

# **ENGINEERING TECHNICIAN I JOB DESCRIPTION**

## **GENERAL DESCRIPTION**

Under the general supervision of the County Engineer, an employee of this classification performs surveying, construction inspection, and engineering design work.

## **CLASS AND GRADE**

The Engineering Technician I position is an intermediate level, engineering staff position. The employee generally starts at 80% of the full classification wage rate with a 5% raise at the completion of a six month probationary period and progresses at 5% every six months until the employee reaches full salary after 2 years. This is a full-time position only, and compensation is defined by union agreement. The standard work week for the Engineering Technician 1 is 37.5 hours.

## **DISTINGUISHING CHARACTERISTICS OF GRADE**

An Engineering Technician 1 employee works alone or with other engineering, part-time, or maintenance employees doing skilled technical work including engineering and construction surveying, inspection of contract construction projects, preparation of project plans, preparation of the county sign inventory and reinspection of county road signs, and giving technical assistance to maintenance staff. An Engineering Technician 1 may supervise and lead a survey crew, other inspection personnel, or engineering employees of a lower or equal classification. Employees of this grade may also be assigned primary responsibility for projects. Duties are similar to higher engineering employee classifications, with the exception that the individual may not be a certified engineering technician. Employees of this classification generally operate survey equipment, are expected to be familiar with machine drafting and plan reading, and should be familiar with and fluent in the operation of IBM compatible personal computers, including computer aided drafting and design software.

## **ESSENTIAL JOB FUNCTIONS**

Cedar County's Engineering Section is made up of employees of Engineering Technician II, Engineering Technician I and engineering aide classifications. Two Engineering Technician I employees may do entirely different duties on the same day, but be of the same pay grade and the work will have the same general characteristics described in the essential functions described below. Breakouts of time spent in a given function or percentages of time spent working within a given job area are difficult due to the dictates of county work and weather. Employees of this classification may also be required to perform work of a higher level of classification in a training capacity or a temporary reassignment due to the absence of another employee.

The following functions are considered essential to the performance of the job of Engineering Technician 1:

1. Driver's License: Employee shall have and maintain an Iowa driver's license as a part of the individual's duties and as a requirement of his or her employment.
2. Driving: The employee must be able to drive a stick/straight shift vehicle with or without four wheel drive and other mechanical devices in a safe and efficient manner. Driving constitutes a necessary part of the employee's duties as it is essential for the employee to transport himself or herself to different project sites.
3. Ability to use assorted hand tools: Employee must be able to use assorted hand tools including, but not limited to shovels, posthole diggers, hammers, wrenches, jacks, and other power and hand tools used in the performance of work or be able to accomplish work with reasonable accommodation.
4. Requisition of tools and materials: The employee must be able to place tools and other equipment and materials in proper storage areas and/or obtain these items as needed to conduct assigned tasks. Employees must be able to obtain necessary tools and materials needed for them to perform their work. Tools will be obtained at the county shop, taken out to the job and used in the course of their work, and returned to their proper location at the shop. Employees may also be required to obtain tools and materials for delivery to, and installation or use at, a worksite.
5. Ability to work in temperature extremes: Employees must be able to work and operate equipment in all seasons and climatic conditions. Employees will be required to work in all conditions from hot, humid summer days to cold winter days with severe wind chill factors. Many county construction inspection and surveying activities, including emergency operations, occur during adverse weather and the employee must be able to tolerate and work in less than desirable conditions.
6. Ability to climb stairs, ladders, scaffolding, equipment access ladders, and steep banks: Employees will be working in excavations and ditches that will require the employee to have the ability to climb steep slopes and/or ladders. Employee will have to be able to demonstrate the ability to enter and exit the truck or other piece of equipment assigned to the individual as this is a requirement of the job. The employee must be able to enter and exit the vehicle unassisted by other employees either with or without reasonable accommodation.
7. Ability to pull, push, lift, and/or carry loads of up to 75 pounds unassisted: Employees must on occasion install lift rock samples for gradation testing and concrete test beams unassisted as a part of their duties. Duties also require, depending upon crew assignment, carrying of other types of loads and tools necessary to complete the employees' tasks.
8. Ability to act as a flagger for traffic control.

NOTE: Management has the right to add or change duties at any time. The duties listed above and below are not inclusive of all tasks that employees of this classification may be required to perform.

## **MARGINAL JOB FUNCTIONS**

Engineering Technician I employees may be assigned one or more of the following tasks on an as needed basis:

9. Facility and equipment cleanup: Engineering employees may be required to work on cleanup and maintenance of vehicles assigned to the Engineering Department, tools and testing equipment, building areas and facilities in the course of the employees duties and other duties as assigned.

10. Other duties as assigned by supervisory personnel.

## **REQUIRED KNOWLEDGE, SKILLS, AND ABILITIES**

Individuals must possess the knowledge, skills, and abilities, or be able to explain and demonstrate that the individual can perform the essential functions of the job, with or without reasonable accommodation, using some combination of skills and abilities and to possess the necessary physical requirements with or without the aid of mechanical devices, to safely perform the essential functions of the job.

1. Ability to read English language sufficiently to be able to read information contained in work orders, material safety data sheets, written directions, engineering standards and specifications, equipment operation manuals, engineering plans, survey field books and notes, technical publications, design guides, instructional memoranda, and maps to be able to understand and accurately perform tasks assigned to the employee.

2. Sufficient English language writing skills to complete assorted paperwork and engineering tasks such as plan preparation, specification writing, construction and survey field books, contract document preparation, completing work orders, filling out time sheets, and participating in county safety training testing programs.

3. Advanced mathematical skills including addition, subtraction, multiplication, and division as well as advanced algebraic, trigonometric and geometric calculations necessary to perform the tasks and the functions of the job.

4. Knowledge of the basic principles of civil engineering as applied to plan, organize, assign, supervise and inspect the work of subordinates.

5. Ability to perform complex drafting and simple engineering designs.

6. Basic mechanical aptitude for work with hand tools and minor equipment.

7. Ability to grasp, lift, and/or carry, items weighing up to 75 pounds.
8. Ability to perform work in confined spaces including manholes, culverts, and other areas with space restrictions.
9. Ability to perform tasks requiring bending, stooping, kneeling, and walking significant distances to reach work sites that cannot be driven to directly.
10. Ability to stand, walk, and/or sit and continuously perform essential job functions for an assigned shift, with two fifteen minute breaks and a one half-hour meal break per normal working day.
11. Ability to learn and perform all essential job functions accurately and safely with minimal direct supervision within 6 months of the beginning of employment with Cedar County.
12. Visual ability, corrected, to observe and detect dangerous obstacles, other vehicles, and pedestrians while driving county vehicles and read written standard forms and work orders.
13. Adequate eye, hand, and foot coordination to safely perform the essential functions of this job classification.
14. Ability to obtain and maintain a state operator's driver's license.
15. Ability to perform duties within extreme temperature ranges.
16. Ability to understand and follow complex verbal and written instructions written or spoken in English.
17. Ability to communicate adequately with members of the general public and contractor's personnel. Public relations are a major part of the county employee's day to day function. As a representative of Cedar County an employee must present the ability to speak and respectfully deal with county residents.
18. Must be able to work overtime hours as assigned. Construction activities frequently begin before normal working hours or continue after normal quitting time.
19. Ability to operate surveying equipment including electronic distance measuring devices, theodolites, automatic levels, magnetic locators, etc. or learn same within one month of beginning employment.
20. IDOT certifications in aggregate, portland cement, and asphalt cement concrete plant inspection or to obtain certification in same within one year.

## **SUPERVISION REQUIREMENTS**

Employees of this classification have responsibilities for supervision of other employees, contract construction personnel, and part time departmental employees.

## **QUALIFICATION STANDARDS**

1. Completion of any combination of education and experience equivalent to graduation from high school in any combination of education including a GED. High school diploma preferred.
2. Graduation from an approved civil engineering technology program or equivalent experience is required. Equivalent experience would include at least five years of progressively responsible work in the field of engineering technology or as an engineering technician working under the supervision of a licensed engineer or land surveyor.
3. Ability to demonstrate skills in mathematics and science.
4. Valid state driver's license, CDL preferred.