U.S. DEPARTMENT of COMMERCE Office of the Secretary
Office of Human Resources Management

Electronics Engineer (Development) 12

GS-0855-12

NOTE: THE SENTENCE IN PART I DESCRIBING THE PURPOSE OF THE POSITION AND PARTS II AND III IN THEIR ENTIRETY ARE PERMANENT PARTS OF THE LIBRARY AND MAY NOT BE CHANGED OR EDITED IN ANY WAY.

I. INTRODUCTION

Serves as an electronics engineer providing professional level engineering expertise to a project or team involved in the design, development, testing, evaluation or experimentation of various types of advanced electronics technology, processes and systems.

II. MAJOR DUTIES AND RESPONSIBILITIES

As a professional electronics engineer, involved primarily in development activities, incumbent conducts engineering analyses, experiments with, develops and evaluates the performance and potential of: equipment, software, instrumentation, materials, theories, techniques, and data gathering and analysis tools and processes; and/or is involved in performing broader electronics experimental and investigative activities aimed at developing new and improved equipment in order to advance the current state of technology.

Typically the incumbent is responsible for: designing, constructing and testing new and innovative electronics equipment and related computer capabilities for use in such areas as atmospheric research, radio wave propagation and radio spectrum, environmental and electromagnetic data gathering; improving and/or retrofitting instrumentation (chemical, meteorological, electronic) for use in studies; designing and streamlining appropriate data acquisition and recording systems and for participation in field studies in order to test and further develop prototypical (and other previously unproven) systems.

III. FACTORS LEVELS

Factor I - Nature of Assignment Degree C (3 points)

The electronics engineering technical efforts typically require isolating or locating, as well as defining the causes of specific engineering problems, (e.g. anomalies in the electromagnetic spectrum), determining how work is to be accomplished; and independently carrying out the objectives. Such work efforts normally consist of long-range investigations necessary to solve problems or establish premises on which further technical developmental efforts can proceed. They also may be more immediate and intense efforts to produce a "cure" or technical resolution to difficulties encountered in the evaluation and production phases of equipment development projects.

Complexities arise either through in-depth investigation of obscure problems, (e.g. obfuscation in real-time data acquisition) or in the broadened scope of an investigation involving a less in-depth inquiry, where the focus is on identifying the type and extent of development effort needed and a broader effort in seeking solutions as well as treating and coordinating a variety of engineering and scientific tasks (e.g. radio spectrum utilization, electromagnetic distortions or fluctuations blocking wave transmission).

Final work efforts result in significant innovations in producing new equipment, techniques or methods; augmenting theoretical bases and criteria; curing faults and improving performance; or demonstrating feasibility of changes in electronics or engineering concepts, characterizations and methods. Such depth or breadth exists in the assignments, that the organization of the work is typically divided into blocks or tasks which can be accomplished by others or in a sequence of personal investigation.

Factor II - Supervision Received Degree C (3 points)

Supervisor or project/team leader provides assignments within the engineer's area of expertise (e.g. microwave transmission, wave propagation, spectrum analysis) in terms of broadly stated requirements and purposes to be met. The electronics engineer determines the specific technical objectives to be achieved and formulates proposals (as well as appropriate justifications) to define, isolate and select the approach best identified to solve the problem.

Normally, such assignments are part of a larger development effort requiring approval of the supervisor or team leader. The engineer independently carries out the plan of attack, resolves encountered conflicts and obstacles, and determines when sufficient demonstration of design has been accomplished to satisfy the mission requirements. The supervisor is kept apprised of progress with recommendations for major changes affecting requirements, costs, facilities or time subject to the supervisor's approval. Completed work is reviewed for adequacy and effectiveness.

Factor III - Guidelines and Originality Degree C (3 points)

Technical guidelines(e.g. theoretical research, industry specifications, engineering practices) and precedents are inadequate, controversial or contain critical gaps. Professional judgment, keen insight, initiative and ingenuity in dealing with technical data/telecommunications engineering problems and theoretical constructs are all required. Ability to winnow out irrelevancies, focus the experimentation efforts and reach realistic solutions is required. Acute judgment is also required in order reach empirical conclusions and to reflect valid findings and demonstrations on which to base the design of improved and new approaches, techniques and equipment.

Factor IV - Qualifications and Contributions Degree C (6 points)

Professional competency in electronics engineering specialties in areas such as data/radio/telecommunications, experimental design techniques, theoretical simulation and modeling, and data analysis is required using the skillful application of a range of engineering principles, techniques, and methods. The engineer must be thoroughly competent in resolving the issues involved, both by checking out and accounting for anomalies, and by reaching sound compromises as necessary. He/she must communicate and deal responsibly and accurately on electronics engineering technical matters (e.g. wave propagation, spectrum usage) within and outside the immediate organization. As required, may serve on tasks groups organized to resolve technical issues or present papers at meetings involving experimental, theoretical or developmental activities relative to data/radio/telecommunications. Results are in the form of theoretical investigations, experimental designs, and/or laboratory evaluations which provide the basis for significantly advanced and improved techniques and methods for equipment, products, and processes.

TOTAL= 15 pts

This position is exempt from coverage under the Fair Labor Standards Act.

IV. UNIQUE POSITION REQUIREMENTS

(Last Updated: November 4, 1994)
