



STATE OF NEW YORK
DEPARTMENT OF LABOR

APPENDIX A

INSTRUMENT TECHNICIAN
D.O.T. CODE 710.281-030
O*NET CODE 85905

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

	<u>Approximate Hours</u>
A. Care and Use of Tools and Equipment	1000
1. Tools	
Screw Drivers, Wrenches, Hammers, Chisels, Back Saw, Files, Electric Hand Drill, Air Hammer, Cartridge Gun, Prods, Pliers	
2. Test Equipment	
Watt Meters, Volt Meters, Ohm Meters, Amp Meters, Oscilloscopes, Tube Testers, Audio Oscillators, KW. HR. Meters, Calibration Tanks	
3. Machinery	
Bench Grinder, Drill Press, Buffer, Welder (Thermocouples)	
B. Safety Precautions and Devices	500
1. Mechanical Equipment	
2. Hand Tools	
3. Electrical	
a. Tag and lock out procedures	
b. Use of protective equipment	
c. Use of voltage tester	
C. Instrument Installation and Repairer	5000
1. Types of Instruments or Equipment	
a. Recording	
1) Temperature	
2) Controllers	
3) Atmosphere	
b. Testing	
1) Sonic	
2) Thickness Gauges	
c. Control	
1) Timers	
2) Temperatures	
3) Valve Control Motors	

- C. Instrument Installation and Repairer – Continued
 - 1. d. Output
 - 1) Amplifiers
 - 2) High Frequency Generators
 - e. Miscellaneous
 - 1) Thermocouples
 - 2) Potentionmeters
 - 3) Thermometers
 - 2. Installation Procedures
 - a. Planning
 - 1) Check specifications, blueprints, diagrams, drawings or instructions for the job
 - 2) Determine what equipment, material, etc., is necessary for the job
 - 3) Prepare requisitions accordingly
 - b. Preparation for Installation
 - 1) Determine from blueprints the location of installation
 - 2) Make a safety check
 - 3) Prepare layout
 - 4) Check availability of utilities needed, etc.
 - 5) Calibrate and adjust equipment
 - c. Installation
 - 1) Install fasteners
 - 2) Set equipment
 - 3) Wire or connect, adjust in accordance with instructions or driections
 - 4) Check and test operation
 - 3. Repair of Instruments
 - a. Check instrument to determine source of trouble
 - 1) Check circuiting
 - 2) Test tubes, condensers, resistors, etc.
 - 3) Check mechanical parts.
 - b. Remove defective parts, wiring, etc., and replace or repair
 - c. Calibrate or otherwise adjust equipment
 - d. Check operations
 - 1) test output, etc.
 - 4. Maintenance of Instruments
 - a. Cleaning and lubrication
 - b. Checking standard cells
 - c. Installation of charts, changing charts, etc.
 - d. Inking pens, cams, etc.
 - e. Checking humistats
 - 5. Checking Testing and Troubleshooting Procedures
 - a. Check power input
 - b. Check tube
 - c. Check condenser and transformer

- C. Instrument Installation and Repairer – Continued
- 5. d. Check wiring
 - e. Check resistor valve
- D. Electrician Repair and Maintenance 1500
- 1. Types of Electrical Equipment
 - a. Fractional H.P. Motors
 - b. Motor driven valves
 - c. Motor driven switches
 - d. Solenoids
 - e. Transformers
 - f. Relays
 - g. Condensers
 - h. Coils
 - i. Contacts
 - j. Timers
 - k. Switches other than motor driven
 - 2. Method and Procedure for Repairs and Maintenance
 - a. Motor Driven Equipment
 - 1) Disassemble equipment
 - 2) Remove motor
 - 3) Disassemble motor
 - 4) Check armature, windings and gashes
 - 5) Check bearings, remove, clean, replace
 - b. Other Electrical Equipment
 - 1) Remove, check, test
 - 2) Disassemble
 - 3) Repair or replace
 - 4) Adjust
 - 5) Reassemble
 - 3. Construction, Maintenance or Repair of Power Transmission Lines
 - a. Care and Use of Tools and Equipment
 - 1) Pipe cutters
 - 2) Wrenches
 - 3) Ladders
 - 4) Scaffolding
 - 5) Channel locks
 - 6) Pipe dies
 - 7) Pipe benders
 - 8) Ratchet chain pulls
 - b. Types of Lines
 - 1) Conduit
 - 2) Duct
 - 3) Open
 - c. Methods and Procedures for Construction of Power Transmission Lines
 - 1) Locate power transmission lines in accordance with prints or plans
 - 2) Fastening, cutting and bending of conduit
 - 3) Fastening and cutting of duct

Instrument Technician – Continued

Approximate Hours

D.	Electrician Repair and Maintenance - Continued	
3.	Construction, Maintenance or Repair of Power Transmission Lines	
c.	4) Fastening and installation of open wiring	
	5) Pulling wires through conduit or duct	
d.	Methods and Procedures for Construction of Other Electrical Equipment	
	1) Determine from prints or plans location for installation of electrical equipment.	
	2) Prepare bases of facilities for fastening	
	3) Install equipment	
	4) Connect power transmission lines	
e.	Safety Precautions	
	Total Hours	<u>8000</u>

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 <http://www.labor.state.ny.us/workerprotection/publicwork/PDFs/Article8FAQS.pdf>.

APPENDIX B
INSTRUMENT TECHNICIAN
RELATED INSTRUCTION

Blueprint Reading, Sketching and Drawing
 Fundamentals
 Mechanical Blueprint Reading and Sketching
 Electrical Blueprint Reading and Sketching
Mathematics
 Fundamentals
 Precision Measurement
 Applications to the Trade
Safety (16 hours)
 Fundamentals (4 hours, 1st year)
 Trade Safety (12 hours, 2nd year)
Industrial and Labor Relations (20 hours)
 History and Background (6 hours, 1st year)
 Current Laws and Practices (14 hours, 2nd year)
Trade Theory and Practice
 Tools, Machines and Equipment
 Operation, Care and Maintenance
 Materials
 Terminology
 Theory of Jobs and Processes
Trade Science
 History of Instrument Making
 Technology of Jobs and Processes
 Physical Properties of Materials
 Principles of Tool Making Practice
 Principles of Instrument Repair and Maintenance
 Heat Treatment of Metals
 Metallurgy
Other Related Courses as Necessary
First Aid (6.5 hours every 3 years)

144 hours of Related Instruction are required for each Apprentice for each year