecting Against Noise
11. Radiation Protection
12. Right-to-Know/Material Safety Data Sheets (MSDS) for All Hazardous Materials Used on the Job
13. Safeguarding Vision
14. Scaffold/Platform Safety (if applicable)
15. Sexual Harassment Prevention – must comply with Section 201-g of the Labor Law

Blueprints

1. Basic Blueprint Reading
2. Advanced Blueprint Reading
3. Weld Symbols
4. Reading Welding Charts
5. Reading Codes and Standards
6. Layout

Mathematics

1. Fundamentals
2. Trade Applications
3. Precision Measurement

Trade Theory and Science

1. Safe Use and Care of Hand and Power Tools
2. Safe Use and Care of Equipment and Machines
3. Terminology
4. Metals Used in the Trade and Their Properties
5. Fundamentals of Electricity
6. Oxy-acetylene Welding and Cutting
7. G.T.A.W.
8. G.M.A.W.
9. Fixtures and Fixture Design
10. Inspection and Quality Control
11. American Welding Society Certification Course (optional)

Other Related Courses as Necessary

A minimum of 144 hours of Related Instruction is required for each apprentice for each year.

Appendix B topics are approved by New York State Education Department.