Instrument & Controls Technician I/II

Class Code:
307, 308

DEFINITION

Under supervision (Instrument & Controls Technician I) or general supervision (Instrument & Controls Technician II) of the Facilities Maintenance Supervisor, installs, tests, repairs, inspects, and maintains metering and recording instruments, controlling devices, data logging and display equipment, communications, and telemetry systems; prepares and maintains a variety of records; makes verbal and written reports of work activities; and performs related work as required.

The Instrument & Controls Technician II also coaches and trains less-experienced Instrument & Controls Technicians to develop advanced journey-level knowledge and competencies; may direct the work of an Instrument & Controls Technician and/or others on specific projects and standard work procedures; and serves as a technical resource to others.

DISTINGUISHING CHARACTERISTICS

Instrument & Controls Technician I is the entry-level class in the Instrument & Controls Technician series. Under close to general supervision, within a framework of established policies and procedures, incumbents perform routing duties including install, maintain, troubleshoot, repair, and document a wide range of industrial instrumentation, electronic monitoring, metering, controlling, and signaling devices used in the production, treatment, and distribution of water, requiring basic knowledge of control systems and components including Supervisory Control and Data Acquisition (SCADA) and Programmable Logic Control (PLC) software and hardware. As experience and proficiency are gained, assignments become more varied and complex. Assignments are given in general terms and are subject to periodic review by the Facilities Maintenance Supervisor while in progress and upon completion. There is limited latitude for independent judgment and action in well-defined areas of work. Incumbents at both levels are subject to standby duty and emergency call outs.

This classification is distinguished from the experienced, journey-level Instrument & Controls Technician II class by the routine nature and limited complexity of work assignments and the level of supervision received. The Instrument & Controls Technician I II classifications are flexibly staffed. Upon recommendation of the immediate supervisor and approval by the department manager, incumbents in this class may advance to the Instrument & Controls Technician II classification after a minimum of three (3) years at the first level and with demonstrated proficiency to meet the job requirements of the Instrument & Controls Technician II classification.

Instrument & Controls Technician II is the experienced, journey-level in the Instrument & Controls Technician series. Under general supervision, within a framework of established policies and procedures, incumbents perform the most difficult and complex duties and are fully qualified to troubleshoot and resolve the most complex telemetry, SCADA system, and PLC software and hardware issues. Incumbents may direct entry-level Instrument & Controls Technician I in developing journey-level knowledge and competencies. Assignments are given in general terms and subject to by the Facilities Maintenance Supervisor review while in progress and upon completion. There is significant latitude for independent judgment and action in well-defined areas of work.

Incumbents at both levels are subject to standby duty and emergency call outs.

This classification is distinguished from the Instrument & Controls Technician I by the complexity of work assignments, the potential impact of error, the level of independence with which assignments are performed and the limited level of supervision received. This classification is distinguished from the Facilities Maintenance Supervisor which supervises emergency and preventive maintenance activities including the repair and installation of equipment and materials used in the production, treatment, and distribution of water.

TYPICAL DUTIES

TYPICAL EXAMPLES OF DUTIES MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

- Installs, maintains, repairs, overhauls, calibrates, and tests a wide variety of industrial instrumentation that record, indicate, control, and regulate level, flow, pressure, temperature, position, and water analysis.

- Conducts periodic preventative maintenance inspections of all metering control instruments, diagnoses existing or potential trouble; cleans, lubricates, calibrates, and adjusts as conditions indicate.

- Lays out, installs, and places into service new metering, controlling, and recording devices, calibrating as required; may extend or connect related electrical circuits.

- Reads and interprets wiring diagrams, mechanical drawings, and specifications related to installations or major repair work.

- Prepares and maintains a variety of records; makes verbal and written reports of work performed.

- May make estimates of labor, materials, and supplies as needed to complete specific assignments.

- Performs other related work as required.

Instrumentation & Controls Technician II (In addition to the above tasks)

- Troubleshoots telemetry, SCADA, and PLC software and hardware issues, develops recommendations for change/modification; implements and documents changes applied to the software and hardware.

- Performs programming for PLC and logic controllers, including installing software and diagnosing and troubleshooting issues.

- Performs repair and testing work requiring a high-level of knowledge, skills, and abilities, and serves as a technical resource to others.

- Reviews engineering designs and modifications to control systems and recommends both technical and operational improvements.

- May direct, coach, or train less experienced Instrument & Controls Technicians and others on specific projects or procedures of the work.

- Performs other related work as required.

REQUIREMENTS

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

Education and Experience:

Possession of a high school diploma or its equivalent; and

Instrument & Controls Technician I: Four (4) years of full-time experience as an Instrument & Controls Technician, performing skilled work in both mechanical and electro-mechanical repairs or electronic circuitry repair, which includes two (2) years experience working on industrial instrumentation and controls.

Instrument & Controls Technician II: Seven (7) years of full-time experience as an Instrument & Controls Technician I, which includes at least three (3) years of full-time experience equivalent to that of an Instrument & Controls Technician I within the District. Additionally, applicants for the Instrument & Controls Technician II position must pass District-approved proficiency evaluations for diagnosing and making changes to PLC and SCADA software and hardware.

Knowledge, Skills, and Abilities:

Knowledge of: electrical and electronic circuits; mechanical linkage and telemetering systems; the basics of PLC and SCADA software and hardware; electronic schematic diagrams and blueprints; methods and techniques of calibrating electronic equipment; use and safe operation of a wide variety of standard hand and power tools and electronic and electric test equipment related to field and shop work; basic methods and techniques for troubleshooting and diagnosing equipment failure; laws, rules, and regulations governing maintenance and operation of radio, telemetry, and telephone equipment; safe work practices and the ability to identify workplace hazards and/or unsafe conditions and take appropriate corrective action; modern office practices, methods, and computer equipment and applications related to the work, including word processing, database, and spreadsheet software.

Skill and Ability to: inspect, test, repair, and install industrial instrumentation and controls according to established procedures and standards, read instruments accurately; work from and interpret wiring and mechanical drawings; safely use hand and power tools and equipment to test and calibrate instrumentation and controls; accurately estimate labor and materials costs; prepare and maintain neat, accurate, and complete records; perform essential duties of the job without causing harm to self or others. operate modern office equipment including computer equipment and specialized software applications programs; communicate clearly and concisely, both orally and in writing; establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Instrument & Controls Technician II: (In addition to the above)

Advanced Knowledge of: PLC and SCADA software and hardware.

Skill and Ability to: diagnose and make changes to PLC and SCADA software and hardware; safely and effectively operate a variety of specialized testing equipment; safely perform confined space entry tasks; coach, train and direct less-experienced technicians and others on specific procedures of the work; serve as a resource to others on the technical aspects of the work.

Additional Requirements:

- Must possess a valid California driver's license and have a satisfactory driving record.
- Position is required to be on call 24 hours a day and be required to work unusual or long hours, weekends, and holidays.

Instrument & Controls Technician II:

- Possession of an Instrumentation Society of America (ISA) Control Systems Technician Level 2 Certificate (CCST 2) is highly desirable.
- Instrument & Controls Technician I – must possess a Water Distribution Operator Grade 1 certificate within 18 months of hire.
- Instrument & Controls Technician II – must possess a Water Distribution Operator Grade 2 upon hire.

Working Conditions/Physical Requirements:

The essential duties of these classifications require the ability to work outdoors under various climatic and geographic conditions with potential exposure to a variety of chemicals, noise, temperature extremes, humidity and hazardous equipment and machinery; to work overtime as needed and subject to standby duty and emergency call-outs as required; physically capable of crawling into confined spaces, responding to chemical spills, or climbing ladders/stairs to reach high places wearing respiratory protection equipment, including SCBA's; to complete necessary Continuing Education (CEU) as required to obtain, maintain and renew requisite certification.

The essential duties of these classifications require the ability to sit for extended periods of time in front of a computer; repetitive use of feet and hands to operate vehicles, equipment and tools; the ability to speak to verbally exchange ideas and information; to hear to receive verbal detailed information and instruction; to see at arms length to twenty feet with a good field of vision and the ability to distinguish basic colors; to walk, twist, bend, crawl, reach, climb ladders and stairs and work in positions and spaces that may be awkward or difficult to access; to lift objects weighing up to 50 pounds; and finger dexterity and hand strength to operate a computer and related hardware and to grasp tools and equipment on a daily basis.

Revised: 07/12, 11/20

Approved: _____
Human Resources/Risk Manager