

# PLANT MAINTENANCE – MECHANIC (4 YEAR)

## APPENDIX A

O\*NET CODE 49-9042.00

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

	<b>Approximate Hours</b>
<b>A. Tools and Equipment</b>	<b>500</b>
1. Familiarizing self with supplies and stockroom.	
2. Safe use and care of hand tools, power tools, machines, and equipment.	
3. Safe use and care of ladders, scaffolding and rigging.	
<b>B. Machine Maintenance and Repair</b>	<b>1,300</b>
1. Installing machinery and equipment.	
2. Lubrication.	
3. Preventive maintenance.	
4. Inspecting machinery and equipment. Diagnosing problems or malfunctions.	
5. Disassembling machinery and equipment.	
6. Repairing defective parts.	
7. Installing new or repaired parts.	
8. Re-assembling machinery and equipment.	
9. Making adjustments as needed.	
10. Recording work done.	
<b>C. Machine Tools</b>	<b>800</b>
1. Safe operation of:	
a. lathe	
b. milling machine	
c. grinding machine	
d. router	
e. power saw	

f. drill	
<b>D. Electrical Repair</b>	<b>2,000</b>
1. Safe installation and repair of:	
a. lighting, fusing, circuit breakers	
b. basic circuit wiring	
c. motors (AC, DC, multi-phase)	
d. instrumentation	
e. controls	
f. power distribution system	
<b>E. Pipefitting</b>	<b>1,000</b>
1. Layout of pipe systems and related hydraulic and pneumatic equipment.	
2. Installation.	
3. Repairing pipe systems.	
4. Replacing element of pipe systems.	
5. Installing and repairing pumps and compressors.	
6. Installing and repairing valves and controls.	
<b>F. Cutting and Welding</b>	<b>500</b>
1. Using protective clothing and equipment	
2. Burning and cutting.	
3. Welding.	
4. Brazing and soldering.	
<b>G. Sheet Metal Working</b>	<b>500</b>
1. Layout	
2. Cutting and shaping	
3. Forming	
4. Fitting	
5. Fabrication	
<b>H. General Building Maintenance</b>	<b>400</b>
<b>I. Painting</b>	<b>400</b>
1. Priming, painting and finishing:	
a. plaster	

- b. wood
- c. metal

**J. Carpentry** **600**

1. Reading rough sketches and blueprints
2. Layout
3. Selecting and using proper stock.
4. Joining and attaching.
5. Building small items such as cupboards, shelves.
6. Making minor building alterations such as partitions.

**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**

1. Fundamentals of trade safety, including lockout procedures
2. Hazardous materials
3. First Aid (minimum 6.5 hours every 3 years)
4. Asbestos Safety: course approved by NYS Department of Health for “Operation and Maintenance” certificate. Annual refresher training optional.
5. Sexual Harassment Prevention – must comply with Section 201-g of the Labor Law

#### **Blueprints**

1. Elementary blueprint reading (electrical and mechanical)
2. Advanced blueprint reading (electrical and mechanical)
3. Sketching and layout

#### **Mathematics**

1. Fundamentals of mathematics
2. Shop math
3. Estimating
4. Using handbooks and reference tables

#### **Industrial and Labor Relations (20 hours)**

1. History and background (6 hours, first year)
2. Current laws and practice (14 hours, second year)

#### **Trade Theory and Science**

1. Materials of the trade
2. Hand tools and portable equipment
3. Machining and machine tools
4. Fundamentals of mechanics
5. Inspection of tools and machinery
6. Oils, lubricants, and coolants
7. Gears, bushings, and bearings

8. Plant layout
9. Rigging and moving principles
10. Installation of machinery and controlling auxiliaries
11. Welding
12. Fundamentals of electricity
13. Power transmission equipment
14. Basic pipefitting
15. Hydraulic and pneumatics
16. Basic Sheetmetal work
17. Basic carpentry

144 hours of Related Instruction are required for each apprentice for each year.

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