

## SENIOR ELECTRICAL ENGINEER

### JOB DESCRIPTION

**Classification Responsibilities:** The Senior Electrical Engineer performs advanced, professional electrical engineering work. This class is also responsible for performing related work as required.

***Energy Resources Department Assignment:*** Performs/develops transmission, substation, and distribution system planning studies, capital improvement project plans, and sectionalizing studies; reviews operational requirements and system performance; and leads the establishment of a distribution analysis program integrated to Geographic Information System (GIS). Supervision is exercised over technical employees performing electric distribution system design work for overhead and underground systems. Performs special studies related to the operation of the system. Performs fault calculations and establishes relay settings for Schweitzer Engineering Laboratories Inc. (SEL) electronic relays. May provide technical support on generation, substation, Supervisory Control and Data Acquisitions System (SCADA), and data network issues. Supports and designs generation, substation, SCADA, and data network projects. Performs relaying calculations and programming of electronic relays, and designs protection schemes and control systems for generation and substation equipment; provides technical troubleshooting and training support for department employees; specifies equipment; prepares equipment bid evaluations; and performs studies related to the operation of the system.

***Engineering Department - Capital Improvement Projects Assignment:*** Senior Electrical Engineers hired for the City's Engineering Department will act as project managers for the development of detailed plans and specifications and the preparation of bid documents for capital improvement projects related to the City's electrical utility. Design activities and preparation of detailed engineering documents may occur in-house with the Senior Electrical Engineer directly performing the design tasks and/or directing other City employees in performing design and drafting tasks. Other projects may be executed using outside consultants, in which case, the Senior Electrical Engineer is responsible to manage the outside consultant's contract, and to provide technical review and input. Senior Civil Engineers working in the City's Engineering Department may also manage projects that are not related to the City's electric utility or to the electrical engineering discipline. In such cases, they use general project management skills to execute the projects. In executing the job requirements, the Senior Electrical Engineer in the City's Engineering Department may be involved in any combination of the tasks identified for the Energy Resources Department assignment above.

**Distinguishing Features:** Employees in this class perform the full-range of professional engineering tasks. In addition, a Senior Electrical Engineer may direct and review the work performed by lower level engineers and technicians. Assignments are broad in scope and require the use of independent judgment and initiative in making technical decisions of considerable difficulty. Work is performed under the general supervision of the Energy Resources Program Manager or the Supervising Engineer who reviews work through reports, conferences, meetings, inspections, and the evaluation of overall results achieved. Employees may progress to this classification by non-competitive promotion upon meeting the specific criteria-based promotion requirements. This class is FLSA exempt-professional.

### QUALIFICATIONS

**Employee Values:** All employees of the City of Mesa are expected to uphold and exhibit the City's shared employee values of Knowledge, Respect, and Integrity.

**Minimum Qualifications Required.** Any combination of training, education, and experience equivalent to graduation from an accredited college or university with a Bachelor's Degree in Electrical Engineering. Extensive (5+ years) experience with electric systems engineering which includes some (6 months - 1 year) supervisory experience.

**Special Requirements.** Registration as a Professional Engineer is required. Must possess a valid Arizona Driver's License by hire date.

**Substance Abuse Testing.** Due to the safety and/or security sensitive nature of this classification, individuals shall be subject to pre-employment or pre-placement alcohol, drug and/or controlled substance testing as outlined in City policy and procedures.

**Preferred/Desirable Qualification.** Experience working in an electric utility or operation is preferred.

## **ESSENTIAL FUNCTIONS**

One position may not include all of the essential functions, knowledge and abilities listed, nor do the listed examples include all the knowledge and abilities which may be found in positions of this classification.

**Communication:** Communicates with management, other City employees, contractors, vendors, subordinate-level employees, and the general public in order to answer electric utility-related questions, explain policies and procedures, resolve problems, explain construction project requirements, etc. Prepares and presents oral and/or written reports concerning the activities of the Electrical Engineering Section. Prepares equipment specifications, bid evaluations, construction standards, instructions, various reports and correspondence, and special studies related to the operation and evaluation of the electric distribution system.

**Manual/Physical:** Reviews the work of subordinate-level personnel and inspects and evaluates work-related conditions, materials, and equipment in determining and ensuring compliance with standard operating and safety procedures. Operates a motor vehicle requiring a standard Arizona Driver's License to conduct site visits and to make field inspections, measurements, and field checks for proposed projects and completed work. Distinguishes colors to verify electrical wiring and equipment status. Enters data and information into a personal computer to evaluate and analyze electrical load databases and generate various reports. Meets scheduling and attendance requirements.

**Mental:** Supervises and participates in the design of additions or changes to electric distribution systems. Supervises and evaluates the work of subordinate-level technicians involved in performing electric engineering activities, including the preparation of job orders, construction drawings, schematic drawings, circuit maps, and electric system mapping. Prioritizes and schedules work assignments to ensure the timely completion of projects for power delivery to new customers. Resolves work-related problems, involving unexpected field conditions and personnel-related problems. Coordinates work activities with projects planned by the Development and Sustainability Department and other Energy Resources Department units. Conducts research and analyzes data regarding the operation or functioning of electric materials and equipment to ensure that the best possible product is used in the construction of electric utility facilities. Develops short- and long-term objectives, and plans for underground electric line expansion and overhead line and electric system integrity improvements. Performs statistical computations and financial and cost analyses in evaluating equipment bids and

electrical calculations, and in preparing electric system operation reports. Participates in the preparation and administration of the Electrical Engineering Section budget. Comprehends, evaluates, and makes inferences from written material (various literature and documentation of equipment and materials). Understands and interprets blueprints, schematic drawings, layouts, and electric plans. Estimates material costs from blueprints and plans. Learns job-related material in classroom settings.

**Knowledge and Abilities:**

Knowledge of:

electric system design principles;  
the equipment, materials, and procedures used in electric systems;  
the regulations associated with electric system operations;  
professional electric engineering theories, principles, and techniques;  
modern theories and practices of organization and management; and  
the principles and practices of employee supervision, evaluation, and training.

Ability to:

effectively supervise electric system activities and personnel, and prepare/conduct City of Mesa performance appraisals;  
develop plans and specifications for additions and revisions to electric distribution systems;  
develop plans and procedures relating to electric system construction, maintenance, and service; and  
establish and maintain effective working relationships with management, subordinate employees, coworkers, contractors, developers, vendors, electric utility customers, City officials, and the general public.

The duties listed above are intended only as general illustrations of the various types of work that may be performed. Specific statements of duties not included does not exclude them from the position if the work is similar, related, or a logical assignment to the position. Job descriptions are subject to change by the City as the needs of the City and requirements of the job change.

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PAY GRADE: 59

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