

Iowa Department of Administrative Services – Human Resources Enterprise
Job Classification Description

Design Technician Associate

Definition

Performs trainee-level paraprofessional engineering design functions by working on a part of a project normally involving computer applications, design of projects, engineering studies, or research and quality control in assisting higher-level design technicians and engineers; performs related work as required.

The work examples and competencies listed below are for illustrative purposes only and not intended to be the primary basis for position classification decisions.

Work Examples

Assists in the preparation of computer-generated design plans by drafting and adding text to the design file and producing plan sheets.

Calculates geometrics, quantities, types, and sizes of materials; types, sizes, and locations of structures, land area, and other information as required for project assignments.

Utilizes and/or revises typicals, tabulations, bid items, and other details by drafting and editing existing files and incorporating into project plan sheets.

Checks calculations, files, detailed drawings, aerial photography, survey data, simple shop drawings, and finished plans or maps developed by co-workers for accuracy; identifies errors, problems, or non-standard situations.

Communicates with co-workers and personnel in related offices to solicit or provide information concerning project concepts, project plans, files, maps, or design guidelines.

Processes and edits survey data, to create design files, processes survey data into reports used by designers, planners, and others.

Assembles, files, and maintains reports, manuals, parcel and project files, aerial photographs, maps, and project plans.

Prepares maps, graphs, and charts by sorting data, drafting and/or adding text to display or graphically illustrate various transportation systems and cultural or relief features or details.

Assists in performing soil analysis and/or slope stability analysis by computer or checking calculations to determine the characteristics, economy, and effectiveness of soil conditions and various soil types.

Assists the project engineer/Design Technician Specialist in the preparation of engineering studies and evaluations by drafting alignments, editing text, and performing calculations for the development of transportation improvements from the initial concept stage to the design stage.

Researches historical information obtained from as-built road plans and courthouse records to determine property ownerships and existing right of way boundaries along existing and proposed highway centerlines on maps, plats, plans, and aerial photographs; assists in establishing the proposed right of way limits to construct and maintain the highways using road plans, cross-sections, and situation

plans; transfers this information to files and data bases to be utilized in the right of way acquisition and design processes.

Competencies Required

Knowledge:

- Engineering and Technology – The practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- Design – Design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
- Mathematics – Arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Building and Construction – Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
- Clerical Procedures – Word processing, managing files and records, designing forms, and other office procedures and terminology.

Abilities:

- Deductive Reasoning – Apply general rules to specific problems to produce answers that make sense.
- Mathematical Reasoning – Choose the right mathematical methods or formulas to solve a problem.
- Written Comprehension – Read and understand information and ideas presented in writing.
- Oral Comprehension – Listen to and understand information and ideas presented through spoken words and sentences.
- Visualization – Imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Information Ordering – Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Skills:

- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Reading Comprehension – Understanding written sentences and paragraphs in work related documents.
- Speaking – Talking to others to convey information effectively.
- Writing – Communicating effectively in writing as appropriate for the needs of the audience.

- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.

Minimum Qualification Requirements

Applicants must meet at least one of the following minimum requirements to qualify for positions in this job classification:

- 1) Graduation from high school (or GED equivalent), and experience equal to two years of full-time work in design drafting, cartography, photogrammetry, engineering survey, soils survey, land survey, or construction inspection.
- 2) A total of two years of education and/or full-time experience (as described in number one), where thirty semester hours of accredited college or university course work in math, engineering, or a related field equals one year of full-time experience.
- 3) Graduation from an accredited vocational program in engineering technology, design drafting, engineering survey, soils survey, land survey, construction inspection, or cartography.

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