

Instrument Technician

FLSA Status: Covered
Bargaining Unit: District Council of Trade Unions (DCTU)

General Summary

Positions in this broad class install, maintain, repair, modify, and develop specifications for precision control instrumentation, systems, and user interfaces, to monitor, analyze, control and meter processes mechanically, electronically, pneumatically, and hydraulically.

Instrument Technician, Apprentice - 30003233

Distinguishing Characteristics

The apprentice level of this class typically assists with and learns to perform the full range of Instrument Technician tasks under the instruction of a journey Instrument Technician and as active participant in Apprenticeship Program. The apprenticeship program is a structured 4,000-hour program involving classroom instruction plus on-the-job training and work performance. Training progress is subject to review by a training and apprenticeship committee.

Typical Duties/Examples of Work

1. Assists in setting up, installing and calibrating various analytical and communication equipment; installs, assists in connecting and testing new programmable logic controllers (PLCs), which monitor and control processes at various points in the system.
2. Assists in performing a variety of diagnostic and analytical tests, including those involving PLCs; researches information as necessary.
3. Assists in maintaining and repairing existing process measurement and control instrumentation equipment and systems and related transmitting equipment and systems to ensure proper operation and service; assists in performing preventive maintenance, service and repairs; assists in inspecting and testing equipment and systems; assists in locating, reviewing, reformatting, converting and downloading existing control system programs; assists in reconfiguring the programs to accommodate system upgrades and other environmental changes; documents work.
4. Assists in designing, upgrading, installing, connecting and testing new and repaired control and monitoring systems. Assists in creating supporting documentation, i.e. P&IDs, loop drawings per ISA Standards.

5. Assists in reviewing the designs and the work of contractors to ensure safety and compliance with specifications and standards, assists in evaluating the operability of systems, assists in ensuring that repairs and installations operate properly.
6. Maintains records, supplies and equipment; assists in determining materials needed.
7. Works with others to ensure quality customer service. Responsible for appropriate safety precautions
8. Assists with designing, fabricating (exclusive of welding), installing and/or retrofitting instrument stands, brackets, supports and panels that are intended for instruments, and related equipment.
9. Assists with designing, fabricating, installing and/or retrofitting piping and tubing intended for but not restricted to instrument air, sample analysis, instrument hydraulics, signal/control, stilling wells, and related instrument systems.
10. Performs related duties as assigned.

Required Knowledge, Skills and Abilities:

Ability to: understand and follow oral and simple written instructions; establish and maintain effective working relationships as necessitated by work assignments; learn and apply safe work practices; write legibly and fill out simple forms with training

Classification History:

Adopted: 9/12/18

Instrument Technician - 30000239

Distinguishing Characteristics

The journey level of this class typically performs all class duties. It is distinguished from the Electrician class in that it does not perform hot panel or other electrical systems work requiring a general journeyman electrician license, and is distinguished from Electronics Technician classes by specialization in precision process controls and instrumentation (measurement and control of level, pressure, temperature, flow, analytical), to include programming of programmable logic controllers (PLCs), and Human Machine Interface (HMI) screens.

Typical Duties/Examples of Work

1. Sets up, installs and calibrates various analytical and communication equipment; installs, connects and tests new programmable logic controllers (PLCs), which monitor and control processes (such as municipal water distribution and wastewater treatment) at various points in the system; designs PLC program structures and control interfaces using International Electrotechnical Commission (IEC) programming logic language; designs and builds Human Machine Interface (HMI) screens; writes documentation.
2. Performs a variety of diagnostic and analytical tests, including those involving PLCs; researches information as necessary to perform duties and maintain currency.
3. Maintains existing process measurement and control instrumentation equipment and systems and related transmitting equipment and systems to ensure proper operation and service; performs preventive maintenance, service and repairs; inspects and tests equipment and systems; locates, reviews, reformats, converts and downloads existing control system programs; reconfigures the programs to accommodate system upgrades and other environmental changes; documents work.
4. Designs, upgrades, installs, connects and tests new and repaired control and monitoring systems. Creates supporting documentation, i.e. P&IDs, loop drawings per ISA Standards.
5. Creates new program database reports; downloads and manipulates data using standard office suite and drawing software.
6. Reviews designs and the work of contractors to ensure safety and compliance with specifications and standards, evaluates operability of systems, ensures that repairs and installations operate properly.
7. Maintains records, supplies and equipment; determines materials needed.
8. Works with others to ensure quality customer service. As assigned, may train, guide and lead the work of others. Is responsible for appropriate safety precautions, i.e. lockout tagout, confined space entry. May be required to provide work review when acting as a lead.
9. Designs, fabricates (exclusive of welding), installs and/or retrofits instrument stands, brackets, supports and panels that are intended for instruments, and related equipment.
10. Designs, fabricates, installs and/or retrofits piping and tubing intended for but not restricted to instrument air, sample analysis, instrument hydraulics, signal/control, stilling wells, and related instrument systems.

11. Performs related duties as assigned.

Required Knowledge, Skills and Abilities

Knowledge of: tools, materials, processes and techniques of installing and maintaining precision instruments, and process control equipment and electronics; application of drawing software to draw blueprints and work flow diagrams; mechanical and process control troubleshooting techniques; methods and techniques of structured IEC programming logic; database principles and concepts; office suite software; application of the National Electrical Code (NEC), and Instrument Society of America (ISA) standards; safe work practices.

Ability to: maintain records; perform layout and sketch designs for process control installations, modifications and repairs; detect, isolate and resolve local control program and system hardware problems; analyze and assess systems needs; create and develop concise technical documents and reports; communicate effectively; establish and maintain effective working relationships with co-workers; work constructively in a team.

Skill in: repairing, troubleshooting, maintaining, modifying, calibrating and installing precision instruments, process control equipment, and other electronic equipment and related electronics and communications devices; operation of specialized equipment; component level electronics troubleshooting and repair.

Special Requirements

Valid state driver's license; Limited Energy Class A or B licensure; or higher level/broader electrical licenses may be substituted; other licenses or certifications may be required. Associate degree in instrumentation or equivalent vocational Certificate of Completion and or equivalent is desired.

Classification History:

Adopted: 2-03-99:

Class created as a result of DCTU Classification and Compensation Study 1998-99. This class is composed of the following classes:

3260 Instrument Tech

Revised: 06-18-85

Revised: 02-13-06 Revised to include programming programmable logic controllers (PLCs); and Human Machine Interface (HMI) screens.

Revised: 06-02-06 (Revised task statement #10)

June 2009 - Change Job Class number from 3260 to 30000239, due to system change.

Instrument Technician, Lead - 30000240

Distinguishing Characteristics

The lead level of this class typically performs all class duties and in addition serves as a lead over other Instrument Technicians. It is distinguished from the Instrument Technician class by the lead assignment. Note: This is a premium pay class for assignment of lead duties. Employees do not accrue seniority or obtain status in this class. Employee is assigned from a base class.

Typical Duties/Examples of Work

1. Plans, schedules and coordinates work; determines resource needs of work group; directs work of a crew or work group.
2. Reviews the work of and provides training and guidance to assigned staff.
3. Performs related duties as assigned.

Required Knowledge, Skills and Abilities

Knowledge of: effective principles and practices of leadership

Ability to: schedule and assign the work of others

Skill in: demonstrating techniques to others; providing training to others; providing lead direction to staff, including assigning and reviewing work

Special Requirements

Valid state driver's license; Limited Energy Class A or B licensure; some positions may require a limited maintenance electrician license; higher level/broader electrical licenses may be substituted; other licenses or certifications may be required.

Classification History:

Adopted: 2-03-99:

Class created as a result of DCTU Classification and Compensation Study

1998-99 This class is composed of the following classes:

3261 Lead Instrument Tech (No Class Spec Available)

Revised: 02-13-06 Revised to include programming programmable logic controllers (PLCs), and Human Machine Interface (HMI) screens.

June 2009 - Change Job Class number from 3261 to 30000240, due to system change.

Working Conditions

Work in this class is typically performed in a shop environment; some work is performed in a field environment and may require work in elevated or confined underground locations. Incumbent is typically required to lift up to 50 pounds; to work outdoors as

required in all weather conditions; to wear protective gear; to work with hand and power tools; to be exposed to electric currents.