

PLANT MAINTENANCE – ELECTRICIAN/MECHANIC

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

	Approximate Hours
A. Tool and Supply Room	200
1. Learn size of wire condulets and conduits simple meters, bending of conduit, use of tools and how to determine the size of load safety.	
B. Lighting	200
1. Replacement of incandescent lamps and hot cathode fluorescent tubes and starters.	
2. Repair of fluorescent fixtures, replacing ballast, socket and wiring, code requirements.	
3. Safety.	
C. Trouble Shooting AC Wiring	300
1. Learn to locate and repair contactor problems, replacing contacts and contactor. Locate and replace blown fuses.	
2. Check and repair limit switches, push buttons, etc.	
3. Safety.	
D. Minor AC Motor Repair	200
1. Learn to disassemble and assemble motors, replacing bearings, cleaning, checking and painting windings.	
2. User of Megger.	
E. Three Phase Motor Repair	100
1. Learn to locate and repair grounds, repair and cutting of bad coils.	
2. Tapping and reconnecting windings for voltage changes.	
3. Safety.	

F. Special Circuits AC	500
1. Learn to read wiring diagrams. Operation of special control circuits, time delay switches, electrical braking.	
2. Safety.	
G. Direct Current Machinery	1,000
1. Learn to locate and repair direct current motor and generator troubles in fields, armatures, bearings, brush holders, and commutators.	
2. Knowledge of variable speed DC drives, motor generators.	
3. Repair and maintenance of DC contactors and field control.	
4. Battery maintenance, battery chargers (rectifier and motor generator types).	
5. Safety.	
H. General Wiring	500
1. Learn proper handling and installation of power feeding, wiring, fuse panels, breakers, etc.	
2. Estimate load requirements.	
3. Code requirements.	
4. Install general wiring.	
5. Safety.	
I. Instruments	100
1. Learn proper use and care of voltmeter, ammeter, watt meter, power factor meter and recording meters, etc.	
2. Safety.	
J. Industrial Electronics	1,000
1. Installation, operation and repair of electronic electrifiers, speed control units, etc.	
2. Safety.	
K. Care, Use and Safety of Tools and Equipment	500
1. Hand tools, power tools, machines and power equipment, ladders, scaffolding and hoists.	

L. Machine Repair (Mechanical)	1,500
1. Assembly and disassembly, bearings, power transmission, construction, rigging, lubrication.	
2. Safety.	
M. Bench Work and Machinery	300
1. Lathes, milling machines, grinding machines, drill press, power saw, etc.	
2. Safety.	
N. Pipefitting	300
1. Layout, installation, repair, replacement, pumps and compressors, valves and controls.	
2. Safety.	
O. Welding	500
1. Protective clothing and equipment, burning and cutting, controls and gauges, electric arc welding, properties of metals.	
2. Safety.	
P. Sheet Metal Working	200
1. Layout, cutting and shaping, forming, fitting, fabrication.	
2. Safety.	
Q. General Building Maintenance	200
R. Painting	200
1. Priming, painting and finishing on plastic, wood, metal.	
2. Safety.	
S. Carpentry	200
1. Reading, blueprints, layouts, selection and use of stock, methods of joining and attaching, minor building alterations.	
2. Safety.	
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 (24 hours)

1. Fundamentals – 4 hours first year
2. Trade Safety – 12 hours second year
3. First Aid – minimum 6.5 hours every 3 years
4. Asbestos Awareness – minimum 4 hours (see attachment)
5. Sexual Harassment Prevention – must comply with Section 201-g of the Labor Law

Blueprint Reading

1. Elementary
2. Advanced
3. Sketching & Layout
4. For Electricians
5. Elec. Civ Diagrams

Mathematics

1. Fundamentals
2. Math for Electricians
3. Math for Shops
4. Use of Handbook & Reference Tables

Trade Theory and Science

1. Tools & Equipment
2. Terminology
3. Materials
4. Stock Room
5. Lighting Installations
6. Power Wiring
7. Rigging
8. Troubleshooting
9. Line Wiring

10. Inspection of Tools & Machinery
11. Plant Lay-out
12. Gas & Electric Welding
13. Power Transmission Equipment (gears – bushings – bearings)
14. Lubrication
15. Care & Use of Tools & Machinery
16. Fundamentals of AC
17. Fundamental s of DC
18. Fundamentals of Motors & Generators
19. Fundamentals of Transformers

Other Related Courses as Necessary

144 Hours of Related Instruction is Required for Each Apprentice for Each Year.

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

ATTACHMENT TO APPENDIX B

Asbestos Awareness

This course must be delivered by one of the following:

1. A provider currently approved by the New York State Department of Health to deliver asbestos safety training.
2. A person holding a current Asbestos Handler certificate from the New York State Department of Labor in the title of: Inspector, Supervisor, Project Monitor, Management Planner, or Project Designer.
3. Anyone otherwise approved by the New York State Education Department.

Minimum course contents must include the following:

1. Definition of asbestos
2. Types and physical characteristics
3. Uses and applications
4. Health effects:
 - a. Asbestos-related diseases
 - b. Risks to families
 - c. Cigarette smoking
 - d. Lack of safe exposure level
5. Employer-specific procedures to follow in case of potential exposure, including making a supervisor or building owner immediately aware of any suspected incidental asbestos disturbance so that proper containment and abatement procedures can be initiated promptly.

Notwithstanding the above course requirement, employers are advised that they must also be in compliance with New York State Department of Labor Industrial Code Rule 56 at all times.

Employers are further advised, and must advise all apprentices, that completion of the above course requirement does not authorize any person to remove, encapsulate, enclose, repair, disturb, or abate in any manner, any friable or non-friable asbestos, asbestos containing material, presumed asbestos containing material, or suspect miscellaneous asbestos containing material.