

INSTRUMENT AND CONTROL SYSTEMS SPECIALIST

Code No. 3-14-385

COMPETITIVE

DISTINGUISHING FEATURES OF THE CLASS: This is a technical position at the Monroe County Water Authority responsible for the design and integration of a wide variety of instrumentation and process control systems used in the treatment and distribution of potable water. The employee is the lead designer of the process control network (process automation and process network operations) including: hardware and software selection, topology, programming and performance monitoring. Duties include the integration of various process systems such as Supervisory Control and Data Acquisition (SCADA) equipment, Programmable Logic Controller (PLC's), Microwave Radios, Electrical Power Logic Monitors, Servers, Routers, and Switches, as well as various software systems related to the process network (Graphical User Interfaces, Applications and Databases). This position differs from Assistant Instrument and Control Systems Specialist by virtue of the performance of more complex and technical work and utilizing more independent judgment. The employee reports directly to and works under the general supervision of a higher-level staff member. General supervision may be exercised over a subordinate staff. Does related work as required.

TYPICAL WORK ACTIVITIES: (All need not be performed in a given position. Other related activities may be performed although not listed.)

Directs and assists in the design, configuration and maintenance of all SCADA systems and equipment;

Develops algorithms to monitor, control and portray processes;

Develops programs for PLC's;

Designs, installs, and maintains process network equipment and systems;

Designs, creates, modifies, and maintains the SCADA database and associated tables, forms and reports;

Designs, creates, modifies, and maintains databases, and associated tables, forms, and reports;

Develops methods to integrate departmental process control systems;

Develops methods to guide the collection, use, and dissemination of data;

Integrates data and control systems to the instrumentation equipment used to monitor and control a wide variety of processes such as temperature, pressure, level, flow, vibration, and speed;

Maintains accurate records of equipment maintenance and repair required to keep the department functioning using a Computerized Maintenance Management System;

Prepares Process and Instrumentation Diagrams (P&ID's);

Monitors project progress to insure conformity with plans and specifications, adherence to timelines, and approves payments and/or recommends corrective action as required;

Reviews and approves criteria for evaluating and selecting related system architecture, hardware and software;

Conducts oral and written presentations as required.

FULL PERFORMANCE KNOWLEDGE, SKILLS, ABILITIES, AND PERSONAL CHARACTERISTICS: Good knowledge of electrical equipment and systems including motor controls and Adjustable Frequency Drives (AFD's); good knowledge of network technologies, hardware, and configuration including servers, routers, switches, security and user access management; good knowledge of technologies used to extend computer resources; good knowledge of databases, database management, and reporting services; good knowledge of various programming languages and techniques, including web application development, object-oriented programming and data structure development; good knowledge of the principles and practices of electronics including radio telemetry, digital communications and networking; good knowledge of instrumentation equipment including electronic, pneumatic and hydraulic systems; good knowledge of control concepts including open/close loop, proportional band, integral and derivative; good knowledge of programming concepts for SCADA including graphics development, historical data logging, alarm and event control, trending and reporting, and communications to field devices; ability to write technical reports; ability to communicate orally and in writing; organizational ability; analytical ability; ability to create and interpret schematic drawings; ability to establish and maintain effective working relationships; good judgment; physical condition commensurate with the demands of the position.

MINIMUM QUALIFICATIONS: Graduation from high school or possession of an equivalency diploma, plus EITHER:

- (A) Graduation from a regionally accredited or New York State registered college or university with a Bachelor's degree in Engineering, Engineering Technology, or a computer science or information technology field such as Computer Science, Information Technology, or Computer Information Systems, plus four (4) years paid full time or its part time equivalent experience in the installation, configuration, programming and maintenance of computers and network equipment; OR,
- (B) Graduation from a regionally accredited or New York State registered college or university with an Associate's degree in one of the fields mentioned in (A) above, plus six (6) years of experience as defined in (A) above; OR,
- (C) Eight (8) years of experience as defined in (A) above; OR,
- (D) An equivalent combination of education and experience as defined by the limits of (A), (B) and (C) above.

SPECIAL REQUIREMENT: If you are appointed, you will be required to have a valid license to operate a motor vehicle in New York State or otherwise demonstrate your capacity to meet the transportation needs of the position.

ADOPTED: February 9, 2006

REVISED: May 5, 2011