



## INTERDISCIPLINARY ENGINEER, GS-13

### PURPOSE OF POSITION AND ORGANIZATIONAL LOCATION:

The primary purpose of this position is: To provide technical expertise in system engineering design establishing quantitative system-wide performance baselines; conducting trend analysis; integrating new command, control and communications (C3) systems into the Nuclear Command, Control and Communications (NC3) enterprise; identifying system deficiencies; recommending solutions and verifying the effectiveness of corrective actions; and developing recommendations and procedures needed to improve overall system performance. **The organizational location of this position is: NC3 Enterprise Center, Systems Engineering & Integration (SE&I) Division, Ft. Meade, MD.**

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### ORGANIZATIONAL GOALS OR OBJECTIVES:

The organizational goals or objectives of this position are: To provide technical expertise in system engineering complex NC3 systems to ensure seamless interoperability across the NC3 enterprise.

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### DUTY 1: 30 % Critical

Performs professional systems engineering work involved in the application of advanced theories, concepts, principles, and processes to the acquisition, development, or sustainment of NC3 systems, subsystems, and/or support equipment. Applies expert engineering and mastery of advanced engineering theories, principles, concepts, standards and methods to ensure assigned projects remain consistent with NC3 program objectives, costs, schedules, performance criteria, and existing policies. Plans, organizes, directs, and coordinates significant and complex projects in the communications, mission engineering and cyber security field, which represent critical segments of major NC3 operating programs. Performs duties involved in research, development, testing, evaluation, operation, maintenance, and/or directing the fabrication, manufacture, and installation of NC3 systems or subsystems. Researches, analyzes, and determines available options or the feasibility of different advanced approaches to resolve complex program issues; defines concepts and criteria for future programs or resolves major controversial problems in current programs to alter standard practices, equipment, devices, processes, and known techniques. Formulates and develops new products and/or theories pertaining to new applications of existing products and assesses the impact of new technology on current NC3 systems and processes. Creates new or improved system engineering equipment, materials, instrumentation, devices, systems, processes, techniques, and/or procedures. Applies experimental theories, new applications or developments to improve operations and/or resolve unique or complex/controversial problems, conditions, or issues. Prepares plans, drawings, manuals, and technical evaluations/specifications. Develops milestones and follows-up on required actions. Tests and implements systems. Surveys existing and/or proposed services for efficiency and economy. Resolves unusual emergency problems. Researches trends and patterns to deviate from traditional methods, and to implement new or improved communication methods and procedures. Creates engineering project plans that include required resources and adjust plan's funding, schedule and work based on project review.

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### DUTY 2: 25 % Critical



Functions as the SE&I Division's technical specialist in developing system performance requirements, objectives and integration, and the estimation of time and resources for system design, development, and support. Resolves unique or novel problems related to system design and development engineering. Plans, analyzes, and evaluates engineering and technical efforts used to define NC3 systems/subsystems requirements, translate requirements into design criteria, evaluate alternative design approaches, and develop system specifications. Performs analysis gaps and integrates technical requirements, directives, and program plans in support of assigned projects/programs in systems engineering. Prepares and reviews detailed specifications, drawings, and supporting documents, evaluates proposals, and presents conclusions and recommendations. Evaluates performance with respect to program requirements, evaluates design changes to assess effects on performance, and recommends changes to reduce system cost. Coordinates special studies on design changes, recommends solutions to technical problems, and recommends different engineering approaches through the development phase and into production. Analyzes systems/equipment to ensure functional and operational integrity, reliability, and ensure nominal performance/cost relationships. Incumbent determines the need for reorientation or termination of existing programs and for initiation of new programs based upon changing requirements or capabilities. Integrates multiple logistics and/or acquisition functions to implement program management strategy. Accomplishes complex engineering projects related to systems engineering for which existing guidelines may not be available or applicable. Develops standards and test plans; devises methods, processes, and procedures that become established models for the activity. Responsible for executing significant projects representing an important segment of agency programs and provides technical guidance, direction, and advice to engineers in the same specialty.

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**DUTY 3: 25 % Critical**

Performs complex and comprehensive analysis and uses systematic, disciplined, and quantifiable approaches to implement, develop, and document engineering projects. Evaluates procedures and employs innovative techniques and methods to achieve goals in support of engineering reviews and/or panels, develops evaluations and technical justifications of feasibility, practicability, and technical soundness, recognizing priorities as well as the urgency of the situation. Work may include use or development of computer aided engineering and analysis tools. Develops, executes, and reviews policies, processes, and procedures of a special or miscellaneous character that may span multiple engineering disciplines and requires application of knowledge of such principles. Participates in special projects, initiatives, and prepares oral/written reports. Presents briefings and develops technical reports to document progress and results. Prepares management reports and conducts technical presentations for planning, implementation, and corrective action.

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**DUTY 4: 20 % Critical**

Serves as a consultant and technical expert to senior subject matter specialists and/or agency officials responsible for broad program operations. Serves as the technical expert for SE&I Division and provides status and advisory services to superiors on problems, issues, and projects in assigned program areas. Attends meetings, conferences, briefings, and seminars related to project or program support. Conclusions and recommendations have a direct impact on management plans and decisions regarding policies and procedures. Remains mindful of new technology and revolutionary changes in research and development to ensure proper emphasis during the phases of life-cycle support. Conducts analysis of various systems, relationships, and models; i.e., evaluating and/or redefining the impact of new capabilities on current NC3 systems and policies. As a recognized expert, the employee has significant responsibility for defines major/critical problems and for advise management officials of advantages or disadvantages of various alternatives. Findings, recommendations, and decisions on functional issues influence processes and procedures used throughout the functional community. Coordinates with DOD Component staff offices and working groups, manufacturers, vendors, customers, and engineering/installation personnel. Provides reports and recommendations so that problems and solutions for NC3 systems/subsystems are resolved without jeopardizing the mission.



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**KNOWLEDGES, SKILLS, AND ABILITIES (KSA):**

1. Knowledge of engineering concepts, principles, practices, standards, methods, and techniques to effectively apply advanced engineering theories, principles and concepts to project development, execution, and advisory services.
2. Knowledge of development testing and evaluation sufficient to apply experimental theories and new applications to issues and provide technical advice and direction in support of telecommunication systems, subsystems, and/or support equipment.
3. Knowledge of systems engineering practices and procedures as they pertain to sustainment, modification, logistics, and production management principles, concepts, policies, and systems; of standard acquisition regulations, practices, and procedures; and of other engineering disciplines
4. Skill in applying an advanced analytical techniques such as; mathematical modeling, systems and statistical analysis to analyze and evaluate technical solutions and technologies.
5. Ability to devise and evaluate criteria, parameters, characteristics, and interrelationships for design approaches, and to assess the impact of new technology on current systems and processes.
6. Ability to research patterns to develop new methods, criteria, or proposed new telecommunications policies and procedures.
7. Ability to communicate clearly, concisely, and with technical accuracy, both orally and in writing, as well as work in a professional manner with peers, management, contractors, academia, and other agencies.