



ENGINEERING SPECIALIST 3

3107

GENERAL DESCRIPTION OF CLASS

The ENGINEERING SPECIALIST 3 is a skilled paraprofessional with a broad in-depth experience and expertise, who may work independently in one or more of the following areas, or as the senior member of one or more teams or work groups that perform field surveying, traffic studies, field or laboratory inspection or testing, drafting, office engineering, or engineering support for the planning, location, design, construction, and maintenance of facilities.

DISTINGUISHING FEATURES

This is the fourth level of a four-level series. The Engineering Specialist 3 is distinguished from the lower level Engineering Specialist positions by having the responsibility for coordinating crew assignments and/or leading and training lower level Engineering Specialists in the performance of their work. Some employees in this class may be required to inspect unusual and/or unique construction projects or complex testing and materials research.

DUTIES AND RESPONSIBILITIES

The duties listed below are not inclusive but characteristic of the type and level of work associated with this class. Individual positions may do all or some combination of the duties as well as other related duties:

1. Project Administration

Coordinates and directs the work of lower level Engineering Specialists in the testing of materials incorporated in the construction of facilities; advises subordinate employees on details of work duties and procedures in conformance with departmental policies; enforces contractor compliance to plans and specifications; reviews contract change order costs; checks final contract estimates for completeness and determination of final contract cost.

2. Field Surveying and Mapping

Performs engineering calculations using calculators or computer programs for the horizontal and vertical control of transportation facilities; uses conventional or computer-aided drafting equipment for the drafting of engineering surveys; conducts research and prepares reports; computes, checks and analyzes surveys.

3. Construction and Laboratory Material Testing and Inspection

Recommends acceptance or rejection of construction materials for quantity, quality, and conformance to applicable specifications; records characteristics of materials incorporated into the project by the contractor; inspects contractors' work on one or more construction projects; reviews, collates, and records data received from other inspectors; performs complex chemical and physical tests on construction materials.

4. Drafting

Uses conventional or computer-aided drafting equipment for the following tasks: organizes, develops, drafts, and dimensions details of complete complex projects utilizing information received, past experience, and a knowledge of the level of detail required for construction; coordinates the work of other designers on large projects to ensure consistency and uniformity of details; assigns and reviews work of lower level drafting specialists for accuracy and completeness; trains or assists in the training of lower level drafters; reviews plans for lack of design details based on past experience and calls deficiencies to the attention of the supervisor or designer; calculates material quantities as directed; performs necessary computations to develop and properly dimension project plan details.

5. Traffic Studies

Researches, analyzes, and makes recommendations or prepares reports based on field studies of traffic movement, vehicle usage, traffic distribution, collision diagrams, and accident listings; conducts and analyzes highway inventories and road condition surveys; prepares recommendations of traffic operation changes to improve traffic flow and safety.

RELATIONSHIPS WITH OTHERS

Employees in this class have regular contact in-person with contractors, property owners, representatives of the Federal government, or employees of local governments to inform, coordinate and obtain information. Some employees in this class may be responsible for overseeing and coordinating a long term project or program of a controversial, sensitive and sometimes hostile nature involving numerous contacts and coordination with the public and outside agencies. Employees in this class must work cooperatively with members of crew, public, other governmental agencies, and contractors.

SUPERVISION RECEIVED

Employees in this classification work under the general supervision/direction of an engineering supervisor who is responsible for assigning and reviewing work. General instructions are provided by the supervisor.

GENERAL INFORMATION

Positions in this classification are located throughout the State and require the willingness to work in the environment associated with the job.

KNOWLEDGE AND SKILLS (KS)**Extensive knowledge of:**

Algebra, plane geometry, and trigonometry.
Engineering practices, policies, and guidelines and construction practices.

Skill:

At applying technical manuals, specifications, contract plans, and other guidelines.
In coordinating and allocating people and other project resources.

Some positions may require one or more of the following special qualifications:

Extensive knowledge of drafting methods.
Extensive knowledge of the methods and equipment used in performing survey work.
General knowledge of computer programming (COGO).
General knowledge of computer-aided design (CAD).
Skill in providing safe working conditions in close proximity to traffic and construction equipment.
Skill in working safely with hazardous materials.
Skill in using the computer for entering and analyzing data.
Skill in performing complete surveys adequate for the location, design and construction of transportation projects.
Skill in performing all engineering calculations required for field surveying, determining material quantities for estimates and/or construction, payments, and for planning and establishing highway alignments.
Skill in performing all required field inspection and/or laboratory inspection and testing.
Skill in preparing engineering plans and details with computer-aided drafting equipment.
Skill in preparing hand-drawn engineering plans and details.
Skill in interpreting C.A.D. manuals to apply methods to solve problems.
Skill in communicating to explain and answer questions.
Skill in use of standard and specialized drafting tools.
Skill in applying technical manuals, specifications, contract plans, and other guides.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for **all** positions in this class. Additional KS requirements will be explained on the recruiting announcement.

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