

INSTRUMENTATION/ELECTRICAL TECHNICIAN I/II

*Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are **not** intended to reflect all duties performed within the job.*

DEFINITION

Under general supervision, performs a variety of skilled duties including but not limited to: design, construction, installation, modification, maintenance and repair of electrical and electronic circuits including machinery, motors, instrumentation, plant control system components and related devices. Monitors electrical equipment and system for operation condition and performance, including predictive and advanced diagnostic testing; preventive and corrective electrical maintenance used in collection, transmission, and treatment of water in a variety of facilities found in a water system and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS

This series class specification defines and describes the nature and levels of work performed in the Instrumentation Technician job series.

Instrumentation/Electrical Technician I is the entry level in the Instrumentation/Electrical Technician series. At this level, incumbents learn and perform a limited range of the less complex or specialized work tasks, under closer supervision, with less latitude for independent action.

Instrumentation/Electrical Technician II is the experienced, journey-level in the Instrumentation/Electrical Technician series. At this level, incumbents perform the full range of tasks common to the classification series, under less supervision, while exercising discretion and independent judgment within established guidelines.

SUPERVISION RECEIVED AND EXERCISED

Direct supervision is received from the Automation and Controls Supervisor and/or Water Production Manager.

Technical and/or functional work direction may occasionally be provided to Instrumentation/Electrical Technician I/II by the Lead Instrumentation/Electrical Technician.

ESSENTIAL AND MARGINAL FUNCTION STATEMENTS

Essential and other important responsibilities and duties may include, but are not limited to, the following:

Essential Functions:

1. Designs, modifies and changes control systems; programs equipment used for water blending, changes set points and other system parameters, and performs PLC programming to change control logic on a permanent or temporary basis.
2. Tests, troubleshoots, calibrates, repairs and performs preventive maintenance on a variety of industrial electrical and electronic systems, components and devices.

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Essential Functions (continued):

3. Performs daily electrical/electronic preventative maintenance, repair of the District's water systems; motor controls, programmable logic controllers, industrial networking hardware, turbidity meters, electronic flow meters, pH meters, chlorine analyzers, automatic chemical and chlorination equipment.
4. Installs conduits, wire, pull boxes, switchboards, controllers and switches required in making additions, extensions or alterations in industrial electrical systems.
5. Estimates time, materials and equipment needed for jobs assigned; requisitions materials, and works with outside contractors and vendors used to provide instrumentation services or materials.
6. Reads and interprets a variety of technical manuals, charts, schematics, blueprints and gauges to troubleshoot instrumentation equipment.
7. Uses, operates and maintains electronic test equipment, computer hardware and software associated with the testing and adjusting of equipment.
8. Participates in discussions and research relating to the acquisition, upgrading and installation of new or modified telemetry and electronic control systems and equipment.
9. Provides technical assistance and advice to other District staff in connection with the operation of computerized telemetry equipment and other electrical or electronic systems.
10. Works safely with a variety of voltages from 24VDC to 480VAC.
11. Observes safe work methods and safety practices related to work: maintains current electrical safety standards and practices
12. Regular attendance at the work site.

Marginal Functions:

- I. Performs related duties and responsibilities as required.

KNOWLEDGE, SKILLS AND ABILITIES

Knowledge of:

Theory, principles, hardware, testing equipment and procedures common to the repair and maintenance of electronic devices and electrical systems.
Operational characteristics of telemetry equipment, meters, controls, treatment plant instruments, and other electrical/electronic equipment.
Methods and techniques used to diagnose operational defects in telemetry systems.
Principles of preventive maintenance governing electrical/electronic systems.
Pertinent Federal, State and local laws and regulations, including electrical codes.
Instrumentation calibration and adjustment procedures.
Occupational hazards, standard safety practices.

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Skill in:

Use of electrical and electronic test equipment, hand and power tools, and equipment.
Operating a personal computer and related software.
Ability to operate and work from an aerial man-lift.

Ability to:

Install, modify, design and repair equipment related to electronics, instrumentation control and telemetry.
Calibrate, align, and test a variety of systems designed to monitor treatment plant and water system processes and activity.
Design, update and fabricate new equipment, control systems and software.
Read and interpret a variety of technical manuals, charts, schematics, blueprints and gauges.
Operate equipment and processes related to water conveyance and treatment.
Understand and carry out oral and written instructions.
Communicate clearly and concisely, both orally and in writing.
Establish and maintain cooperative working relationships with those contacted in the course of work.
Maintain physical condition appropriate to the performance of assigned duties and responsibilities.
Maintain mental capacity which allows the capability of making safe, sound decisions and demonstrating intellectual capabilities.
Maintain effective audio-visual discrimination and perception needed for making observations, communicating with others, reading, writing and operating assigned equipment.

REQUIRED QUALIFICATIONS

Experience and Training Guidelines

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

Instrumentation/Electrical Technician I

Experience:

One (1) year of experience in the installation, maintenance, repair, and alteration of electrical and electronic equipment, preferably at a water or wastewater facility.

Education/Training:

Completion of either a formal course of instruction at an accredited college or university, State or Federal sponsored Electrical Apprenticeship Program, Certificate of Completion of a Trade School Electrical Program, proof of completion of a military service electrical program.

Certificate:

Possession of, or ability to obtain within one (1) year of appointment, a valid TI Water Treatment Operator Certificate and a valid DI Distribution Operator Certificate issued by the State Water Resources Control Board (SWRCB).

License:

Possession of, or ability to obtain within one (1) year of appointment, a valid Class A California Commercial driver's license with a Hazardous Materials endorsement is required, together with a satisfactory driving record.

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Instrumentation/Electrical Technician II

Experience:

Two (2) years of journey level experience in the installation, maintenance, repair, and alteration of electrical and electronic equipment, preferably at a water or wastewater facility.

Education/Training:

Completion of either a formal course of instruction at an accredited college or university, State or Federal sponsored Electrical Apprenticeship Program, Certificate of Completion of a Trade School Electrical Program, proof of completion of a military service electrical program.

Certificate:

Possession of, or ability to obtain within one (1) year of appointment, a valid T2 Water Treatment Operator Certificate issued by the State Water Resources Control Board (SWRCB) and a valid D2 Distribution Operator Certificate issued by the State Water Resources Control Board (SWRCB).

Possession of a valid California Water Environmental Association (CWEA) Electrical & Instrumentation Technologist Certification – Grade I, or an approved alternative is desirable.

License:

Possession of, or ability to obtain within one (1) year of appointment, a valid Class A California Commercial driver's license with a Hazardous Materials endorsement is required, together with a satisfactory driving record.

PHYSICAL DEMANDS AND WORKING ENVIRONMENT

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.

Environment:

Outdoor field environment; exposure to dust, driving on a daily basis; frequent exposure to electrical hazards, high or low temperatures, noise; limited exposure to confined work spaces, dirt, high work places, poor lighting, wetness and humidity. Water treatment plant environment; exposure to electrical energy; work in and around water.

Physical:

Incumbent require sufficient mobility to work in a field environment; balancing, climbing, crawling, driving, hearing, heavy physical labor, kneeling or crouching, lifting or carrying objects weighing up to 50 pounds or more, reaching, grasping and manipulating small objects, seeing, sitting, speaking, standing, walking, stooping, bending, using manual and power hand tools, using heavy equipment, working outside and underground, climbing reservoir and building ladders, and working in elevated outdoor locations.

Mental Demands:

While performing the duties of this class, the employee is regularly required to use oral and written communications skills; read documents or instructions; analyze and solve problems; observe and interpret data or information; use math and mathematical reasoning; learn and apply new information or skills; interact with District staff, other organizations and customers who may be upset or dissatisfied.

Vision:

See in the normal visual range with or without correction; vision sufficient to read printed documents and to operate assigned equipment.

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Hearing:

Hear in the normal audio range with or without correction.

JOB STATUS: Non-Exempt

DATE ADOPTED: November 2001

DATE MODIFIED: July 2021

Safety Sensitive Position