



TRAIN CONTROL ENGINEER

JC: EF165
PG: 6
FLSA: Exempt

BU: 92 (NR)
Created: August 2000
Revised: June 2019

*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 supervision, performs technical and engineering duties for the development, modification and maintenance of District's train control system; tests and modifies wayside, station, and train control equipment, ensuring work quality and adherence to specifications; performs related duties as assigned.

CLASS CHARACTERISTICS

This is the professional journey level class within the Train Control Engineer series. Classifications at this level perform the full range of duties as assigned and receive instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit. This class is distinguished from the Senior Train Control Engineer in that the latter possesses a specialized, technical or functional expertise within the area of assignment or may exercise lead supervision over assigned lower level staff.

REPORTS TO:

Manager of Train Control Engineering or designee.

EXAMPLES OF DUTIES – *Duties may include, but are not limited to, the following:*

1. Performs a variety of train control engineering duties in the preparation and review of drawings, plans and specifications for the development, modification and maintenance of the District's train control system.
2. Prepares engineering drawings, sketches, calculations and analyses; develop design details; prepares engineering drawings, sketches, calculations and analyses; develops design details.
3. Prepares preliminary engineering calculations, drawings, equipment specifications and other supporting data for new or potential projects.
4. Conducts field inspections and investigations on wayside, station and control equipment; conducts tests on existing installations; troubleshoots for equipment malfunctions; diagnoses and recommends modifications or repair requirements.

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5. Evaluates materials properties for use in train control equipment and systems; assesses and recommends maintenance intervals and procedures.
6. Provides hardware and software support for District train control systems; develops, analyzes and tests software; installs hardware and software; develops and conducts system hardware upgrades; maintains technical documentation.
7. Analyzes engineering changes; prepares test procedures to validate changes; directs and conducts testing of engineering modifications; prepares documentation and reports.
8. Assists in the establishment of schedules and methods for providing train control engineering support.
9. Coordinates train control engineering work with that of other divisions and outside agencies; provides engineering technical support to other divisions, District departments and outside agencies.
10. Maintains awareness of progress on assigned train control engineering projects to assure compliance with designated time and cost schedules.
11. Ensures adherence to safe work practices and procedures.
12. Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of train control engineering.

QUALIFICATIONS

Knowledge of:

- Principles and practices of train control and signaling systems
- Operations, services and activities of a comprehensive train control engineering and computer equipment program
- Materials, tools, methods, and equipment used in the maintenance, modification and installation of train control equipment
- Computer software and programming languages used in train control engineering
- Electronic engineering circuitry equipment and practices
- Concepts of reliability and fault analysis
- Software development and configuration
- Safety procedures and practices
- Methods and techniques of troubleshooting and diagnosing train control equipment failures
- Operational characteristics of analog and digital electronics, electrical circuitry, electro-mechanical mechanisms and mini- and micro-computers
- Terminology, methods, practices, and techniques used in technical engineering report preparation
- Current office procedures, methods, and equipment including computers
- Specialized computer programs or systems utilized in train control engineering project design
- Related Federal, State and local laws, codes and regulations

Skill/Ability in:

- Principles and practices of train control engineering in assigned projects

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- Preparing and interpreting engineering plans, drawings, and specifications
- Interpreting and explaining District policies and procedures
- Analyzing technical problems, evaluating alternatives, and recommending solutions
- Preparing clear, concise, and complete reports
- Conducting field tests and investigations
- Providing hardware and software support
- Working independently in the absence of supervision
- Understanding and following oral and written instructions
- Communicating clearly and concisely, both orally and in writing
- Establishing and maintaining effective working relationships with those contacted in the course of work

Other Requirements:

Must possess sufficient mobility to perform field inspections and investigations.

MINIMUM QUALIFICATIONS

Education:

Possession of a bachelor's degree in electrical engineering, electronics, computer science, or a closely related field.

Experience:

The equivalent of three (3) years of (full-time) verifiable professional experience in engineering, train control and signaling systems, or related experience.

Substitution:

Additional professional experience as outlined above may be substituted for the education on a year-for-year basis. A college degree is preferred.

WORKING CONDITIONS

Environmental Conditions:

Office environment; exposure to computer screens; field environment; exposure to noise, dust, grease, fumes, gases, heat and cold.

Physical Conditions:

Requires maintaining physical condition necessary for walking, standing or sitting for prolonged periods of time.

BART EEO-1 Job Group: 3000 – Engineers
Census Code: 1460 – Mechanical Engineers
Safety Sensitive: No