



CITY OF PACIFICA
ELECTRICAL/INSTRUMENTATION TECHNICIAN I/II/III

DEFINITION

The Electrical Instrumentation Technician series is responsible for installation, testing, calibration, maintenance, and repair of process control and the telemetry data acquisition systems, and electrical distribution systems in the Wastewater Division.

DISTINGUISHING CHARACTERISTICS

Electrical Instrumentation Technician I is the entry level classification. Individuals are required to attend electrical and instrument classes and will learn on the job to perform basic electrical and instrument duties under close supervision.

Electrical Instrumentation Technician II is the semi-skilled subjourney classification. This classification is distinguished from the Electrical Instrumentation Technician I classification in that the Electrical Instrumentation Technician II is required to have previous experience and knowledge of fundamental electrical theory and techniques, usually attainable through the Electrical Instrumentation Technician I classification. Performs and assists in performing electrical work of a greater complexity than that of the Electrical Instrumentation Technician I.

Electrical Instrumentation Technician III is the full journey level class in this series. Performs the most complex duties.

**ESSENTIAL FUNCTIONS - INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
For Electrical Instrumentation Technician I**

- Learns to perform and performs basic electrical and instrument repair and maintenance duties;
- Learns to use measuring, calibrating, and testing instruments and hand and power tools common to the trade.
- Assists in the maintenance, repair, alteration, and installation of a variety of electrical and instrumentation systems and equipment.
- Assists in preparing the work site and ensures that materials and tools are available as needed;
- Cleans tools and work areas. maintains tools, supplies, and equipment in a safe condition.
- Maintains records on equipment maintenance and performs preventative maintenance on equipment;
- Learns and applies local electrical and safety code
- Coordinate emergency maintenance with plant operations.

In addition, for Electrical Instrumentation Technician II

- Assists with troubleshooting and may independently troubleshoot a variety of electrical equipment.
- Troubleshoot, and maintain the wastewater collection and wastewater plant systems via a supervisory control and data acquisition system composed of a variety of microprocessor or computerized components;
- Performs routine maintenance on pumps, valves, electric motor, gas and diesel engines and other mechanical and electrical equipment;
- Makes diagnostic checks and repair various motor center equipment; install related hardware and software for control system; and write computer programs for the operation of process control and data acquisition system;
- Maintains records on equipment maintenance and schedules preventative maintenance on equipment;

In addition, for Electrical Instrumentation Technician III

- Designs, installs, tests, calibrate, maintains and repairs computer, electronic, pneumatic, and components of process control, telemetry and data acquisition systems, including flow measurement, level measurement, and process control systems and instrumentation, programmable logic controllers, and alarm systems;
- Troubleshoots mechanical and electrical equipment problems and make necessary repairs;
- Assists on plant improvement projects;
- Modifies software for computer control and database programs;
- Analyzes historical data and trends and recommends wastewater system equipment modifications;
- Perform related duties as assigned.

QUALIFICATIONS

Knowledge of

For all levels

- The identification and use of standard hand and power tools and of materials, terms, practices and equipment of the electrical trade;
- Arithmetic and mechanical principles as related to shop and field work.
- Programmable controllers
Occupational hazards and safety precautions related to work

In addition, for Electrical Instrumentation Technician II

- Fundamental electrical theory and techniques
- Wastewater systems using supervisory control and data acquisition systems (SCADA); pump, well and valve stations; theory and practice of the principles of electricity including systems up to 480 volts, electronics, computer systems, pneumatics, hydraulics.
- Practices used in the installation, testing, calibration, maintenance and repair of process control systems; occupational hazards and safety precautions related to work; maintenance and repair of test instruments.

In addition, for Electrical Instrumentation Technician III

- Telecommunications
- Methods, materials, tools, equipment and practices used in the design, installation, testing, calibration, maintenance and repair of process control and data acquisition systems;

- Computer programming involving advance level computer languages as applied to controllers and electronic test equipment used in controlling systems processes;
- Maintenance and repair of test instruments.

**Skill/Ability to
For all levels**

- Exercise manual dexterity
- Learn to interpret and work from shop drawings and electrical diagrams;
- Learn to perform work which requires considerable manipulative skills, mechanical comprehension, mathematical calculations, and logical reasoning;
- Use some independent judgment and initiative;
- Acquire increased job knowledge and skills; understand and carry out verbal and written instruction;
- Keep standard records and make simple verbal or written reports of work performed;
- Learn and perform shop mathematics with accuracy;
- Establish and maintain effective working relationships;
- Learn and apply safe work practices.
- Establish and maintain cordial working relationships with others

In addition, for Electrical Instrumentation Technician II

- Safely perform highly sensitive calibration and maintain high standards of quality control and reliability in instrument systems and loops.
- Perform thorough troubleshooting on critical systems and equipment in constant and hard use, research instrumentation problems and provide solutions, which meet the need for 24-hour reliability.
- Work independently with limited supervision.

In addition, for Electrical Instrumentation Technician III

- Train Operators and maintenance personnel to recognize, describe and provide timely reports of symptoms of instrument malfunctions.
- Work independently without skilled technical assistance.
- Review and evaluate instrumentation and process control diagrams.

Education and Training

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

For Electrical Instrumentation Technician I

Experience: One year working in the electrical trade, construction or maintenance and repair trades

Training: Graduation from high school

For Electrical Instrumentation Technician II

Experience: Eighteen months of experience as an Electrical Instrumentation Technician I or equivalent

Training: Graduation from high school

For Electrical Instrumentation Technician III

Experience: Three years of journey level experience as an instrument technician in a municipal wastewater facility or in a related facility.

Training: Graduation from high school

CERTIFICATES

For Electrical Instrument Technician I

Possession, or ability to obtain within one year of appointment, a voluntary certificate as an Electrical/Instrumentation Technician I as issued by the California Water Environment Association.

For Electrical Instrument Technician II

Possession, or ability to obtain within one year of appointment, a voluntary certificate as an Electrical/Instrumentation Technician II as issued by the California Water Environment Association.

For Electrical Instrument Technician III

Possession, or ability to obtain within one year of appointment, a voluntary certificate as an Electrical/Instrumentation Technician III as issued by the California Water Environment Association.

LICENSE

Ability to drive and possess a valid California driver's license. May be required to qualify for and obtain a Class A or Class B driver's license and be subject to random drug and alcohol testing under the Department of Transportation regulations.

ADDITIONAL INFORMATION:

PHYSICAL SKILLS

The employee is required to walk; use hands to finger, handle, or feel objects, tools, or controls; and reach with hands and arms. Must sit, hear, and speak. Moderate and sometimes strenuous exertion required which includes but is not limited to work on ladders, in tunnels and confined spaces, climbing extensive stairs, and lifting, handling and carrying up to 35 lbs. Incumbent must have appropriate hand-eye dexterity and corrected vision to operate computer workstation for extended periods of time. and lift 35 lbs.

WORKING ENVIRONMENT

May work in conditions that require exposure to noise, noxious odors, gases, and contact with wastewater. While performing the duties of this job, the employee is frequently required to sit and talk or hear.

Job Title:	Electrical Instrument Technician I-III
Reports To:	
Job Type:	Full-time (40 hours per week / 2080 hours per year)
FLSA Status:	Non-Exempt
Bargaining Unit:	WWTP Local 856 (WWTP 856)
Adopted:	05/27/2025