



Senior Instrumentation and Electrical Technician

Purpose of the role:

Under direction, leads, oversees, and participates in the work of mechanical maintenance and instrument and electrical technicians staff responsible for performing a wide variety of skilled tasks in the installation, repair, troubleshooting, modifying, and maintenance of wastewater treatment plant, water and wastewater, collections, and landscape electrical, pneumatic and electronic instrumentation equipment including programmable logic controllers, variable frequency drives, remote terminal units, supervisory control data acquisition (SCADA) systems, software controlled units and equipment, and telecommunication systems and devices; maintains and upgrades hardware, software, and equipment; and performs related duties as assigned.

Distinguishing Characteristics:

This is the lead level class in the Instrumentation and Electrical Technician series. Positions at this level are distinguished from other classes within the series by its primary accountability for all instrumentation program leadership, technology evaluation and implementation and coordination efforts. Employees perform the most difficult and responsible types of duties assigned to classes within this series including maintaining and upgrading hardware, software, and equipment. Employees at this level are required to be fully trained in all procedures related to assigned area of responsibility.

The following duties are typical for this classification. Incumbents may not perform all of the listed duties and/or may be required to perform additional or different duties from those set forth below to address business needs and changing business practices.

Essential Duties and Responsibilities:

- Leads, plans, trains, prioritizes, organizes, assigns, and participates in the work of staff responsible for performing a wide variety of skilled tasks in the installation, repair, troubleshooting, modifying, and maintenance of wastewater treatment plant, water and wastewater, collections, and landscape electrical, pneumatic and electronic instrumentation equipment including programmable logic controllers, variable frequency drives, remote terminal units, supervisory control data acquisition (SCADA) systems, software controlled units and equipment, and telecommunication systems and devices; participates in performing the most complex work of the unit including maintaining and upgrading hardware, software, and equipment.
- Trains assigned employees in their areas of work including instrumentation and electrical maintenance, mechanical maintenance, calibration, and repair methods, procedures, and techniques; identifies safety issues and corrects them.

- Supervises the use, care, and operation of process control instrumentation, electrical, and related equipment; researches, evaluates, and makes changes to improve equipment performance.
- Verifies the work of assigned employees for accuracy, proper work methods, techniques, and compliance with applicable standards and specifications; ensures adherence to safe work practices and procedures.
- Oversees and participates in repairing, troubleshooting, installing, and maintaining high voltage and low voltage electrical equipment and related devices including transformers, power panels, wireways, light fixtures, receptacles, and disconnect switches.
- Oversees and participates in repairing, troubleshooting, installing, and maintaining various motor control equipment and devices including variable frequency drives, motor controllers, adjustable speed drives, relays, timers, and indicating devices.
- Oversees and participates in calibrating, repairing, troubleshooting, installing, and maintaining electrical control systems and instrumentation including transmitters, meters, generators, counters, regulatory clocks, monitors, recorders, programmable controllers, and telemetry systems; creates and modifies logic programs.
- Conducts, audits, reviews, specifies, and designs complex electrical and electronic schematics, plans, and improvements drawings to evaluate operational and maintenance requirements.
- Oversees and participates in planning the installation of new or improved electrical and electronic systems, equipment, and machinery; leads and trains City staff on operation of new or modified systems.
- Programs, installs, maintains, modifies, and upgrades Software Control Programs which are utilized in programmable logic controllers, operator interface devices.
- Orders necessary parts to maintain equipment or construct replacement parts; coordinates repair and maintenance work with plant operators and outside agency technical personnel.
- Provides technical advice and support to operators, supervisors, City engineering staff, and outside agency personnel; works closely with private control system design and engineering teams.
- Develops, reviews, upgrades, and leads preventive and predictive mechanical, electrical and instrumentation maintenance programs.
- Prepares calibration, special studies, and work reports as necessary.
- Responds to inquiries in a courteous manner; provides information within the area of assignment; resolves complaints in an efficient and timely manner.
- Estimates time, materials, and equipment required for jobs; requisitions materials as required.
- Responds to night and weekend emergency call outs.
- Directs contract employees performing electronic or electrical installations and repairs.

- Performs related duties as required.

The following generally describes the knowledge and ability required to enter the job and/or be learned within a short period of time in order to successfully perform the assigned duties.

Knowledge of:

- Operational characteristics of instrumentation, electrical, and mechanical equipment and components.
- Principles of lead supervision and training.
- Advanced methods, techniques, materials, equipment, and tools used in installing electrical wiring, control devices, and equipment.
- Standard terms, practices, procedures, methods, and mathematics used in the instrumentation and electrical trades.
- National Electrical Code and the Electrical Safety Orders of Cal OSHA.
- Advanced principles of pneumatic controls and devices, telemetry and electronic installation, maintenance, operation, testing and repair.
- Preventive maintenance applicable to mechanical, electrical and instrumentation systems.
- Effects of hazardous chemical conditions encountered in a wastewater treatment plant.
- Occupational hazards and standard safety practices.
- Office procedures, methods, and equipment including computers and applicable software applications.
- Telecommunications operating systems and equipment.
- Advanced operational characteristics of fiber-optic, Local Area Network, and SCADA systems.

***Desired
Minimum
Qualifications:***

Ability to:

- Lead, organize, and review the work of staff.
- Independently perform the most difficult installation, repair, troubleshooting, and maintenance of mechanical instrumentation and electrical equipment.
- Understand the organization and operation of the City and of outside agencies as necessary to assume assigned responsibilities.
- Interpret, explain, and enforce department policies and procedures.
- Understand, interpret, explain, and apply applicable federal, state, and local policies, laws, and regulations.
- Operate programmers, calibrators, measuring, and testing devices, hand tools, and equipment of the trade.
- Calibrate, align, and test a variety of systems designed to monitor treatment plant processes and activities.
- Plan and execute repair, maintenance, and installation of controls and equipment.
- Estimate costs, time and labor requirements.
- Troubleshoot and diagnose problems.
- Read and interpret technical illustrations, blueprints, maps, plans, specifications, wiring and pneumatic diagrams.
- Work in confined spaces and safely use self-contained breathing apparatus.
- Keep records and schedule maintenance work.

- Operate office equipment including computers and supporting software applications.
- Assist management in the preparation of operations budgets and capital equipment plans.
- Repair and maintain telecommunications operating systems and equipment.
- Work under steady pressure with frequent interruptions.
- Learn and apply new information or new skills.
- Work independently in the absence of supervision.
- Communicate clearly and concisely, both orally and in writing.
- Establish and maintain effective working relationships with those contacted in the course of work.
- Respond and perform assigned duties in the event of a City-declared emergency.

Competencies:

- Results Oriented
- Customer-Focused
- Flexible/Adaptable
- Accountable
- Planner and Organizer
- Skill and Career Development Coach
- Technically Knowledgeable

Any combination of education and experience that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

Education:

Equivalent to the completion of the twelfth grade.

Experience:

**Education and
Experience
Guidelines:**

Five years of experience in the design, repair, installation and maintenance of electrical equipment, such as instrumentation systems, transformers, switches, control panels, electronic components of telemetry systems and components utilized in a wastewater treatment plant including two years of experience comparable to an Instrumentation and Electrical Technician with the City of Thousand Oaks.

Licenses; Certificates; Special Requirements:

A valid Class C California driver's license is required.

Ability to obtain a California Water Environment Instrument Technician Grade III Level is desirable.

The conditions herein are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential job functions.

**Physical and
Environmental
Conditions:**

Physical: Sufficient physical ability to work indoors and outdoors in all weather conditions; sit, stand, walk on level and slippery surfaces; reach, twist, turn, kneel, bend, stoop, squat, crouch, grasp and making repetitive hand movement; lift, carry and push tools, equipment and supplies weighing 25 pounds or more; climb ladders, use power and noise producing tools and equipment, drive motorized vehicles and heavy equipment, and work in heavy vehicle traffic conditions. **Vision:** See in the normal visual range with or without correction; vision sufficient to read computer screens and printed documents; and to operate assigned equipment. **Hearing:** Hear in the normal audio range with or without correction.

Environment: Wastewater treatment plant and field environment; exposure to noise, dust, grease, fumes, gases, potentially hazardous chemicals, electrical energy, and inclement weather conditions including wet and/or humid conditions; work in or around water or wastewater; work on slippery surfaces; work in confined spaces; work near moving mechanical parts and moderately loud noise levels; work with frequent interruptions.

*Class specifications are only intended to present a descriptive summary of the range of duties and responsibilities associated with specified positions. Therefore, specifications **may not include all** duties performed by individuals within a classification. In addition, specifications are intended to outline the **minimum** qualifications necessary for entry into the class and do not necessarily convey the final qualifications of incumbents within the position.*

Pursuant to California Government Code Section 3100, all public employees are required to serve as disaster service workers subject to such disaster service activities as may be assigned to them by their supervisor or by law.

Date Adopted: 7/5/03
Date Revised: 4/20/09

4/20/09:

- Added *mechanical maintenance* and *mechanical* to various paragraphs.