New York State Department of Civil Service
DIVISION OF CLASSIFICATION & COMPENSATION

Occ. Code 7170425

Computerized Toll Equipment Specialist, NS

Brief Description of Class

Computerized Toll Equipment Specialists oversee the engineering and technical support functions associated with toll collection, emergency public radio and intelligent transportation systems (ITS). Incumbents may analyze the specification, design, prototyping, testing, and deployment of electrical, wireless communication, and embedded systems; oversee fiber-optic operations and maintenance of infrastructure in the field; and coordinate related electrical technology or fiber activities with other information technology, intelligent transportation systems, and agency personnel responsible for other aspects of the above systems.

These positions are classified only at the New York State Thruway Authority and the New York State Bridge Authority.

Distinguishing Characteristics

Computerized Toll Equipment Specialist: non-competitive; performs electrical engineering duties, including designing, prototyping, testing, implementing, and documenting computer systems; manages fiber-optic system operations and the maintenance of the fiber-optic infrastructure; supervises unit staff as well as manages consultant and contractor activities associated with the research and production of technology for use in computerized toll equipment systems and the fiber-optic system.

Related Class

Toll Electronic Systems Technicians install and repair toll collection equipment and systems; install, maintain, and test various ITS elements such as Dynamic Message Signs, the Highway Advisory Radio System, Traffic Data Systems, Weather Information Systems, Closed Circuit Television Cameras and traffic control warning signs.

Illustrative Tasks

Computerized Toll Equipment Specialist

Analyzes and troubleshoots electrical, embedded systems, communications (wired and wireless/radio) photo-optics, image processing, paper ticket processing, and mechanical systems associated with the toll collection and other systems. Analyzes, designs, troubleshoots, and performs engineering activities for the fiber-optic system, coordinates the response to cuts, and inspects the fiber installations and the maintenance contractor work.

- Coordinates projects with other staff, such as Toll Electronic Systems Technicians, and may perform field visits to observe and troubleshoot equipment via use of electrical test equipment and meters.

- Utilizes electrical engineering knowledge, including electrical properties, physics, and mathematics to analyze and characterize performance problems, failures, and rates of failure.

- Communicates analyses to other staff or contracted staff and the technology development leader for the formation of appropriate solution approaches.

Performs electrical circuit design and troubleshoots circuits, electrical communications, wireless communications, and develops embedded system firmware.

- Develops and maintains electrical circuit design schematics and fabricates prototype circuits on breadboards or proto-boards when needed.

- Develops, maintains, and documents software, using high and low-level languages such as “C”, “Java” and “Assembly”.

Performs fiber-optic network management.

- Assists potential and existing customers in engineering their fiber connections to ensure continuity (path egress coordination).

- Oversees the maintenance contractor in their response to fiber cuts, new construction, and installation.

- Participates in, and ensures, ongoing fiber and regeneration building inspections are completed in a timely manner.

- Oversees any field need that must be addressed or remediated.

Researches and implements appropriate electrical/electronic solutions for a wide variety of electrical applications defined in user requirements and the system design process, which generally includes both hardware and embedded systems-level firmware design.

Develops solutions and troubleshooting strategies for communications issues, including fiber-optic communications, communication latency, wireless/radio communications, and modems.

- Administers Federal Communications Commission (FCC) licenses; and manages all agency communications with the FCC, including completion of forms and FCC procedures for processing new license requests and license renewals.

- Maintains the Highway Advisory Radio (HAR) system, including troubleshooting and signal propagation issues.

Operates a variety of tools, such as voltmeters, oscilloscopes, power supply/generators, electrical inductance/loop testers, optical test equipment, and others.

Develops and reviews detailed technical specifications, concept of operations of electrical and/or communications and embedded systems.

Collaborates with users and the appropriate business office staff to draft technical and operational requirements for procurement documentation, such as RFPs, construction plans, and engineering drawings, for release to prospective equipment/service vendors and construction contracts.

Coordinates with vendors, contractors and consultants.

- Ensures design and operational integrity; confirms that predefined detailed electrical, mechanical, and environmental requirements are met; and ensures that the cost effectiveness of proposed fabricated equipment/systems is accomplished.

Provides support to Toll Electronic Systems Technicians, including the field supervision of technology troubleshooting, analysis, and equipment installation and operation.

Assists the technology team leader in ensuring that appropriate resources are available to perform all electrical engineering duties necessary for the continuity of the agency's toll collection, fiber-optic network, and other critical systems, including maintenance of the technology development team's electrical workshop.

Supervises and/or oversees staff and resources, as needed.

- Supervises other technology development staff and manages consultant and contractor staff engaged in the development of prototypes and/or products fabricated by contractors based on prototypes developed in-house or contractor work in support of the fiber-optic network.

- Coordinates activities with, and oversees, Toll Electronic Systems Technicians in the deployment, testing, and troubleshooting of toll equipment, fiber, and other equipment associated with ITS and radio systems.

Minimum Qualifications

Computerized Toll Equipment Specialists

Non-Competitive: a bachelor's degree in a mathematic, electrical, engineering, science or computer related field, and two years of experience in electronic systems design, implementation or maintenance, one year of which must have been in the development of, or analysis of systems, solutions or designs, or fiber optic installation and/or fiber network networking/infrastructure maintenance; or an associate's degree in the above fields, and four years of the described experience, one year of which must have been in the development of, or analysis of systems, solutions or designs, or fiber optic installation and/or fiber network networking/infrastructure maintenance; or six years of military training and/or experience or field work experience in electronic, engineering and/or fiber-optic installation and/or fiber network/infrastructure maintenance.

Note: Classification Standards illustrate the nature, extent, and scope of duties and responsibilities of the classes they describe. Standards cannot and do not include all the work that might be appropriately performed by a class. The minimum qualifications above are those required for appointment at the time the Classification Standard was written. Please contact the Division of Staffing Services for current information on minimum requirements for appointment or examination.

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