

## 2.10 Labor Categories and Qualifications

The following section describes the labor categories to be provided under the RFP.

### 1. Program Manager

**Duties:** The Program Manager is the contractor's manager for the Contract, and serves as the single point of contact for the Master Contractor with the State regarding the Contract. Performs overall management for Contract support operations. Organizes, directs, and coordinates the planning and production of all Contract activities, projects and support activities, including those of subcontractors. Oversees the development of or develops work breakdown structures, charts, tables, graphs, major milestone calendars and diagrams to assist in analyzing problems and making recommendations. Demonstrates excellent written and verbal communications skills. Establishes and alters corporate management structure to direct effective and efficient Contract support activities. Must be capable of negotiating and making binding decisions for the Master Contractor.

**Education:** Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Information Systems, Business or other related discipline. Master's degree and/or project management certification is preferred.

**General Experience:** At least twelve (12) years of experience in program or project management.

**Specialized Experience:** At least eight (8) years of experience in supervision or oversight of IT related programs or projects.

### 2. Project Manager

**Duties:** The Project Manager is assigned the management of a specific project and the work performed under assigned Task Orders. Performs day-to-day management of the project, identifies issues and risks and recommends possible issue and risk mitigation strategies associated with the project. Acts as a facilitator between a State agency and IT contractor. Is responsible for ensuring that work performed under TOs is within scope, consistent with requirements, and delivered on time and on budget. Identifies critical paths, tasks, dates, testing, and acceptance criteria. Provides solutions to improve efficiency (e.g., reduce costs while maintaining or improving performance levels). Monitors issues and provides resolutions for up-to-date status reports. Demonstrates excellent writing and oral communications skills.

**Education:** Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Information Systems, Business or other related discipline. Master's degree or project management certification is preferred.

**General Experience:** At least five (5) years of experience in project management.

**Specialized Experience:** At least five (5) years of experience in managing IT related projects and must demonstrate a leadership role in at least three successful projects that were delivered on time and on budget.

### 3. Subject Matter Expert - Senior

**Duties:** The area of expertise may be related to a specific discipline required by the State agency including, but not limited to: information technology, health care, education, public safety, social services, human resources, transportation, and environment. Requires expertise in the formulation of specifications and in the execution of technical initiatives in vertical areas. Defines requirements, performs analyses, and develops plans and requirements for systems.

**Education:** Bachelor's Degree from an accredited college or university in the specific discipline required by the State. A Master's Degree or Ph.D. Degree is preferred.

**General Experience:** At least twelve (12) years of relevant industry experience in the discipline is required.

**Specialized Experience:** At least ten (10) years of combined new and related older technical experience in the IT field directly related to the required area of expertise.

#### **4. Subject Matter Expert**

**Duties:** Defines the problems and analyzes and develops plans and requirements in the subject matter area for moderately complex-to-complex systems. Coordinates and manages the preparation of analysis, evaluations, and recommendations for proper implementation of programs and systems specifications including, but not limited to: information technology, health care, education, public safety, social services, human resources, transportation, and environment.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have seven (7) years of experience in the IT field.

**Specialized Experience:** At least five (5) years of combined new and related older technical experience in the IT field directly related to the required area of expertise.

#### **5. Senior Computer Software/Integration Analyst**

**Duties:** Must be knowledgeable in implementing computer systems in a phased approach of requirements analysis and conceptual design, site survey, system design review, critical design review, installation, integration, and testing. Must be knowledgeable in performing requirements analysis for a wide range of users in areas such as office automation, and finance and accounting. Must be able to present system designs for user approval at formal reviews. Must be capable of performing configuration management, software integration, interpreting software test results, and recommending solutions for unsatisfactory test results. Must be knowledgeable in life-cycle support, including maintenance, administration, and management. Must be able to provide solutions to identified software problem reports.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have eight (8) years of progressive working experience as a computer specialist or a computer systems analyst.

**Specialized Experience:** At least five (5) years of experience as a Computer Systems Analysts.

## 6. Computer Specialist - Senior

**Duties:** Must be able to determine costs for converting computer systems from one language or machine to another by using compilers, simulators, emulators, and/or language translators and to recommend better utilization of operating systems capabilities for improving system efficiency. Develops, manages, maintains, and evaluates current state-of-the-art computer hardware, software, and software development tools; evaluates their ability to support specific requirements and interface with other equipment and systems; determines potential and actual bottlenecks and proposes recommendations for their elimination; and makes recommendations for system improvements that will result in optimal hardware and software use.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have 8 years of computer experience in at least two of the following disciplines: system analysis, system programming, application programming, and equipment analysis.

**Specialized Experience:** At least 5 years of experience either as a computer hardware or systems software specialist or as a systems analyst with duties relating to the evaluation of third and fourth generation of current state-of-the-art computer hardware and software and its ability to support specific requirements for hardware and software evaluation, system management, or large-scale system development and maintenance.

## 7. Computer Specialist

**Duties:** Must be able to determine costs for converting computer systems from one language or machine to another by utilizing compilers, simulators, emulators, and/or language translators and recommend better utilization of operating systems capabilities to improve system efficiency. Must be able to develop, manage, maintain, and evaluate state-of-the-art computer hardware, software, and software development tools; evaluate their ability to support specific requirements and interface with other equipment and systems; determine potential and actual bottlenecks; propose recommendations for their elimination; and make recommendations for systems improvements that will result in optimal hardware and software usage.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have five (5) years of computer experience in at least two (2) of the following disciplines: systems analysis, systems programming, application programming, or equipment analysis.

**Specialized Experience:** At least three (3) years of experience as either a computer hardware and/or systems software specialist, or as a systems analyst with duties relating to the evaluation of third- and fourth-generation or state-of-the-art computer hardware and software and its ability to

support specific requirements for systems management or large-scale system development and maintenance.

## 8. Computer Systems Analyst - Senior

**Duties:** Provides technical and administrative direction for personnel performing software development tasks, including the review of work products for correctness, adherence to the design concept and to user standards and for progress in accordance with schedules. Must be able to coordinate with the Program Manager to ensure problem solution and user satisfaction. Makes recommendations, if needed, for approval of major systems installations. Prepares milestone status reports and deliveries/presentations on the system concept to colleagues, subordinates, and end user representatives. Provides daily supervision and direction to support staff.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have eight (8) years of computer experience working independently or under general direction on complex application problems involving all phases of systems analysis.

**Specialized Experience:** At least five (5) years of experience in analysis and design of business applications for complex large-scale or mid-tier computer systems, or LAN-based systems, to include experience in Database Management Systems (DOITS), and use of programming languages. Knowledge of current storage and retrieval methods and demonstrated ability to formulate specifications for computer programmers to use in coding, testing, and debugging of computer programs.

## 9. Computer Systems Analyst - Junior

**Duties:** Develops requirements for information systems from a project's inception to conclusion. Develops required specifications for simple to moderately complex systems. Assists senior computer systems analyst in preparing input and test data for the proposed system.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have three (3) years of computer experience in assignments of a technical nature working under close supervision and direction.

**Specialized Experience:** At least one (1) year of experience in analyzing and programming applications on large-scale or mid-tier computers (or LAN-based) with a minimum of one (1) year of design and programming of moderately complex IT systems.

## 10. Applications Programmer

**Duties:** Analyzes functional business applications and design specifications for functional areas such as finance, accounting, personnel, manpower, logistics, and contracts. Develops block

diagrams and logic flowcharts. Translates detailed design into computer software. Tests, debugs, and refines the computer software to produce the required product. Prepares required documentation, including both program-level and user-level documentation. Enhances software to reduce operating time or improve efficiency. Provides technical direction to programmers as required to ensure program deadlines are met.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have five (5) years of computer experience in information systems design.

**Specialized Experience:** At least three (3) years of experience as an application programmer on large-scale DOITS, knowledge of computer equipment, and ability to develop complex software to satisfy design objectives.

## 11. Applications Development Expert

**Duties:** Provides design recommendations based on long-term IT organization strategy. Develops enterprise level application and custom integration solutions including major enhancements and interfaces, functions and features. Uses a variety of platforms to provide automated systems applications to customers. Provides expertise regarding the integration of applications across the business. Determines specifications, then plans, designs, and develops the most complex and business critical software solutions, utilizing appropriate software engineering processes – either individually or in concert with a project team. Will assist in the most difficult support problems.

Develops programming and development standards and procedures as well as programming architectures for code reuse. Has in-depth knowledge of state-of-the art programming languages and object-oriented approach in designing, coding, testing and debugging programs. Understands and consistently applies the attributes and processes of current application development methodologies. Researches and maintains knowledge in emerging technologies and possible application to the business. Viewed both internally and externally as a technical expert and critical technical resource across multiple disciplines. Acts as an internal consultant, advocate, mentor and change agent.

**Education:** Preference for a Bachelor's or Master's Degree in Computer Science, Information Systems, or other related field or equivalent work experience.

**General Experience:** At least seven (7) years of IT and business/industry work experience.

**Specialized Experience:** At least three (3) years as Technical expert in IT organization. Coaches and mentors more junior technical staff. Provides technical input into the most complex and high impact IT decisions. Accountable for the most complex enterprise-wide applications and issues, translating highly complex concepts for peers and customers.

## 12. Computer Systems Programmer - Senior

**Duties:** Create and/or maintain operating systems, communications software, database packages, compilers, repositories, and utility and assembler programs. Modify existing software and develop special-purpose software to ensure efficiency and integrity between systems and applications.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have twelve (12) years of computer experience in information systems design.

**Specialized Experience:** At least ten (10) years of experience in IT systems analysis and programming.

### **13. Computer Systems Programmer**

**Duties:** Create and/or maintain operating systems, communications software, database packages, compilers, repositories, and utility and assembler programs. Modify existing software and develop special-purpose software to ensure efficiency and integrity between systems and applications.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have five (5) years of computer experience in information systems design.

**Specialized Experience:** At least three (3) years of experience in IT systems analysis and programming.

### **14. Computer Programmer - Senior**

**Duties:** Must be capable of utilizing third- and fourth-generation or current state-of-the-art IT equipment and languages to develop and prepare diagrammatic plans for solution of business, management, communications, and strategic problems. Must be able to design detailed programs, flowcharts, and diagrams showing mathematical computations and sequence of machine operations necessary to copy and process data and print results. Must be able to verify the accuracy and completeness of programs and systems by preparing sample representative data and perform testing by means of cycle and system processing.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have eight (8) years of programming experience in software development or maintenance.

**Specialized Experience:** At least five (5) years of experience in IT systems analysis and programming.

#### **15. Computer Programmer - Junior**

**Duties:** Must be capable of translating detail program flowcharts into program-coded instructions used by third- and fourth-generation, or current state-of-the-art computers.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have three (3) years of computer programming experience.

**Specialized Experience:** None.

#### **16. Advanced Technology Application Developer - Senior**

**Duties:** Must be able to translate applications requirements into web-based solutions using available technology. Must be able to apply new and emerging technologies to the software development process.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or five (5) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have three (3) years of computer experience in at least two of the following disciplines: system analysis, system programming, application programming, and equipment analysis.

**Specialized Experience:** At least one (1) year of experience developing applications using advanced technologies, including Internet protocols or web-based technology. Technologies include HTML, CGI applications, PERL or Javascript, and Java.

#### **17. Advanced Technology Application Developer**

**Duties:** Must be able to translate applications requirements into web-based solutions using available technology. Must be able to apply new and emerging technologies to the software development process.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have two (2) years of computer experience in at least two of the following disciplines: systems analysis, systems programming, application programming, and equipment analysis.

**Specialized Experience:** At least one (1) year of experience developing applications using advanced technologies, such as Internet protocols or web-based technology. Technologies include HTML, CGI applications, PERL or Javascript, and Java.

## 18. Information Engineer - Senior

**Duties:** Develops analytical and computational techniques and methodology for problem solutions. Performs process and data modeling in support of the planning and analysis efforts using manual and automated tools; such as Integrated Computer-Aided Software Engineering (I-CASE) tools. Must be able to apply reverse engineering and reengineering disciplines to develop migration strategic and planning documents. Provides technical guidance in software engineering techniques and automated support tools. Must be capable of applying business process improvement practices to modernization projects. Applies, as appropriate, activity and data modeling transaction flow analysis; internal control and risk analysis; modern business methods; and performance measurement techniques. Assists in establishing standards for information systems procedures. Develops and applies organization wide information models for use in designing and building integrated, shared software and DOITS.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have eight (8) years of experience in managing the implementation of information engineering projects and experience in systems analysis, design and programming using CASE and IE tools and methods.

**Specialized Experience:** At least five (5) years of experience in information systems development, functional and data requirement analysis, systems analysis and design, programming, program design, and documentation preparation.

## 19. Information Engineer

**Duties:** Must be capable of applying a business wide set of disciplines for planning, analysis, design, construction, and maintenance of information systems on a business-wide basis or across a major sector of the business. Must be capable of performing business strategic systems planning, information planning, and analysis. Performs process and data modeling in support of the planning and analysis efforts using both manual and automated tools, such as I-CASE tools. Must be able to apply reverse engineering and reengineering disciplines to develop migration strategic and planning documents. Provides technical guidance in software engineering techniques and automated support tools.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline.

**General Experience:** Must have five (5) years of experience in engineering, systems analysis, design, and programming.

**Specialized Experience:** At least two (2) years of experience in information systems development, functional and data requirement analysis, systems analysis and design, programming, program design, and documentation preparation.

## 20. Senior IT Professional

**Duties:** Identifies strategic issues for the Information Management Department and advises IT Senior Management of the risks and/or opportunities created by these issues. Issues will be centered on IT measurements and IT project management. IT measurements will encompass the refining or creating of measures related to value creation of IT products and services. Project Management will include presenting recommendations on ways of managing projects more effectively (including, but not limited to: appropriate methodology and quality reviews) Accountabilities include coordinating input from various IT departments to develop recommendations, conducting analyses of issues and ensuring adequate communication of the endorsed positions and recommendations to stakeholders.

**Education:** Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Information Systems, Business, Mathematics or a related technical or business field. A Master's degree is preferred.

**General Experience:** At least eight (8) years of relevant industry experience in the discipline required.

## 21. Database Manager

**Duties:** Must be capable of managing the development of database projects. Must be able to plan and budget staff and data resources. Supports application developers in planning preparation, load analysis, and backup and recovery of data. When necessary, reallocates resources to maximize benefits. Must be able to prepare and deliver presentations on DOITS concepts. Provides daily supervision and direction to support staff. Monitors performance and evaluates areas to improve efficiency.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have seven (7) years of experience in the development and maintenance of database systems.

**Specialized Experience:** At least five (5) years of experience with database management systems, system design and analysis, operating systems software, and internal and data manipulation languages.

## 22. Database Management Specialist - Senior

**Duties:** Must be capable of providing highly technical expertise and support in the use of DOITS. Must be able to evaluate and recommend available DOITS products to support validated user requirements. Defines file organization, indexing methods, and security procedures for specific user applications. Develops, implements, and maintains database back-up and recovery

procedures for the processing environments, and ensures that data integrity, security, and recoverability are built into the DOITS applications.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have six (6) years experience in DOITS systems analysis and programming.

**Specialized Experience:** At least three (3) years of experience in using current DOITS technologies, application design utilizing various database management systems and experience with DOITS internals.

### 23. Database Management Specialist - Junior

**Duties:** Must be capable of providing highly technical expertise and support in the use of DOITS. Must be able to evaluate and recommend available DOITS products to support validated user requirements. Defines file organization, indexing methods, and security procedures for specific user applications. Develops, implements, and maintains database back-up and recovery procedures for the processing environments, and ensures that data integrity, security, and recoverability are built into the DOITS applications.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have three (3) years experience in DOITS systems analysis and programming.

**Specialized Experience:** At least one (1) years of experience in using current DOITS technologies, application design utilizing various database management systems and experience with DOITS internals.

### 24. Quality Assurance Manager

**Duties:** Must be capable of maintaining and establishing a process for evaluating software and associated documentation. Must be able to determine the resources required for quality control. Must be able to maintain the level of quality throughout the software life cycle. Develops software quality assurance plans. Conducts formal and informal reviews at predetermined points throughout the development life cycle.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have six (6) years of experience in quality assurance and quality control.

**Specialized Experience:** At least three (3) years of experience in verification and validation, software testing and integration, software metrics, and their application to software quality assessment.

## 25. Quality Assurance Consultant - Senior

**Duties:** Provides quality management for information systems using the standard methodologies, techniques, and metrics for assuring product quality and key activities in quality management. Establish capable processes, monitoring and control of critical processes and product mechanisms for feedback of performance, implementation of an effective root cause analysis and corrective action system, and continuous process improvement. Provides strategic quality plans in targeted areas of the organization. Provides QA strategies to ensure continuous production of products consistent with established industry standards, government regulations and customer requirements. Develops and implements life cycle and QA methodologies and educates, and implements QA metrics.

**Education:** Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Information Systems or other related discipline. A Master's degree preferred.

**General Experience:** At least eight (8) years information systems quality assurance experience.

**Specialized Experience:** At least five (5) years experience working with statistical methods and quality standards. Must have good QA/process knowledge and possess superior written and verbal communication skills.

## 26. Quality Assurance Specialist

**Duties:** Must be able to determine the resources required for quality control. Must be able to maintain the level of quality throughout the software life cycle. Develops software quality assurance plans. Must be capable of maintaining and establishing a process for evaluating software and associated documentation. Participates in formal and informal reviews at predetermined points throughout the development life cycle to determine quality. Examines and evaluates the software quality assurance (SQA) process and recommends enhancements and modifications. Develops quality standards.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline.

**General Experience:** Must have five (5) years of experience working with quality control methods and tools.

**Specialized Experience:** At least three (3) years of experience in verification and validation, software testing and integration, software metrics, and their application to software quality assessment, and a demonstrated knowledge of system and project life cycles.

## 27. Testing Specialist

**Duties:** Must be capable of designing and executing IT software tests and evaluating results to ensure compliance with applicable regulations. Must be able to prepare test scripts and all

required test documentation. Must be able to design and prepare all needed test data. Analyzes internal security within systems. Reviews test results and evaluates for conformance to design.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Must have 4 years of experience in computer software development.

**Specialized Experience:** At least 2 years of software testing experience (integration and acceptance).

## 28. Training Specialist/Instructor

**Duties:** Conducts the research necessary to develop and revise training courses and prepares appropriate training catalogs. Prepares all instructor materials (course outline, background material, and training aids). Prepares all student materials (course manuals, workbooks, handouts, completion certificates, and course critique forms). Trains personnel by conducting formal classroom courses, workshops, and seminars.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Education/Training in the areas of Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have 4 years of experience in information systems development, training, or related fields.

**Specialized Experience:** At least 2 years of experience in developing and providing IT and end user training on computer hardware and application software.

## 29. Systems Engineer - Senior

**Duties:** Must be able to analyze information requirements. Must be able to evaluate problems in workflow, organization, and planning. Develops appropriate corrective action. Provides daily supervision and direction to staff.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have six (6) years of experience in systems engineering.

**Specialized Experience:** At least three (3) years of experience in the supervision of system engineers, and demonstrated use of interactive, interpretative systems with on-line, real-time acquisition capabilities.

## 30. Systems Engineer

**Duties:** Must be capable of analyzing information requirements. Evaluates system problems of workflow, organization, and planning. Develops appropriate corrective action.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have three (3) years of experience in systems engineering.

**Specialized Experience:** At least one (1) year of experience in demonstrated use of interactive, interpretative systems with on-line, real-time acquisition capabilities.

### 31. Software Engineer

**Duties:** Reviews and analyzes system specifications. Prepares programming specifications. Analyzes existing systems/subsystems for reusability benefits and needed changes. Prepares design plans and written analyses. Prepares unit and test scripts. Prepares documentation.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have three (3) years of experience as a software engineer.

**Specialized Experience:** At least two (2) years of experience working with Ada, SQL, or third/fourth generation languages in the design and implementation of systems and one (1) year working with DOITS.

### 32. Interdisciplinary Engineer - Senior

**Duties:** Must have demonstrated ability to perform senior level engineering and/or IT tasks in the disparate areas of software, electronics telecommunications, or networking. Must be capable of translating mission requirements and information problems into solutions employing current state-of-the-art information system equipment and software. Must be able to define interaction with and/or interface between these different categories of requirements and to develop the appropriate design to support these requirements while employing methodologies from any of the above disciplines as required. Must be able to serve as a liaison to interpret and translate among the various disciplines represented on the task team, and serve as a point of contact for evaluation of problems arising from the interdisciplinary nature of the task.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have eight (8) years of experience in technical work in the major areas of system management and system integration.

**Specialized Experience:** At least five (5) years of experience in specialized IT and telecommunications disciplines involving system interfaces, system integration and network development, and/or integration involving a wide range of network, hardware, and software solutions. At least 3 years in operating systems software, electronic communications analysis and design, or networking.

### 33. Interdisciplinary Engineer

**Duties:** Must be capable of translating mission requirements and information problems into solutions employing current state-of-the-art information system equipment and software. Must be able to define interaction and interface among different categories of requirements, and develop appropriate design to support the requirements while employing IT methodologies. Must be able to serve as a liaison to interpret and translate various disciplines represented on the task team, and serve as a point of contact for evaluation of problems arising from the interdisciplinary nature of the task.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline.

**General Experience:** Must have five (5) years of experience in technical work in the areas of system management and system integration.

**Specialized Experience:** At least three (3) years experience in IT disciplines involving operating systems software, electronics communications analysis and design, system interface, systems integration, and mechanical or civil engineering.

### 34. Computer Operations Center Specialist

**Duties:** Establishes detailed schedules for utilization of all equipment in the computer operations center to obtain maximum usage. Consults with personnel in other data processing sections to coordinate activities, and prepare activity and progress reports regarding the computer operations center. Evaluates production, equipment and personnel costs. Analyzes and interprets technical data processing data. Communicates technical data processing information effectively both orally and in writing. Applies applicable rules, regulations, policies and procedures of the computer operations center.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** This position requires a minimum of five (5) years of experience.

**Specialized Experience:** At least three (3) years of specialized experience working in a computer operations center. Ability to function in a multi-system and/or multi-application environment. Ability to operate and monitor multiple terminals. Knowledge of data processing operations, equipment, procedures, and workflow. Knowledge of environmental requirements of mainframes, servers and other hardware. Knowledge of emergency security procedures for a computer operations center.

### 35. Computer Operations Research Analyst

**Duties:** Performs technical work in the operation of electronic computers and auxiliary peripheral equipment. Collates information into meaningful reports and presentation material. Maintains any technical information in a systems library. Applies principles and methods to

obtain maximum utilization of computer equipment. Operates and cares for electronic computer and peripheral equipment.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** A minimum of one (1) year of work experience in a business environment.

**Specialized Experience:** At least one (1) year of demonstrated experience working in a computer operations center. Ability to function in a multi-system and/or multi-application environment. Ability to follow complex oral and written instruction. Ability to operate and monitor multiple terminals.

### 36. Operations Research Analyst - Senior

**Duties:** Conducts investment analyses or other complex operational analyses. Provides expertise and supports evaluations of program results and potential changes to program results related to IT investments along with an analysis and presentations of alternatives. Provides operational analyses support to all phases of the life cycle of an information system. Conducts operational analyses of existing systems using performance measures, criteria, and standards to determine requirements for needed changes. Evaluates, selects, and uses the tools of modern operations research (such as commercially available decision and analytical support software tools) to conduct analyses of projected changes to system or program performance. Supports architecture efforts including economic analyses of architecture alternatives, architecture issues resolutions, and affordability analyses.

**Education:** Bachelor's Degree from an accredited college or university in a related field, with at least 24 semester hours in a combination of mathematics, probability, statistics and logic. Master's degree preferred.

**General Experience:** Must have eight (8) years experience in operations research.

**Specialized Experience:** At least five (5) years experience in conducting quantitative analysis using operations research tools, econometrics, or other quantitative techniques.

### 37. Senior Systems Analyst

**Duties:** Serves as a computer systems expert on assignments that typically involve establishing automated systems, where concern is with overall life cycle structure; and conducts feasibility studies from design, implementation and post-implementation evaluation from a number of possible approaches. Design criteria must be established to accommodate changes in legislation, mission, or functional program requirements.

**Education:** Bachelor's Degree from an accredited college or university in Computer Science, Systems Analysis, Information Systems or a related field. A Master's Degree in a related field of information technology is preferred.

**General Experience:** A minimum of eight (8) years of experience in information technology systems analysis.

**Specialized Experience:** At least five (5) years of the experience in the design of business applications on complex IT systems. Requires a broad knowledge of data sources, data flow, system interactions, advanced computer equipment and software applications, and advanced systems design techniques to develop solutions to unyielding complex problems and to advise officials on systems design and IT forecasts.

### **38. Information Technology Architect - Senior**

**Duties:** Provides expertise in the most current principles and practices of architecture data management systems and experience in large system designs, and with data modeling in the information management arena. Provides expertise in modeling and organizing information to facilitate support of projects or information architectures. Provides guidance on how and what to data and process model. Primarily deals with transition planning from legacy to modern systems by concentrating on information flows, data exchange, and data translation standardization services.

**Education:** Bachelor's Degree from an accredited college or university with a major in Engineering, Computer Science, Mathematics or a related field. Master's degree preferred.

**General Experience:** At least ten (10) years experience planning, designing, building, and implementing IT systems.

**Specialized Experience:** At least five (5) years of the required 10 years of experience must be in the direct supervision and management of major projects that involve providing professional support services and/or the integration, implementation and transition of large complex system and subsystem architectures. Must have led or been chief architect in major IT implementation efforts. Must demonstrate a broad understanding of client IT environmental issues and solutions and be a recognized expert within the IT industry. Must demonstrate advanced abilities to team and mentor and possess demonstrated excellence in written and verbal communication skills.

### **39. Information Technology Planner - Senior**

**Duties:** Provides planning services for a wide range of programs and projects including design, development, implementation, post-implementation and maintenance of the systems. Provides SWOT analyses, critical success factor analyses, strategic business planning, strategic information systems planning, value chain analyses, e-business assessments, and other techniques used to establish strategic plans. Provides expertise in conducting research, evaluations, and studies required to develop both short-term and long-term plans. Provides plans, designs, concepts, and develops both general and specific program and project strategies for linking proposed investments in IT to business results. Provides planning, scheduling, networking and coordination assistance among State organizations involved in implementation and integration efforts. Identifies problems and recommends solutions.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Planning or other related scientific or technical discipline. A Master's degree is preferred.

**General Experience:** At least ten (10) years progressive experience as an IT planner - or involved in planning type functions.

**Specialized Experience:** At least six (6) years of experience in planning, analyses, design, development, implementation and post-implementation of IT projects or systems.

#### **40. Application Architect - Senior**

**Duties:** Manages major projects that involve providing professional support services and/or the integration, implementation and transition of large, complex systems. Provides design and development of e-government solutions, and is responsible for technical design and implementation of the architecture. Designs, develops and maintains infrastructure and backend applications. Provides expertise on defining the role of broadband and wireless applications. Provides definition of current State architecture blueprints. Provides expertise with web servers, gateways, and application servers and content management systems. Provides experience in web application technologies and middleware solutions. Researches new technologies and products for their applicability to business processes. Must be able to compare various solutions and determine the most suitable. Ensures that development efforts are well planned and in agreement with standards.

**Education:** Bachelor's Degree from an accredited college or university in Engineering, Computer Science, Mathematics or other related scientific or technical discipline. Master's degree preferred.

**General Experience:** At least ten (10) years of experience planning, designing, building, and implementing IT application systems. Must have led or been chief architect in a major IT applications implementation effort. Must have a strong background in software engineering principles and techniques.

**Specialized Experience:** At least six (6) years of experience in designing medium to large-scale sites and management of at least five Internet projects.

#### **41. Computer Operator - Senior**

**Education:** A high school diploma or equivalent. An Associate's Degree from an accredited college or university in Computer Science, Information Systems, Business or other related technical discipline is preferred. An Associate's Degree in one of the above disciplines equals one-year specialized and two years general experience. An additional year of specialized experience may be substituted for the required education.

**General Experience:** Seven years experience in a computer-related field.

**Specialized Experience:** Five years experience administering multi-user, shared processor systems.

#### **42. Computer Operator**

**Education:** A high school diploma or equivalent. An Associate's Degree from an accredited college or university in Computer Science, Information Systems, Business or other related technical discipline is preferred. An Associate's Degree in one of the above disciplines equals

one-year specialized and two years general experience. An additional year of specialized experience may be substituted for the required education.

**General Experience:** Five years experience in a computer-related field.

**Specialized Experience:** Three years experience administering multi-user, shared processor systems.

#### 43. Office Automation Specialist

**Duties:** Specialized data entry work, operating specialized data entry equipment in a high production and closely monitored work environment. Responsible for key entering data from a variety of source documents with specific standards maintained for speed and accuracy.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** This position requires a minimum of five (5) years of experience data entry work and equipment.

**Specialized Experience:** At least three (3) years of specialized experience in the operation of specialized data entry equipment.

#### 44. Help Desk Manager

**Duties:** Provides daily supervision and direction to staff who are responsible for phone and in-person support to users in the areas of e-mail, directories, standard Windows desktop applications, and other network services. Manages personnel who serve as the first point of contact for troubleshooting hardware and software PC and printer problems.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** This position requires a minimum of seven (7) years of experience in the management of a Help Desk. General experience includes information systems development, network and other work in the client/server field, or related fields.

**Specialized Experience:** At least five (5) years of specialized experience includes management of help desks in a multiserver environment, comprehensive knowledge of PC operating systems (e.g., DOS, Windows), networking and mail standards, and supervision of help desk employees. Demonstrated ability to effectively communicate orally and in writing and to have a positive customer service attitude.

#### 45. Help Desk Specialist - Senior

**Duties:** Provides telephone and in-person support to users in the areas of directories, standard Windows desktop applications, and applications developed under this Contract or predecessors.

Serves as the initial point of contact for troubleshooting hardware/software PC and printer problems.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** This position requires a minimum of seven (7) years of experience in a business IT environment with emphasis on PC computer hardware and applications. General experience includes, but is not limited to: information systems development, work in the client/server field, or related fields.

**Specialized Experience:** At least five (5) years comprehensive knowledge of PC operating systems, e.g., DOS, Windows, as well as work on a help desk. Demonstrated ability to effectively communicate orally and in writing and to have a positive customer service attitude.

#### **46. Help Desk Specialist - Junior**

**Duties:** Provides telephone and in-person support to users in the areas of directories, standard Windows desktop applications, and applications developed under this Contract or predecessors. Serves as the initial point of contact for troubleshooting hardware/software PC and printer problems.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** This position requires a minimum of five (5) years of experience in business IT environments with emphasis on PC hardware and applications. General experience includes information systems development, work in the client/server field, or related fields.

**Specialized Experience:** At least two (2) years comprehensive knowledge of PC operating systems, e.g., DOS, Windows, as well as work on a help desk. Demonstrated ability to communicate orally and in writing and to have a positive customer service attitude.

#### **47. Systems Administrator**

**Duties:** Monitor and coordinate all data system operations, including security procedures, and liaison with end users. Ensure that necessary system backups are performed and storage and rotation of backups is accomplished. Monitor and maintain records of system performance and capacity to arrange vendor services or other actions for reconfiguration and anticipate requirements for system expansion. Assist managers to monitor and comply with State data security requirements. Coordinate software development, user training, network management and minor installation and repair of equipment.

**Education:** An Associate's degree from an accredited college or university in Computer Science, Information Systems, Business or other related technical discipline. A Bachelor's Degree in one of the above disciplines equals one-year specialized and two years general experience. An additional year of specialized experience may be substituted for the required education.

**General Experience:** Two years experience in a computer-related field.

**Specialized Experience:** One year experience administering multi-user, shared processor systems and data communications networks.

#### **48. Computer Security Systems Specialist - Senior**

**Duties:** Analyzes and defines security requirements for Multilevel Security (MLS) issues. Designs, develops, engineers, and implements solutions to MLS requirements. Responsible for the implementation and development of the MLS. Gathers and organizes technical information about an organization's mission goals and needs, existing security products, and ongoing programs in the MLS arena. Performs risk analyses, which also include risk assessment. Provides daily supervision and direction to staff.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** This position requires a minimum of eight (8) years of experience in analysis and definition of security requirements.

**Specialized Experience:** At least five (5) years of specialized experience in defining computer security requirements for high-level applications, evaluation of approved security product capabilities, and developing solutions to MLS problems.

#### **49. Computer Security Systems Specialist**

**Duties:** Analyzes and defines security requirements for MLS issues. Designs, develops, engineers, and implements solutions to MLS requirements. Gathers and organizes technical information about an agency's mission goals and needs, existing security products, and ongoing programs in the MLS arena. Performs risk analyses, which also include risk assessment. Provides daily direction to staff.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or four (4) years of equivalent experience in a related field.

**General Experience:** This position requires a minimum of six (6) years of experience in analysis and definition of security requirements.

**Specialized Experience:** At least four (4) years of specialized experience in defining computer security requirements for high-level applications, evaluation of approved security product capabilities, and developing solutions to MLS problems.

#### **50. Data Security Specialist**

**Duties:** Responsible for the planning, design, implementation and monitoring of security measures, policies, methods and procedures which safeguard the integrity of and access to enterprise systems, files and data elements. Responsible for acting on security violations. Maintains knowledge of changing technologies, and provides recommendations for adaptation of new technologies or policies. Recognizes and identifies potential areas where existing data security policies and procedures require change, or where new ones need to be developed,

especially regarding future business expansion. Provides management with risk assessments and security briefings to advise them of critical issues that may affect customer, or corporate security objectives.

**Education:** Preference for a Bachelor's Degree in Computer Science, Information Systems, or other related field or equivalent work experience.

**General Experience:** At least four (4) years of IT work experience in data security.

**Specialized Experience:** Has worked independently or as part of a team under general supervision and coached more junior technical staff.

### 51. System Security Specialist

**Duties:** Provides expert-level advice, analysis, and functional expertise to tasks. Demonstrates exceptional oral and written communication skills. Reviews requirements and task documentation for accuracy and applicability.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline.

**General Experience:** This position requires a minimum of twelve (12) years of experience in system security.

**Specialized Experience:** At least seven (7) years of highly specialized experience in one or more information, computer, or network security disciplines. These disciplines could include penetration testing, intrusion detection and audit analysis, public key infrastructure, cryptography, strong authentication, risk analysis, and multilevel security.

### 52. INFOSEC Engineer

**Duties:** Analyzes and defines security requirements for information protection. Defines and develops security policies. Analyzes the sensitivity of information, performs vulnerability and risk assessments on the basis of defined sensitivity and information flow.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** This position requires a minimum of eight (8) years of experience in information protection.

**Specialized Experience:** At least five (5) years of experience in defining security programs or processes for the protection of sensitive or classified information.

### 53. System Security Research Analyst

**Duties:** Gathers, analyzes, and composes technical information. Conducts research in one or more security disciplines and ensures the use of proper technical terminology. Translates

technical information into clear, readable documents to be used by technical and non-technical personnel.

**Education:** A Bachelor's degree from an accredited college or university in a related field or high school diploma with additional experience. A Bachelor's degree is preferred.

**General Experience:** This position requires no experience if a B.A. or B.S. Degree has been obtained. If only a high school diploma has been obtained, a minimum of two (2) years of system security experience is required.

**Specialized Experience:** If a B.A. or B.S. Degree has been obtained, a minimum of one (1) year of experience is required in researching information using technical documentation, library resources, and the Internet.

#### 54. Research Analyst

**Duties:** Analyzes existing and potential product and service information, prospective customers and markets. Collates information into meaningful reports and presentation material. Maintains any technical information in a systems library.

**Education:** High School Diploma or Associate's Degree in Business, or related field. A Bachelor's degree is preferred.

**General Experience:** A minimum of one (1) year of work experience in a business environment.

**Specialized Experience:** At least one (1) year of demonstrated experience word processing, using electronic spreadsheets and other administrative software products. General knowledge of governmental documents and procedures.

#### 55. Documentation Specialist

**Duties:** Gathers, analyzes, and composes technical information. Conducts research and ensures the use of proper technical terminology. Translates technical information into clear, readable documents to be used by technical and non-technical personnel. For applications built to run in a Windows environment, uses the standard help compiler to prepare all on-line documentation.

**Education:** Associate's Degree in related field. A Bachelor's degree is preferred.

**General Experience:** Must have four (4) years of experience in technical writing and documentation experience pertaining to all aspects of IT.

**Specialized Experience:** A minimum of two (2) years of experience in preparing technical documentation, which is to include researching for applicable standards.

## 56. Technical Writer/Editor

**Duties:** Assists in collecting and organizing information for preparation of user manuals, training materials, installation guides, proposals, and reports. Edits functional descriptions, system specifications, user manuals, special reports, or any other customer deliverables and documents. Conducts research and ensures the use of proper technical terminology. Translates technical information into clear, readable documents to be used by technical and non-technical personnel. For applications built to run in a Windows environment, uses the standard help compiler to prepare all on-line documentation. Assists in performing financial and administrative functions. Must demonstrate the ability to work independently or under only general direction.

**Education:** Associate's Degree in related field. A Bachelor's degree is preferred.

**General Experience:** A minimum of five (5) years of experience in this area.

**Specialized Experience:** At least two (2) years of experience in preparing and editing documents, including technical documents. Also includes researching for applicable standards.

## 57. Project Control Specialist

**Duties:** Monitors financial and/or administrative aspects of assigned Contracts and deliverables. Tracks and validates all client financial information, establishes and maintains master Contract files, prepares and monitors status of all deliverables and tracks the value of Contracts. Uses automated systems to track deliverables, financial transactions, and management information.

**Education:** High School Diploma or equivalent. A Bachelor's degree is preferred.

**General Experience:** Must have three (3) years of experience working with monitoring systems. Familiar with manpower and resource planning, preparing financial reports and presentations, and cost reporting Contract guidelines.

**Specialized Experience:** Preparation and analysis of financial statements, development of project schedules, using cost-accounting and labor-reporting systems, working knowledge of Contract and subcontract management. Proficient in the use of spreadsheets and project management tools.

## 58. Program Administration Specialist

**Duties:** Assists in the preparation of management plans and various customer reports. Coordinates schedules to facilitate the completion of TO and change proposals, Contract deliverables, TO reviews, briefings and presentations. Performs analysis, development, and review of program administrative operating plans and procedures.

**Education:** High school diploma or equivalent. A Bachelor's degree is preferred.

**General Experience:** Must have three (3) years of experience working with project management tools and reporting systems. Familiar with government contracts, work breakdown structures, management/business plans, and program reporting.

**Specialized Experience:** At least two (2) years of direct program experience in Contract administration and preparing management reports. Has worked in support of a Program Manager on a government Contract.

#### **59. Internet/Intranet Site Developer - Senior**

**Duties:** Must be able to translate applications requirements into the design of complex web sites, including integrating web pages and applications. Must be able to apply new and emerging technologies to the site development process.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have five (5) years of web development experience using current Web development and graphic tools, as well as, Web Server and database administration.

**Specialized Experience:** At least three (3) years of experience designing, developing and deploying Web sites and/or Web applications, including product selection, configuration, installation, maintenance, and site specific Web development languages and relational databases.

#### **60. Internet/Intranet Site Developer - Junior**

**Duties:** Must be able to translate applications requirements into the design of complex web sites, including integrating web pages and applications. Must be able to apply new and emerging technologies to the development process.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline or three (3) years of equivalent experience in a related field.

**General Experience:** Must have one (1) year of web development experience using current Web development and graphic tools, as well as, Web server and database administration.

**Specialized Experience:** At least one (1) year of experience designing, developing and deploying Web sites and/or Web applications, including product selection, configuration, installation, maintenance, and site policy development. Experience developing Web pages using HTML, scripting languages, platform specific web development languages and relational databases.

#### **61. Internet/Web Architect**

**Duties:** Responsible for analyzing assigned specifications, planning, designing and developing solutions, utilizing appropriate Internet/Intranet/Extranet architecture processes supporting a wide range of business process. Provides appropriate documentation for object design decisions, estimating assumptions, applets and performance metrics – as required by organization architecture process standards, or as assigned. Responsible for minimizing the issues between the client and the server applications and for the overall setup and design of the Internet and web server architecture. Impact and complexity of this job increases if organization is utilizing Internet solutions (vs. only Intranet), especially those with significant business impact (e.g., e-business).

**Education:** Preference for a Bachelor's Degree in Computer Science, Information Systems, or other related field or equivalent work experience.

**General Experience:** At least five (5) years of IT work experience.

**Specialized Experience:** Has worked independently or as a part of a team under general supervision and coached more junior technical staff. Technical expert in IT organization. Provides input into highly complex and high impacting decisions as it relates to area of expertise.

## 62. Computer Graphics Illustrator

**Duties:** Duties will include recommending various methods of portraying ideas and the design, layout, and generation of a variety of graphical presentation products from rough drafts or outlines. Must possess skill in the preparation of graphs, charts and text data for visual presentations. Duties will be performed using complex automated color graphic equipment and PC software packages. A basic knowledge of graphic equipment, graphic software, file formats and graphic terms is required.

**Education:** High school diploma or equivalent. An additional year of specialized experience may be substituted for the required education.

**Total Experience:** Three years experience in creating and generating graphics using computer graphics software.

## 63. Systems Architect - Senior

**Duties:** Responsible for developing business, data, systems, and infrastructure models to develop enterprise architectures. Develops plans for migrating architectures. Develops technical reference models to include hardware/software standards. Engineer's integrated hardware and software solutions to meet mission requirements.

**Education:** Bachelor's Degree from an accredited college or university in Computer Science, Information Systems or related field or three (3) years of equivalent experience in a related field. A Master's Degree in information technology is a plus.

**General Experience:** Experience performing architecture related work on at least five (5) IT systems.

**Specialized Experience:** Experience performing a significant role in all aspects of architecture related work on at least two (2) large IT systems.

## 64. Systems Design Architect

**Duties:** Must be able to lead team in developing application, development, network, and technical architectures for mid-range client/server and mainframe applications. Responsible for gathering and defining the architecture requirements and for ensuring that the architectures are compatible and in compliance with the appropriate IT organization and project standards.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have six (6) years of experience planning, designing, building, and implementing mid-range IT systems.

**Specialized Experience:** At least four (4) years of experience developing application, development, network, and technical architectures for mid-range client/server and mainframe applications. Demonstrated ability to develop and execute architecture strategies and to perform feasibility studies and integration analyses. Experience supervising and providing guidance in implementing various mid-range architectures and supporting implementation of large-scale applications.

### 65. Systems Design Engineer

**Duties:** Must be able to perform design of information systems, including the design of the application architecture, database, and interfaces. Responsible for gathering and analyzing user requirements and translating them into system designs.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree is preferred.

**General Experience:** Must have six (6) years of experience planning, designing, building, and implementing IT systems. Familiar with Capability Maturity Model compliant structured methodology.

**Specialized Experience:** At least four (4) years of experience analyzing user requirements and translating them into system designs using various design tools and techniques. Demonstrated ability to develop and execute system designs, ensure implementation of repeatable processes, and ensure compliance with Capability Maturity Model (CMM) methodology.

### 66. Cost Accountant - Senior

**Duties:** Provides cost estimating and financial management support, including all activities, which occur during the life cycle of an information technology application or system. Conducts investment analyses or other complex operational analyses. Provides expertise and support in conducting a full range of investment analyses activities, including market surveys, cost analyses, benefits analyses, risk analyses, economic analyses, requirements definitions, schedule development, and tradeoff studies. Supports architecture efforts including economic analyses of architecture alternatives, architecture issues resolutions, and affordability analyses. Conducts analytical studies involving complex technical analyses, schedule constraints, and system benefits and system cost factors. Identifies cost accounting or financial problems and recommends solutions. Presents plans, analyses, and other advice within functional areas.

**Education:** Bachelor's Degree from an accredited college or university in Economics, Business, Accounting, Finance, or related discipline. A Master's degree and CPA are preferred.

**General Experience:** A minimum of eight (8) years relevant experience as a cost analyst or involved in analysis in business-related subject areas such as accounting, finance or economics.

**Specialized Experience:** At least five (5) years experience in financial cost accounting with demonstrated success in analyzing information systems.

#### **67. Financial Analyst - Senior**

**Duties:** Provides financial management planning and execution support. Has knowledge of theories, principles and practices of financial management, including time value analyses, cash flow analyses and cost/benefit and return on investment analyses. Conducts investment analyses or other complex operational analyses. Provides expertise and support in conducting a full range of investment analyses activities, including market surveys, cost analyses, benefits analyses, risk analyses, economic analyses, requirements definitions, schedule development, and tradeoff studies. Supports architecture efforts including economic analyses of architecture alternatives, architecture issues resolutions, and affordability analyses. Classifies and summarizes financial data for the preparation and submission of reports on a recurring basis. Must be able to apply financial analysis to information systems issues.

**Education:** Bachelor's Degree from an accredited college or university in Economics, Business, Accounting, Finance, or related discipline. A Master's degree and CPA are preferred.

**General Experience:** At least eight (8) years progressive experience as an analyst or involved in analyst type functions in a business related subject area such as accounting, finance or economics.

**Specialized Experience:** At least five (5) years of financial management experience with demonstrated ability in analyzing information systems.

#### **68. Financial Analyst**

**Duties:** Must be able to clearly define government financial business practices and Electronic Commerce/Electronic Data Interchange (EC/EDI) opportunities, and incorporate the defined processes into an automated solution that includes relational databases and distributed systems for integration into the government financial business system. Identifies potential problems and solutions through analysis identifying recommended solutions. Must be able to work with functional specialists, automation specialists, Master Contractors, vendors, and customers to effectively automate the customer's requirements into an automated application. Acts as a focal point to coordinate all disciplines in the recommended solution. Must be able to communicate with both IT and financial oriented individuals to document the flow, recommend opportunities, impact recommendations, and serve as the liaison between the financial specialist and automation specialist that do not have both disciplines. Must be able to apply state-of-the-art applications that will effectively automate financial applications in the most effective manner while adhering to the established Accounting Principals and Practices.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Finance, Business, or other related technical discipline. A Master's Degree is preferred.

**General Experience:** Must have five (5) years of financial management experience.

**Specialized Experience:** At least three (3) years of experience in financial management with demonstrated ability in analyzing, designing, and developing automated applications for unique business practices in a fee-for-service environment.

## 69. IT Auditor - Senior

**Duties:** Identifies information processing and technology risks. Evaluates controls and makes recommendations. Identifies problems and recommends solutions. Reviews the installation and security related controls for a wide variety of computing platforms, including operating systems, sub-systems, databases and software products used to support the processing environment. Prepares and performs audit tests and evaluates results. Provides documentation of audit tests to facilitate efficient and effective reviews.

**Education:** CPA required. Bachelor's Degree from an accredited college or university in Accounting, Finance, Business, Computer Science, Information Systems, or related field.

**General Experience:** At least ten (10) years auditing experience.

**Specialized Experience:** At least seven (7) years of experience in IT audits. Proficient in generally accepted IT standards, statements and practices and IT security and control practices.

## 70. Auditor - Senior

**Duties:** Provides third party reviews, ratings and evaluations of IT vendors. Researches corporate philosophy, goals, objectives, and code of ethics and business practices. Provides financial status including, but not limited to: assets, liabilities, operating capital, cash flow, and insurance coverage. Provides financial reports and annual reports. Provides ranking among peers in the IT industry and reputation in the IT industry. Researches customer satisfaction levels and strengths and weaknesses. Provides costing estimations and personnel qualifications and performance ratings. Researches project management results and performance records. Provides legal history and overall performance.

**Education:** Bachelor's Degree from an accredited college or university in Accounting, Finance, Business or a related field. A CPA is preferred.

**General Experience:** At least ten (10) years of auditing experience.

**Specialized Experience:** At least five (5) years experience as an auditor in auditing IT vendors.

## 71. Risk Assessment Consultant - Senior

**Duties:** Manages the identification and reporting on risk assessments and updates evaluations in order to determine and forecast operational needs and changes. Provides presentations on reporting and operational enhancements and metrics with special focus on variance analysis. Establish risk management policies and procedures, and guidelines on risk limits. Provides fraud expertise on services to internal and external customers. Develops system enhancements and meaningful reporting and operational management reporting tools and web-based tools and programs to manage, prevent, and mitigate risks. Identifies problems and recommends solutions to risk assessments.

**Education:** Bachelor's Degree from an accredited college or university in a related field. A Master's degree preferred.

**General Experience:** At least ten (10) years of risk assessment experience.

**Specialized Experience:** At least six (6) years of experience in IT risk assessment.

## 72. Business Process Consultant - Senior

**Duties:** Develops business requirements and business processes re-engineering methodologies. Solves application and process related problems by creating detail process and system design specifications; and works with other areas across the business units to support a total solution approach. Communicates business requirements for reports and applications development. Facilitates collaboration within and across business units and across IT functions. Resolves problems and improves business units' technical environments.

**Education:** Bachelor's Degree from an accredited college or university in Business, Human Resources Management or a related field. An MBA or MPA is preferred.

**General Experience:** At least eight (8) years experience in business process re-engineering.

**Specialized Experience:** At least five (5) years of experience in reengineering large scale business processes.

## 73. Group Facilitator - Senior

**Duties:** Provides assistance in the group decision-making process by intervening to help a group improve its effectiveness and efficiency through enhanced problem identification, problem solutions and decision-making skills. Takes primary responsibility for managing the group process and assists groups to be more effective by improving existing group practices. Guides groups through proven processes and understands basic group dynamics and interrelationships. Intervenes when it is evident that the group process or other factors interfere with a group's ability to accomplish specific goals and objectives.

**Education:** Bachelor's Degree from an accredited college or university in Education, the Social Sciences, Human Resources, Business or a related field.

**General Experience:** At least five (5) years of experience as a group facilitator.

**Specialized Experience:** At least three (3) years of experience as a group facilitator involving technical projects.

## 74. Marketing Consultant - Senior

**Duties:** Develops marketing strategies for publications of State agencies' technology results and achievements. Develops marketing plans and recommends marketing strategies and measurements for the success of the marketing strategies. Provides survey results for State agencies on IT topics, completes applications for IT awards and develops periodic reports of IT accomplishments, including annual reports or other marketing-related documents.

**Education:** Bachelor's Degree from an accredited college or university in Marketing, Business, Communications or other related discipline. A Master's degree is preferred.

**General Experience:** At least eight (8) years of marketing or communications experience.

**Specialized Experience:** At least five (5) years of experience in technology marketing or a related field.

#### **75. Market Research Consultant - Senior**

**Duties:** Develops marketing and promotion strategies and tactics. Evaluates concepts for advertising campaigns. Develops and manages qualitative market research studies and develops reports. Analyses web site traffic and develops quantitative reports. Reviews marketing campaigns and their impact on web site audience behavior. Develops online survey questionnaires and launches surveys. Performs statistical analyses of responses to online surveys. Conducts various Internet analyses. Develops methodologies for optimum study results.

**Education:** Bachelor's Degree from an accredited college or university in Marketing, Business, or Statistics. An MBA or Master's Degree in Marketing is preferred.

**General Experience:** At least eight (8) years of marketing research experience.

**Specialized Experience:** At least five (5) years of experience in technology marketing or a related field.

#### **76. Telecommunications Engineer - Senior**

**Duties:** Provides engineering and technical support for Statewide telecommunications projects and services. Provides designs and applications to insure overall technical integrity. Provides high-level planning for the systems used by telecommunications organizations. Performs process and data modeling for the planning and analyses of automated tools. Provides technical expertise and guidance in engineering techniques and automated support tools. Provides assistance with planning, design, cost/benefit analyses, assessment of configurations and performance measurements, development, implementation and recommendations for staffing levels for telecommunications systems and processes.

**Education:** Bachelor's Degree from an accredited college or university in Engineering, Telecommunications, Computer Science, Information Systems or other related scientific or technical discipline. A Master's degree is preferred.

**General Experience:** At least ten years of telecommunications experience.

**Specialized Experience:** At least six (6) of experience in commercial and long distance network architectural design and engineering.

#### **77. Telecommunications Engineer**

**Duties:** Responsible for engineering and/or analytical tasks and activities associated with technical areas within the telecom function (e.g., network design, engineering, implementation, diagnostics or operations/user support). Performs complex tasks relating to network monitoring, operations, installation, and/or maintenance for local, off-site, and/or remote locations.

The scope of responsibility for this position includes, but is not limited to, the configuration, deployment, testing, maintenance, monitoring, and trouble-shooting of network components to provide a secure, high performance network. Duties also entail quality assurance and testing of transmission mediums and infrastructure components.

**Education:** Bachelor's Degree in Computer Science, Information Systems, or other related field or equivalent work experience.

**General Experience:** Three (3) to five (5) years of IT work experience.

**Specialized Experience:** Has worked independently or as a part of a team under general supervision and coached more junior technical staff.

#### **78. Telecommunications Consultant - Senior**

**Duties:** Identifies problems and recommends solutions for telecommunications organizations. Performs process and data modeling in support of the planning and analyses for using automated tools. Evaluates controls and makes recommendations. Provides planning, analyses, strategic planning, design, development, implementation and post-implementation for telecommunications projects.

**Education:** Bachelor's Degree from an accredited college or university with a major in Telecommunications, Computer Science, Information Systems, Engineering or a related field. Master's degree preferred.

**General Experience:** At least ten (10) years telecommunications experience.

**Specialized Experience:** At least seven (7) years experience as a consultant or engineer in the telecommunications field in the private or public sector.

#### **79. Telecommunications Systems Analyst**

**Duties:** Must be capable of planning, analysis, design, development, and maintenance of operations support systems used by telecommunications organizations. Must be capable of performing business systems planning, information planning, and analysis in support of telecommunications support functions, including billing, trouble ticket management, service order entry, and/or configuration management. Performs process and data modeling in support of the planning and analysis efforts using both manual and automated tools. Provides technical guidance in software engineering techniques and automated support tools.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Telecommunications, Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline.

**General Experience:** Must have five (5) years of experience in engineering, systems analysis, design and programming.

**Specialized Experience:** At least two (2) years of experience in functional and data requirement analysis, systems analysis and design, programming, program design of billing, trouble ticket management, service order entry, and/or configuration management systems supporting operations of large telecommunications support organizations.

#### **80. Network Manager**

**Duties:** Performs a variety of network management functions in support of MIS services related to the operation, performance, or availability of data communications networks. Modifies command language programs, network start up files, assigns/re-assigns network device logical, analyzes network performance and recommends adjustments to wide variety of complex network management functions with responsibility for overall performance and availability of networks. LAN/WAN consultant skilled in network analysis, integration and tuning. Experience with cable/LAN meters, protocol analyzers, Simple Network Management Protocol (SNMP) and Remote Monitoring (RMON) based software products. Knowledge of Ethernet, FDDI and high speed WANs, routers, bridges, and switches. Analyze client LANs/WANs, isolate source of problems, and recommend reconfiguration and implementation of new network hardware to increase performance. Working knowledge of network operating systems. Conducts load balancing efforts to achieve optimum device utilization and network performance. Manages network Email functions. Establishes mailboxes and monitors mail performance on the network. Coordinates with communications engineering to resolve hardware problems. Works with customer and operations staff in scheduling preventative and emergency maintenance activities.

**Education and Other Requirements:** A Bachelor's degree from an accredited college or university with a major in Computer Science, Information Technology, Engineering, or a related discipline. If applicable, shall be certified as network engineer for the specific network operating system as defined in the State task request. The certification criteria are determined by the network operating system vendor.

**General Experience:** Twelve years experience in a computer-related field.

**Specialized Experience:** Ten years experience in one or more of the following areas: data communications engineering, data communications hardware or software analysis, network administration or management, or have data communication equipment installation and maintenance. Knowledge of cable including FDDI, FOIRL, and 10Base T. Particularly desirable is experience working with IBM's SNA with knowledge of the MVS operating system and SNA protocols.

## 81. Network Engineer - Senior

**Duties:** Responsible for the design and implementation of large data communications or telecommunications networks. Plans and monitors the installation of communications circuits. Manage and monitor local area networks and associated equipment (e.g., bridges, routers, modem pools, and gateways) Conducts short and long-term plan to meet c communications requirements. Responsible for the design and implementation of LANs/WANs using hub switching and router technology. Performs hardware/software analyses to provide comparative data of performance characteristics and suitability within the existing systems environment. Prepares tradeoff studies and evaluations for vendor equipment. Generates network monitoring/performance report, for LAN/WAN utilization studies. Recommends network design changes/enhancements for improved system availability and performance.

**Education:** A Bachelor's degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering or other related scientific or technical discipline. If applicable, shall be certified as network engineer for the specific network operating system as defined in the State task request. The certification criteria are determined by the network operating system vendor.

**General Experience:** Nine years experience in a computer-related field.

**Specialized Experience:** Seven years of progressive experience in planning, designing, implementation, and analyzing data or telecommunications networks. Must have experience with network analysis/management tools and techniques and be familiar with Personal Computers (PCs) in a client/server environment. Must be familiar with IT technology and long distance and local carrier management.

## 82. Network Engineer - Junior

**Duties:** Perform similar duties as directed or instructed by the senior network engineer. Conduct studies pertaining to network configuration and monitor traffic patterns such as protocols and peak usage. Stays current with technological changes.

**Education:** A Bachelor's degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering or other related scientific or technical discipline.

**General Experience:** Five years experience in a computer-related field.

**Specialized Experience:** Three years of progressive experience in planning, designing, implementation, and analyzing data or telecommunications networks.

## 83. Network Administrator

**Duties:** Performs a variety of network management functions related to the operation, performance or availability of data communications networks. Experience with cable/LAN meters, protocol analyzers, SNMP and RMON based software products. Knowledge of Ethernet, FDDI and high speed WANs and routers. Analyze client LANs/WANs, isolate source of problems, and recommend reconfiguration and implementation of new network hardware to increase performance. Advanced knowledge of network operating systems. Modifies command language programs, network start up files, assigns/reassigns network device logicals, participates in load balancing efforts throughout the network to achieve optimum device utilization and performance. Establishes new user accounts on the network granting access to required network files and programs. Manages network Email functions. Establishes mailboxes and monitors mail performance on the network. Troubleshoots network/user problems, presents resolutions for implementation. Prepares a variety of network resource reports.

**Education and other Requirements:** An Associate's degree from an accredited college or university in Computer Science, Information Systems, Engineering or a related field, or two years of college or university study in Computer Science, Information Systems, Engineering or a related field. If applicable, should be certified as a network administrator for a specific network operating system as defined in the State task request. Certification criteria is determined by the network operating system vendor. Two additional years of specialized experience may be substituted for the required education.

**General Experience:** Two years experience in a computer-related field.

**Specialized Experience:** One year of experience in one or more of the following areas: data communications engineering, data communications hardware or software analysis, network administration or management, data communications equipment installation and maintenance, or computer systems administration and management.

#### 84. Network Technician - Senior

**Duties:** Adds or exchanges externally connected PC accessories and data communications equipment. Troubleshoots LANs/WANs and provides problem resolution for PC and data communications hardware. Adds or replaces boards, batteries, disks drives, and other PC components. Installs cabling for networks such as LANs and WANs. Attaches, detaches, or exchanges LAN cabling to workstations, servers, network devices, telecommunications and data communications equipment. Works independently, may provide supervision and guidance to 2 or more network technicians.

**Education:** An Associate's degree from an accredited college or university in Computer Science, Information Systems, Engineering or a related field; or Technical school certificate of completion in the data communications field including cable installation; or the equivalent military training. Two additional years of specialized experience may be substituted for the required education.

**General Experience:** Seven years experience in a computer-related field.

**Specialized Experience:** Five years experience in the following areas: Installation, operation, and maintenance of data communication networks and devices.

#### 85. Network Technician - Junior

**Duties:** Perform similar duties as directed or instructed by the senior network engineer. Adds or exchanges externally connected PC accessories and data communications equipment including cables, boards, batteries, disks drives, and other PC components. Attaches, detaches, or exchanges LAN cabling to workstations, servers, network devices, telecommunications and data communications equipment.

**Education:** An Associate's degree from an accredited college or university in Computer Science, Information Systems, Engineering or a related field; or Technical school certificate of completion in the data communications field including cable installation, or the equivalent military training. An additional year of specialized experience may be substituted for the required education.

**General Experience:** Three years experience in a computer-related field.

**Specialized Experience:** A minimum of two years of experiences installing and maintaining shared resources for communication networks and devices.

#### 86. Network Security Engineer

**Duties:** Designs, develops, engineers, and implements solutions for projects such as biometrics, smart cards, Secure remote access, VPN, Intrusion detection, port scanning, web security and vulnerability assessments and remediation.

**Education:** A Bachelor's Degree from an accredited college or university with a major in Computer Science, Information Systems, Engineering, Business, or other related scientific or technical discipline. A Master's Degree in one of the above disciplines equals one-year specialized and two years general experience. An additional year of specialized experience may be substituted for the required education.

**General Experience:** This position requires a minimum of eight years of computer-related experience.

**Specialized Experience:** At least five years of specialized experience in defining computer security requirements for high-level applications, evaluation of approved security product capabilities, and security management.

### **87. Geographic Information Systems (GIS) Technician II**

**Duties:** Performs systems analysis, design, programming, documentation, and implementation of complex GIS applications. Develops logical and physical geo-database designs; implements geo-databases, establishes recovery plans, and monitors geo-database performance. Write programs and develop user interfaces, menus, and macro-level commands to meet user needs in addition to performing simple spatial analyses and producing reports according to customer specifications. Assist in the development of geographic information systems which may link parcel maps or orthophotos with environmental data, historic data, transportation data and health data to produce maps or quantify information about the impacts of features on parcel ownership. Conducts geographic information system (GIS) program activities, utilizing GIS hardware and software to produce maps, spatial databases and thematic data (such as wetlands, road centerlines, cadastre, and historic sites). Creates, adjusts, corrects, converts and distributes base maps and thematic data. Digitize and maintain spatial databases of Maryland information; document procedures, validate data for accuracy and completeness, complete approved metadata forms and produce maps of the resulting information. Evaluate information and data from outside sources to determine the quality of the data. Provide geographic location coordinates from the GIS to facilitate spatial analysis and data manipulation, calculate distances and area of features and interpret legal descriptions and certify changes in boundary lines. Act as a “consultant” to internal customers during their use, development and quality assessment of spatial databases.

**Education:** A Bachelor’s Degree from an accredited college or university in Geography, GIS Technology, Cartography, Computer Science, or related field with at least 9 credit hours in courses specifically related to GIS operation/management. A Masters Degree from an accredited college or university in Geography, GIS Technology, Cartography, Computer Science, or related field with at least 9 undergraduate credit hours in courses specifically related to GIS operation/management is preferred.

**Experience:** A minimum of three (3) years of professional experience in GIS, cartography, CADD, or a related field.

### **88. Geographic Information Systems Technician I**

**Duties:** Conducts geographic information system (GIS) program activities, utilizing GIS hardware and software to produce maps, spatial databases and thematic data (such as wetlands, road centerlines, cadastre, and historic sites). Creates, adjusts, corrects, converts and distributes base maps and thematic data. Digitize and maintain spatial databases of Maryland information; document procedures, validate data for accuracy and completeness, complete approved metadata forms and produce maps of the resulting information. Evaluate information and data from outside sources to determine the quality of the data. Provide geographic location coordinates from the GIS to facilitate spatial analysis and data manipulation, calculate distances and area of features and interpret legal descriptions and certifies changes in boundary lines.

**Education:** Bachelor's degree from an accredited college or university in Geography, GIS Technology, Cartography, Computer Science, Library Science or related field with at least 9 credit hours in courses specifically related to GIS operation/management.

**Experience:** A minimum of two (2) years of successful experience at the equivalent of the GIS Trainee level.

### **89. Geographic Information Systems Technician Trainee**

**Duties:** Conducts geographic information system (GIS) program activities, utilizing GIS hardware and software to produce maps, spatial databases and thematic data (such as wetlands, road centerlines, cadastre, and historic sites). Creates, adjusts, corrects, converts and distributes base maps and thematic data. Digitize and maintain spatial databases of Maryland information; document procedures, validate data for accuracy and completeness, complete approved metadata forms and produce maps of the resulting information. Evaluate information and data from outside sources to determine the quality of the data. Provide geographic location coordinates from the GIS to facilitate spatial analysis and data manipulation, calculate distances and area of features and interpret legal descriptions and certifies changes in boundary lines.

**Education:** A high school diploma or equivalent.

**Experience:** One year of professional experience related to GIS, cartography, CADD, or a related field.

### **90. Geographic Information Systems Analyst**

**Duties:** Write programs and develop user interfaces, menus, and macro-level commands to meet user needs in addition to performing simple spatial analyses and producing reports according to customer specifications. Assist in the development of geographic information systems which may link parcel maps or orthophotos with environmental data, historic data, transportation data and health data to produce maps or quantify information about the impacts of features on parcel ownership. Conducts geographic information system (GIS) program activities, utilizing GIS hardware and software to produce maps, spatial databases and thematic data (such as wetlands, road centerlines, cadastre, and historic sites). Creates, adjusts, corrects, converts and distributes base maps and thematic data. Digitize and maintain spatial databases of Maryland information; document procedures, validate data for accuracy and completeness, complete approved metadata forms and produce maps of the resulting information. Evaluate information and data from outside sources to determine the quality of the data. Provide geographic location coordinates from the GIS to facilitate spatial analysis and data manipulation, calculate distances and area of features and interpret legal descriptions and certify changes in boundary lines. Act as a "consultant" to internal customers during their use, development and quality assessment of spatial databases.

**Education:** A Bachelor's Degree from an accredited college or university in Geography, GIS Technology, Cartography, Computer Science, or related field with at least 9 credit hours in courses specifically related to GIS operation/management. A Masters Degree from an accredited college or university in Geography, GIS Technology, Cartography, Computer Science, or related field with at least 9 undergraduate credit hours in courses specifically related to GIS operation/management is preferred.

**Experience:** A minimum of two (2) years of professional experience is required in GIS, cartography, CADD, or a related field without an appropriate college degree.

### **91. Geographic Information Systems Specialist**

**Duties:** Conducts geographic information system (GIS) program activities, utilizing GIS hardware and software to produce maps, spatial databases and thematic data (such as wetlands, road centerlines, cadastre, and historic sites). Creates, adjusts, corrects, converts and distributes base maps and thematic data. Digitize and maintain spatial databases of Maryland information; document procedures, validate data for accuracy and completeness, complete approved metadata forms and produce maps of the resulting information. Evaluate information and data from outside sources to determine the quality of the data. Provide geographic location coordinates from the GIS to facilitate spatial analysis and data manipulation, calculate distances and area of features and interpret legal descriptions and certify changes in boundary lines. Act as a “consultant” to internal customers during their use, development and quality assessment of spatial databases.

**Education:** 1) A Bachelor’s Degree from an accredited college or university in Geography, GIS Technology, Cartography, Computer Science, or related field with at least 9 credit hours in courses specifically related to GIS operation/management.

**Experience:** Two (2) years of professional experience is required in GIS, cartography, CADD, or a related field without the appropriate college degree.

### **92. Archeologist /Historic Preservation Specialist**

**Duties:** Responsible for conducting Historic Properties Survey investigations, identifying historic properties, evaluate the effects of the undertaking to historic properties. Provide visual impact assessment and expert application of the Criteria of Adverse Effect on historic properties and Rural Historic Landscapes within the Area of Potential Effect.

**Education:** Bachelor’s Degree from an accredited college or university in Architectural History, Art History, Historic Preservation or related field or 5 (five) years of equivalent experience in a related field. A Master’s Degree is preferred.

**General Experience:** Experience performing full-time experience in research, writing, or teaching in American architectural history or restoration architecture with an academic institution, historical organization or agency, museum, or other professional institution; or substantial contribution through research and publication to the body of scholarly knowledge in the field of American architectural history.

### **93. Architectural Historian**

**Duties:** Responsible for conducting Historic Properties Survey investigations, identifying historic properties, evaluate the effects of the undertaking to historic properties. Provide visual impact assessment and expert application of the Criteria of Adverse Effect on historic properties and Rural Historic Landscapes within the Area of Potential Effect.

**Education:** Bachelor's Degree from an accredited college or university in Architectural History, Art History, Historic Preservation or related field or five (5) years of equivalent experience in a related field. A Master's Degree is preferred.

**General Experience:** Experience performing full-time experience in research, writing, or teaching in American architectural history or restoration architecture with an academic institution, historical organization or agency, museum, or other professional institution; or substantial contribution through research and publication to the body of scholarly knowledge in the field of American architectural history.

#### 94. Wireless Systems Analyst

**Duties:** Define and develop Key Performance Indicators to measure Quality of Service of wireless voice & data services and end-to-end applications that run on top of wireless data bearers. Design and develop post-processing engines that extract and transform raw low-level performance data into aggregate metrics; automate and parameterize the process for large scale processing in an efficient and timely manner; build-in QC check-points for end-to-end quality verification. Analyze, trouble-shoot, and investigate normal and abnormal use-cases for voice and data services; trace anomalies to corresponding impact on key metrics.

**Education:** A Bachelor's degree in Electrical Engineering, Computer Science, or related discipline is required. A Masters degree in the same is preferred.

**General Experience:** Minimum of 4 years of direct experience in development for wireless devices or wireless network equipment is required.

**Specialized Experience:** Detailed in-depth understanding of wireless systems architecture, protocols, and standards is required. Detailed knowledge of key wireless applications and services, including Voice, SMS, MMS, WAP/HTTP, and Push-To-Talk (PTT) is desired. Strong technical ability, communication skills, and ability to quickly learn new technologies are required.

#### 95. Radio Frequency Engineer

**Duties:** The RF Engineer position is responsible for several components of the new site construction process as well as monitoring and maintaining the performance of existing sites. The components of the new construction process include: creating a search area, selecting a site candidate, filing forms with the FAA and FCC, ordering the necessary site hardware, filing extension agreements with neighboring carriers and frequency / PN planning. This position is also responsible for RF coverage, radio talk-path capacity, and organizing the logistics of cell site additions. The position also assists with budget preparations and performance troubleshooting.

**Education:** This position requires a 4-year college program with a Bachelor's Degree in Radio Engineering or Electrical Engineering or related field or equivalent vocational education, training, and experience with formal training in use of relevant administrative & industry specific tools (i.e. computer software and Internet).

**Experience:** Point-to-point microwave systems and path analysis is mandatory. The following skills are desirable: 1) effective communication skills, 2) willingness to work in a team environment, 3) planning/organizational skills, 4) goal orientation, and 5) experience in radio communications.

## 96. Licensed Master Electrician

**Duties:** Identify malfunctions in electrical and electro-mechanical instruments. Repair non-functioning electrical and electro-mechanical instruments. Calibrate scientific and industrial instruments. Use established maintenance procedures for scientific and industrial instruments. Test input/output parameters of electrical/mechanical devices. Assemble electrical and electro-mechanical devices. Identify electrical/electro-mechanical components, devices or systems in accordance with predetermined specifications. Present technical information in oral, written and graphic form, including use of microcomputers to manipulate content and access information.

**Education:** An Associate's degree from an accredited college or university in Electronics Technology or a related field; or Technical school certificate of completion in the electrical field; or the equivalent military training. An additional year of specialized experience may be substituted for the required education. Must have a master electrician license from the Maryland Board of Master Electricians.

**General Experience:** Seven years experience in the electronics or related field.

**Specialized Experience:** Five years experience in the following areas: design, construction, testing, installation, maintenance and repair of electronic systems.

## 97. Journeyman Electrician

**Duties:** Identify malfunctions in electrical and electro-mechanical instruments. Repair non-functioning electrical and electro-mechanical instruments. Calibrate scientific and industrial instruments. Use established maintenance procedures for scientific and industrial instruments. Test input/output parameters of electrical/mechanical devices. Assemble electrical and electro-mechanical devices. Identify electrical/electro-mechanical components, devices or systems in accordance with predetermined specifications. Present technical information in oral, written and graphic form, including use of microcomputers to manipulate content and access information.

**Education:** An Associate's degree from an accredited college or university in Electronics Technology or a related field; or Technical school certificate of completion in the electrical field; or the equivalent military training. An additional year of specialized experience may be substituted for the required education. Must have a master electrician license from the Maryland Board of Master Electricians.

**General Experience:** Five years experience in the electronics or related field.

**Specialized Experience:** Three years experience in the following areas: design, construction, testing, installation, maintenance and repair of electronic systems.

## 98. Electricians Helper

**Duties:** Performs task assigned by the Foreman or Electrician with a minimum of supervision such as: terminate junction boxes; install required conduit and wiring including branch and feeder, above and below ground; install fixture connections and rough-ins; under supervision of the Foreman or an Electrician, operates a variety of electrical testing equipment in locating and determining types of electrical malfunctions; demonstrates basic knowledge of plans, drawings, specifications and work orders; and, conducts all tasks in a safe and efficient manner.

**Education:** A high school diploma or equivalent. An Associate's degree from an accredited college or university in Electronics Technology or a related field; or Technical school certificate of completion in the electrical field; or the equivalent military training is preferred. An additional year of specialized experience may be substituted for the required education. Must have a master electrician license from the Maryland Board of Master Electricians.

**General Experience:** One years experience in the electronics or related field.

**Specialized Experience:** Six months experience in the following areas: design, construction, testing, installation, maintenance and repair of electronic systems.

### 99. Facilities Engineering Manager

**Duties:** Provides management and technical direction for facility, systems, and equipment repair, operation and maintenance. Provides oversight, strategic direction and technical support for the engineering, operation and maintenance of systems and subsystems.

**Education:** A Bachelor's degree from an accredited college or university in civil, mechanical, industrial or facilities management engineering or other related field.

**General Experience:** This position typically requires 10 years of experience in facilities management or related field.

### 100. Facility Operations Engineer

**Duties:** Provides engineering support for facility and infrastructure projects. Support includes project development, design, bid proposal, schedule development, and technical support. May also manage and direct personnel in the operation, maintenance and repair of facilities, systems and institutional equipment. Includes building, heating, ventilation and air conditioning (HVAC) systems, boiler systems, generator systems and electrical systems.

**Education:** A Bachelor's degree from an accredited college or university in civil, mechanical, electrical, industrial or facilities management engineering or other related field.

**General Experience:** This position typically requires 8 years of experience in facilities management or related field.

### 101. Stationary Engineer

**Duties:** Operates and maintains one or more engineering systems which provides a facility the services to function in a variety of service areas, such as: Heating and Air Conditioning Refrigeration, Emergency Power Generation, Uninterrupted Power Supply (UPS) systems, Electrical Switchboard systems, Fuel Distribution and Treatment systems, and Water Treatment

and Boiler Heating systems. Observes system's gauges, meters, charts for proper system's operations. Performs preventive and corrective maintenance on system's components.

**Education:** A Bachelor's degree from an accredited college or university in Electrical, Mechanical, or Industrial Engineering or other related field.

**General Experience:** This position typically requires 8 years of experience in industrial engineering or related field.

### 102. Facilities Specialist - Lead

**Duties:** Oversees and directs daily activities involving the installation, operation, maintenance, and repair of facilities, institutional equipment and systems. This may include, but is not limited to high and low pressure steam plant boilers; security and fire systems; portable and installed generator sets, automatic transfer sets, and uninterruptable power supplies, batteries and associated electrical wiring/components; air handling units, pumps, exchangers and cooling towers; and, carpentry, painting, plumbing, electrical and mechanical activities. May perform various mechanical functions associated with diagnostics, dismantling, and repair of machines and mechanical equipment.

**Education:** High School diploma or equivalent, and knowledge of OSHA general safety standards related to work involving electrical and mechanical tasks in an industrial environment.

**General Experience:** This position typically requires 8 years of experience in facilities work or related field.

### 103. Facilities Specialist Level III

**Duties:** Performs installation, operation, maintenance, and repair of facilities, institutional equipment and systems. This may include, but is not limited to high and low pressure steam plant boilers; security and fire systems; portable and installed generator sets, automatic transfer sets, ancillary power distribution systems and uninterruptable power supplies, batteries and associated electrical wiring/components; air handling units, pumps, exchangers and cooling towers; and, carpentry, painting, plumbing, electrical and mechanical activities. May perform various mechanical functions associated with diagnostics, dismantling, and repair of machines and mechanical equipment.

**Education:** High School diploma or equivalent required.

**General Experience:** This position typically requires 5 years of experience in facilities work or related field.

### 104. Facilities Specialist Level II

**Duties:** Performs installation, operation, maintenance, and repair of facilities, institutional equipment and systems. This may include, but is not limited to high and low pressure steam plant boilers; security and fire systems; portable and installed generator sets, automatic transfer sets, ancillary power distribution systems, and uninterruptable power supplies, batteries and associated electrical wiring/components; air handling units, pumps, exchangers and cooling towers; and, carpentry, painting, plumbing, electrical and mechanical activities. May perform various

mechanical functions associated with diagnostics, dismantling, and repair of machines and mechanical equipment.

**Education:** High School diploma or equivalent required.

**General Experience:** This position typically requires 2 years of related experience in facilities work or related field.

#### **105. Facilities Specialist Level I**

**Duties:** Performs installation, operation, maintenance, and repair of facilities, institutional equipment and systems. This may include, but is not limited to high and low pressure steam plant boilers; security and fire systems; portable and installed generator sets, automatic transfer sets, and uninterruptable power supplies, batteries and associated electrical wiring/components; air handling units, pumps, exchangers and cooling towers; and, carpentry, painting, plumbing, electrical and mechanical activities. May performs various mechanical functions associated with diagnostics, dismantling, and repair of machines and mechanical equipment.

**Education:** High School diploma or equivalent required.

**General Experience:** This position typically requires 1 year of experience in facilities work or related field.

#### **106. Facility Operations Supervisor**

**Duties:** Supervises personnel engaged in the operation, maintenance and repair of facilities, systems, and equipment.

**Education:** Associate's degree (ASCE, ASEE, ASET, ASME or other related field) or equivalent.

**General Experience:** This position typically requires 8 years of related experience in facility operations or related field.

#### **107. Operator Level II**

**Duties:** Processes, schedules, coordinates, and tracks maintenance and repair work orders involving, buildings, systems, and infrastructure.

**Education:** High School Diploma or equivalent required.

**General Experience:** This position typically requires 3 years of experience involving civil engineering, and maintenance and repair of facilities, mechanical systems, and equipment or related field.

#### **108. Operator Level I**

**Duties:** Processes, schedules, coordinates, and tracks maintenance and repair work orders involving, buildings, systems, and infrastructure.

**Education:** High School Diploma or equivalent required.

**General Experience:** This position typically requires 6 months of experience involving civil engineering, and maintenance and repair of facilities, mechanical systems, and equipment or related field.

### **109. Photographer**

**Duties:** Responsible for photographing erected radio towers and providing photographic simulation through superimposition of an image of the towers at different locations.

**Education:** Associates Degree from an accredited college or university in Photography or related field or two (2) years of equivalent experience in a related field. A Bachelor's Degree is preferred.

**General Experience:** At least one (1) year of experience photographing radio towers or other tower structures and providing photographic simulation.

### **110. Audit Manager**

**Duties:** Performs day-to-day management of overall contract support operations, possibly involving multiple audits and groups of personnel at multiple locations. Responsible for the overall direction and guidance of all ongoing audits for the State; responsible for audit report(s) and all findings contained therein; in coordination with the State's designated representative, assists with the collection of any amounts due to the State as a result of audits. Organizes, directs, and coordinates the planning and production of all contract support activities, including subcontractors. Develops work breakdown structures and prepares charts, tables, graphs, major milestone calendars and diagrams to assist in analyzing problems and making recommendations.

**Experience:** At least four (4) years of telecommunications billing audit experience. Such experience must have included the supervision of other auditors engaged in the telecommunications billing audit process.

### 111. Audit Supervisor

**Duties:** Performs day-to-day management of assigned projects that involve teams of Lead Auditors and Staff Auditors. Primarily responsible for developing and overseeing the execution of the audit plan; regularly communicates with and reviews the work of on-site Lead and Staff Auditors and gives directions as appropriate; attends meetings with State representatives and is otherwise available to the State's representatives, as required. Organizes, directs, and coordinates the planning and production of all activities associated with assigned projects. Prepares and presents program level management products such as, work breakdown structures, charts, tables, graphs, major milestone calendars and diagrams to assist in analyzing problems and making recommendations.

**Experience:** At least two (2) years of telecommunications billing audit experience. Such experience must have included the supervision of other auditors engaged in the telecommunications billing audit process.

### 112. Lead Auditor

**Duties:** Assists in developing the telecommunications billing audit plan; primarily responsible for the routine performance of the audit plan and in providing direction of assigned Staff Auditors; communicates on a regular basis with the State's designated representative on status and audit issues.

**Experience:** At least two (2) years of telecommunications billing audit experience.

### 113. Staff Auditor

**Duties:** Assists in the performance of telecommunications billing audits under the guidance and direction of a lead auditor and/or audit supervisor.

**Experience:** At least one (1) year of telecommunications billing audit experience.

### 114. Outside Plant Technician

**Duties:** Performs necessary tasks to access fiber optic cable under the ground, install, repair, and maintain hand-holes and underground conduit. Assists Fiber Optic Splicer as needed to install and/or repair cable. Tests Single-mode and multi-mode fiber optic cable to ensure quality of cable.

**General Experience:** At least two (2) continuous years of documented (by references and work history) experience in outside plant work.

### 115. Fiber Optic Splicer

**Duties:** Prepares splice cases and fusion splicing of fiber optic cables. Installs fiber terminations, fiber panels and fiber patch cords. Tests Single-mode and multi-mode fiber optic cable to ensure quality of cable.

**General Experience:** At least two (2) continuous years of documented (by references and work history) experience in fiber optic work.

#### **116. Heavy Equipment Operator**

**Duties:** Performs necessary tasks to access fiber optic cable under the ground, on a pole or attached to a bridge. Installs, repairs and maintains hand-holes and underground utilities through the operation of heavy equipment (backhoes, excavators, trenchers, bucket trucks, etc.).

**General Experience:** At least two (2) continuous years of documented (by references and work history) experience in operating heavy equipment.

#### **117. Fiber Locator**

**Duties:** Uses appropriate equipment to locate and mark fiber optic cable, copper cable and other utilities to prevent damage.

**General Experience:** At least two (2) continuous years of documented (by references and work history) experience in locating and work with cable.