Pennsylvania Department of General Services
IT Staff Augmentation Contract

APPENDIX E: Job Titles and Skill Categories

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Job Titles and Descriptions

Appendix E: Job Titles and Skill Categories

Skill Category Matrix				
Skill Level	Skills	Technology Maturity	Labor Supply	Labor Demand
Legacy	Low-Technical	Mature	High	Low
Core	Mid-Technical	Mid	Average	Average
Emerging	High-Technical	New	Low	High

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CADD/GIS Administrator

The CADD/GIS Administrator (CGA) is responsible for providing direct support of various CADD/GIS software and hardware systems. The CGA will perform hardware and software installations, relocations, testing and routine maintenance.

CGA1

Years of Relevant Experience:	Up to 5 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	• Assist in troubleshooting CADD/GIS system hardware problems and work with the appropriate service and warranty vendors to make the necessary repairs and fixes. • Track version upgrades and notify proper parties of available updates to CADD/GIS Systems software. • Assist with phone and online problem reporting and maintaining problem report records. • Assist with ordering consumable supplies for the CADD/GIS Systems. • Maintain current inventory of all hardware, software, upgrades and fixes for each site. • Maintain configuration charts of current inventory. • Maintain data backups and data archives and provide data retrieval from backup. • Monitor system status and data integrity.

CGA2

Years of Relevant Experience:	5 to 8 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in CGA1 plus the following: • Able to work independently. • Demonstrate proven experience in troubleshooting with little supervision. • Able to communicate status to managers and project sponsors. • Assist in developing standards and direction for systems.

CGA3

Years of Relevant Experience:	8 plus years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in CGA2 plus the following: • Lead efforts to troubleshoot CADD/GIS system hardware and software problems. • Lead team of CGAs developing software and hardware plans and solutions. • Expertise in teaching/conveying technical and/or functional courses/concepts.

Data Entry Operator

For data entry projects that require manual key entry and/or data capture through scanning.

DE1

Years of Relevant Experience:	0 to 2 years
Preferred Education:	Associates Degree or equivalent
Role Description:	- Comprehensive PC skills. - Able to follow written and spoken instructions. - Minimum of 25 wpm. - Ability to accurately enter information into a computer, accessing information from a computer, and verifying information on a screen. - Duties involve utilizing automated equipment, including electronic keyboard, display screen, and sorted memory to perform. - Ability to operate and understand basic scanning and imaging equipment, including pan, skew, and image correction techniques. - Ability to conduct basic data mining and data capture efforts. - Services may be required to be provided at supplier's site using supplier's equipment. Typically need an end product of electronic data, typically transmitted through FTP. - Keypunch and verify records in specified format (ex. ASCII). - The total number of keystrokes is limited to actual characters, numbers and special characters that are keyed. Spaces, function keys, nulls, and zeros are not counted as keystrokes. - The contractor must complete all data forms within an agreed-upon amount of time from receipt or average a minimum of a set number of strokes each week data forms are in possession. - Error rate cannot exceed 1/2%. Error rate is calculated on a character (not field or record) basis. - Pickup and delivery by contractor to be made on a weekly basis. - For key entry, required that a second individual completed 100% key verification to control errors. - Knowledge of imaging and visual display operating practices, procedures, and techniques. - Knowledge of arithmetic and numbering systems. - Ability to operate equipment with speed and accuracy to ensure information is captured.

DE2

Years of Relevant Experience:	2 to 4 years
Preferred Education:	Associates Degree or equivalent
Role Description:	- Comprehensive PC skills. - Able to follow written and spoken instructions. - Minimum of 35 wpm. - Ability to accurately enter information into a computer, accessing information from a computer, and verifying information on a screen. - Duties involve utilizing automated equipment, including electronic keyboard, display screen, and sorted memory to perform. - Ability to operate and understand basic scanning and imaging equipment, including pan, skew, and image correction techniques. - Ability to conduct basic data mining and data capture efforts. - Services may be required to be provided at supplier's site using supplier's equipment. Typically need an end product of electronic data, typically transmitted through FTP.

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	• Keypunch and verify records in specified format (ex. ASCII).
	• The total number of keystrokes is limited to actual characters, numbers and special characters that are keyed. Spaces, function keys, nulls, and zeros are not counted as keystrokes.
	• The contractor must complete all data forms within an agreed-upon amount of time from receipt or average a minimum of a set number of strokes each week data forms are in possession.
	• Error rate cannot exceed 1/2%. Error rate is calculated on a character (not field or record) basis.
	• Pickup and delivery by contractor to be made on a weekly basis.
	• For key entry, required that a second individual completed 100% key verification to control errors.
	• Knowledge of imaging and visual display operating practices, procedures, and techniques.
	• Knowledge of arithmetic and numbering systems.
	• Ability to operate equipment with speed and accuracy to ensure information is captured.

Database Administrator

The Database Administrator is responsible for data analysis and database management. Database Administrators typically are involved in maintenance, enhancement, designing of data dictionaries, physical and logical database models, and performance tuning. Database Administrators have a range of skills and knowledge of the utilities and production tools used for data storage management to support the Application Team.

DBA1

Years of Relevant Experience:	2 to 3 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	• Skilled data dictionary analysis and design and data model analysis design.
	• Maintains central data repository.
	• Experience and knowledge in supporting application system development life cycle.
	• Responsible for data dictionary backup and recovery.
	• Responsible for definition of standards of data dictionaries.
	• May program dictionary analysis and maintenance software.
	• Perform performance tuning.
	• Monitor database performance and space requirements.
	• Schedule and monitor end of day data warehousing jobs.
	• Assist in coordinating software releases.
	• Communicate accurate and useful status updates.
	• Manage and report time spent on all work activities.
	• Follow quality standards.
	• Ability to work in a team environment.
	• Complete assigned tasks.
	• Strong communication skills; both written and spoken.

DBA2

Years of Relevant Experience:	3 to 5 years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in DBA1 plus the following:
	• Business systems analysis and design experience.

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	· Logical data modeling techniques. · Production environment Tools/Utilities. · Knowledgeable in data analysis and database management techniques. · Execution of all responsibilities with little direct supervision of Team Lead. · Administration and scripting experience in relative platform. · Supervise performance tuning. · Author shell scripts to perform back up, restore, and monitoring tasks. · Anticipate and resolve issues specific to the team. · Determine time estimates and schedule for own work and resolve issues in a timely manner. · Identify and track issues, risks and action items.

DBA3

Years of Relevant Experience:	5 plus years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in DBA2 plus the following: · Highly skilled at database design, installations, conversions. · Responsible for database backup and recovery procedures, access security and database integrity, physical data storage design and data storage management. · Participates in Database Management System selection and maintains database performance. · Expertise in specific Database Management Systems. · Knowledge of various Database Management System products. · Provide status of work to Project Team Lead. · Engage in ongoing process improvement.

Functional Architect

The Functional Architect is the functional expert for an application, a defined set of applications or a portfolio of related applications. The Functional Architect is also responsible for bringing an understanding of the enterprise, business system and industry to the team(s) supporting or interfacing with the application. The primary responsibility of a Functional Architect is to provide expertise in the business process supported by the application, to prepare and review designs, to recommend improvements, and to provide guidance during the testing process. The Functional Architect helps the Programmers establish a clear understanding of the business functional requirements and either creates the functional designs to meet the requirements or reviews and approves the designs written by the Programmers. The Functional Architect must understand all aspects of their specific application(s), and the underlying business process. The more experienced Functional Architect plans, analyzes, and defines high- level software strategies and solutions. Contained in the experienced role is the task of coordinating with other Functional Architects to define technical requirements and long range plans for meeting customer requirements.

FA1

Years of Relevant Experience:	2 to 4 years in particular application area
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	· Analyze, determine, and document functional requirements. · Provide definition on how the applications will support business requirements. · Conduct impact analyses of business requirements on the system. · Work with Technical Architecture Specialist in defining software / hardware requirements. · Gather and interpret user requirements into design specifications.

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	- Participate in design of application. - Participate in design code and test reviews as appropriate. - Provide inputs to test planning. - Complete assigned tasks. - Communicate accurate and useful status updates. - Follow quality standards. - Ability to work in a team environment. - Strong communication skills; both written and spoken - Act as the application(s) functional expert; providing expertise in the business process supported by the application. - Provide detailed definition on how the applications will support business requirements. - Work with Technical Architecture Specialist in planning and delivering technical architecture. - Provide expertise for defining functional architecture and infrastructure for applications. - Plan and develop user interface strategy. - Direct and participate in design of application. - Interpret and understand user requirements/design specifications. - Provide detailed definition on how the applications will support business requirements. - Work with Technical Architecture Specialist in defining software / hardware requirements and in planning and delivering architecture. - Provide expertise for defining architecture and infrastructure for applications. - Review and understand team work plan - Identify and track issues, risks and action items affecting own work and work of team. - Anticipate and resolve issues specific to the team. - Determine time estimates and schedule for own work and resolve issues in a timely manner.

FA2

Years of Relevant Experience:	4 to 5 years in particular application area
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in FA1 plus the following: - Provide functional expertise to planning organization as required. - Review tasks prior to migration into production as appropriate. Provide assistance in scheduling design work for Lead Functional Architect. - Coordinate the design and development of work estimates and act as the primary point of contact. Assist in managing and directing application team processes. - Organize and prepare work effectively to facilitate proactive resolution of problems. - Work with client and Lead Functional Architect to identify direction of software. - Ensure business requirements are supported by the software. - Identify and initiate continuous improvement opportunities. - Define user interface strategies. - Understand specific business needs and overall business strategy of the business customer.

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FA3

Years of Relevant Experience:	Five plus years in particular application area
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in FA2 plus the following: • Guide processes for Functional Architects and direct work planning and design activities. • Provide standard, well-structured work planning which defines scope, resources, commitments, quality, risk, tasks, and acceptance criteria. • Ensure that overall application designs remain within project scope. • Work with customer business units to understand their business processes. • Work with customer business units and client to identify direction of software. Ensure business requirements are supported by the software. • Ensure goals for Functional Architects are being met and manage team commitments. • Analyze, define, and document how the applications will support functional and business requirements. Coordinate these efforts with Functional Architects. • Understand supporting/interfacing system applications. • Approve the determined need for new software/hardware. • Understand prioritization work based on business needs request/releases for work affecting an application. • Manage the accomplishment of delivery metrics, Service Level Agreements and other contractual obligations within areas of responsibility. • Sponsor coordination of the required skills, training, methodologies, and processes to ensure the success of team/project/program goals. • Coordinate and conduct project review meetings with Group Lead Functional Architects and Team Leads. • Communicate and resolve application interface issues with other Lead Functional Architects as needed. • Monitor and measure maintenance and development process effectiveness. • Communicate clearly the program/application goals, operational and organizational philosophies, and policies and procedures to the Functional Architects. • Communicate to team members the relationships between their work and assignments and the organizational and/ or program objectives.

Help Desk Analyst

The Help Desk Analyst provides Helpdesk Level 2 Support by performing the skills listed below.

HDA1

Years of Relevant Experience:	1 to 3 years field experience
Preferred Education:	2 year associates degree or equivalent technical study.
Role Description:	• Provides technical assistance, support, and advice to end users for hardware, software, and systems. • Provides hands-on technical assistance to business and technical users. • Investigates and resolves computer software and hardware problems of users. • Serves as a contact for level 1 support. • Serves as a contact for users having problems using computer software, hardware, and operating systems, and escalates as necessary. • Determines whether problem is caused by hardware, software, or system. • Answers questions, applying knowledge of computer software, hardware, systems, and procedures.

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	• Talks with technical and non-technical co-workers to research problem and find solution. • Asks user with problem to use telephone and participate in diagnostic procedures, using diagnostic software or by listening to and following instructions. • Experienced with a variety of call-tracking software and systems. • Reads trade magazines and engages in independent study to maintain current industry knowledge. • Follow quality standards, and displays strong customer service skills. • Ability to work in a team environment. • Complete assigned tasks. • Strong communication skills; both written and spoken.

HDA2

Years of Relevant Experience:	3 – 5 years field experience
Preferred Education:	4 year college degree in field of specialty or equivalent education and experience combined
Role Description:	All roles specified in HDA 1 plus the following: • Calls software and hardware vendors to request service regarding defective products. • Acts as a subject matter expert for one or more custom or COTS applications. • Talks to programmers to explain software errors or to recommend changes to programs. • May work as in-house consultant and research alternate approaches to existing software and hardware when standardized approaches cannot be applied. • Tests software and hardware to evaluate ease of use and whether product will aid user in performing work. • Write software and hardware evaluation and recommendations for management review. • Write or revise user-training manuals and procedures. • Develops training materials, such as exercises and visual displays. • Train users on software and hardware on-site or in classroom, or recommend outside contractors to provide training.

HDA3

Years of Relevant Experience:	12 plus years field experience
Preferred Education:	4 year college degree in field of specialty
Role Description:	All roles specified in HDA 1 and 2 plus the following: • Manage expectations at all levels: customers/end users, executive sponsors. • Ensure quality standards are followed. • Monitor the team's open backlog of support issues and re-assign issues as necessary to ensure they are closed per agreed upon service levels. • Act as the escalation point for high priority support issues. • Ability to make recommendations on policies on system use and services.

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Product Specialist

The Product Specialist is the expert for a technical development or execution environment product or set of products. The primary responsibility of a Product Specialist is to ensure the availability and facilitate the productive use of a product for Application Teams or end users. The Product Specialist may own part of a product, all of one, or several products depending on the nature of the product(s) and their use. The Product Specialist requires significant to expert experience and skills in the product supported. The Product Specialist will usually also have significant experience in the operating environment(s) (e.g., HP/UX, NT, MVS, etc) on which the product is implemented. If the product is one that was internally developed, the supporting PS should also have most of the skills of a Programmer. The Product Specialist is responsible for collaborating with Technical Architecture Specialist, System Specialists, Programmers and vendors to ensure and enhance the use of the product and effect migration to new versions of a product.

PS1

Years of Relevant Experience:	1 to 2 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	- Make sound recommendations on functional and technical improvements to the product. - Analyze the functional and technical impact of product planning decisions. - Develop appropriate functional and usability standards for products. - Track and document expected volume and type of use of the product. - Participate in product design reviews to verify that design meets quality standards and functional/technical requirements. - Perform impact analyses on production fixes and enhancements to establish priorities. - Provide basic product support and provide accurate and complete answers to detailed product questions in a timely manner. - Provide effective on-site product support as needed. - Accurately sets severity of identified defects. - Provide input to training and / or documentation materials regarding latest technical and functional design changes. - Document all work for future reference. - Review the system test approach and conditions used as the basis for detailed test scenarios. - Follow quality standards. - Analytical and customer service skills. - Communicate accurate and useful status updates. - Ability to work in a team environment. - Complete assigned tasks. - Strong communication skills; both written and spoken

PS2

Years of Relevant Experience:	2 to 5 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in PS1 plus the following: - Actively contribute as an expert or actual designer. - Coordinate product design reviews to verify that design meets quality standards and functional/technical requirements. - Provide accurate estimates for design and programming efforts for system changes and enhancements.

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	· Coordinate enhancements to business and logical data models with data base administration to make the appropriate changes to the physical data model.
	· Confirm that technical architecture will support all changes required by product enhancements.
	· Effectively lead product tests and trials.
	· Identify appropriate business examples to illustrate key concepts / features.
	· Anticipate, identify, track and resolve issues and risks affecting own work and work of the Application Team. Develop contingency plans as necessary.
	· Apply specific expertise to ensure that products meet defined customer objectives.
	· Anticipate and resolve issues specific to the team.
	· Determine time estimates and schedule for own work and resolve issues in a timely manner.
	· Identify and track issues, risks and action items.

PS3

Years of Relevant Experience:	5 plus years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in PS2 plus the following:
	· Demonstrate expertise in teaching / conveying technical and / or functional courses / concepts.
	· Develop appropriate work programs / budgets and use to effectively schedule tasks / assignments.
	· Identify improvements to project standards to achieve high quality services / products.

Program Manager

The Program Manager directs, controls, administers, and regulates an enhancement or development program. The Program Manager is the individual ultimately responsible to the agency. The Program Manager's primary responsibility is to drive the entire effort from start to finish. The Program Manager must ensure that the program is completed on schedule and that the final product meets the business, technical, and established quality requirements. The difference between a PM1, PM2, and PM3 will depend on the size of the project, and the breadth and scope of the project.

PM1

Years of Relevant Experience:	2 to 5 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	· Responsible for the development of estimates for the enhancement or development effort in planning, analysis, design, construction, testing, and implementation.
	· Accountable for delivery of all work tasks identified in the program plan.
	· Responsible for the capture and reporting of required program management metrics.
	· Adjust and revise estimates when necessary.
	· Ensure all changes to scope follow processes and are documented.
	· Ensure new estimates are approved by the client and agreed upon.
	· Adjust and revise estimates when necessary.
	· Manage, and track the program progress against the program plan.
	· Monitor project milestones and phases to ensure the project is on schedule. Take corrective actions if a project begins to slip its schedule.
	· Prepares status reports on a periodic basis for program team, team leads, group leads, and program manager and appropriate stakeholders.
	· Plan, organize, prioritize, and manage multiple work efforts across application teams.
	· Develop the detailed program plan for the enhancement or development effort

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	· Accountable for the final program management evaluation review with stakeholders for approval upon program completion.
	· Responsible to tailor and baseline all program templates.
	· Accountable to schedule or monitor status reviews, peer reviews, program management inspections, and software quality assurance work product and process reviews with the appropriate designated resources.
	· Notify team leads of project timelines, milestones, phases, work requests target dates, and approved executable work package.
	· Communicate and work with users and client as necessary.
	· Coordinate and present proposals to agencies as necessary.
	· Analyze and distribute reports on program metrics associated with work items related to improvement measures.
	· Ensure processes and activities are followed.

PM2

Years of Relevant Experience:	5 -7
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in PM1 plus the following:
	· Accountable for the approval and sign-off of the program plan with customer representatives, such as portfolio managers, and all affected program stakeholders.
	· Accountable for management of scope for the program and gaining agreement and approval of scope changes with customer representatives and affected stakeholders.
	· Build and maintain relationships with key stakeholders and customer representatives.
	· Direct work planning and scheduling design work.
	· Manage, and track the program progress against the program plan.
	· Serve as the primary point of contact for all program-related issues and resolution of issues.
	· Coordinate and present proposals to agencies as necessary.
	· Identify and manage program risk and develops risk mitigation strategies, track to closure.
	· Ensure team leads adjust and revise estimates when necessary.
	· Anticipate issues and proactively address them. Resolve conflicts with sensitivity and tact.
	· Coordinate the establishment of program standards and program specific procedures with team leads.
	· Responsible for project compliance with standards and procedures.
	· Responsible for the capture and reporting of required program management metrics.
	· Responsible to tailor and baseline all program templates.
	· Develop and facilitate achievement of program service commitments and performance metrics.
	· Ensure that tasks provide value and support the strategic direction of the program and meet service commitments; conduct reviews with agencies.
	· Accountable for the final program management evaluation review with stakeholders for approval upon program completion.
	· Communicate effectively with customers and software / hardware suppliers supporting the State as appropriate.
	· Identify and track issues.
	· Balance workload with program members' capacity.
	· Communicate to team members how their work assignments relate to and help achieve program objectives.
	· Plan program specific training and orientation needs.

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PM3

Years of Relevant Experience:	7 plus years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in PM2 plus the following: • Accountable for activities with excess delivery cycles of 8 to 12 months.

Programmer

The Programmer is responsible for analysis, design, coding, component and assembly testing of all application code owned by the Application Team. Programmers typically are involved in maintenance (including production support), enhancement and development work. Programmers have a range of skills and knowledge of the technologies used and applications supported by the Application Team. The Programmer works with the Functional Architect and Technical Architecture Specialist on an as needed basis to ensure that design and code meets customer requirements.

PR1

Years of Relevant Experience:	Less than 2 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	• Code enhancement and development programs and/or required fixes to production problems using the functional and technical programming standards. • Test enhancement and development programs. • Participate in structured code reviews / walkthroughs. • Execute all required process steps. • Create and provide content for operational documentation to Technical Writers. • Utilize configuration management tools, design tools, debugging tools, and any other environment specific tools necessary to create, test, and implement an application. • Research problems before approaching the Team Lead or Functional Architect for assistance. • Limited functional knowledge. • Follow quality standards. • Support installation of application releases into production as directed. • Communicate accurate and useful status updates. • Ability to work in a team environment. • Complete assigned tasks. • Strong communication skills; both written and spoken.

PR2

Years of Relevant Experience:	2 to 5 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in PR1 plus the following: • Analyze and design enhancements, development programs, and/or required fixes to production problems. • Design applications to functional and technical programming standards. • Work with Functional Architects to gather and interpret user requirements into design specifications. • Develop system specifications and interfaces. • Determine time estimates and schedule for work. • Moderate functional and process knowledge. • Assist in managing and directing Application Team processes. • Coordinate work with other software developers on Application Teams.

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	• Assist Team Lead or Test Team Lead in monitoring estimated-time-to-complete (ETC) and actuals for assigned tasks.
	• Develop application designs in support of the systems specifications and interfaces, perhaps in conjunction with application or technical architects.
	• Operating System expertise sufficient to perform performance and tuning diagnostics.
	• Work with users to ensure that solutions meet business requirements.
	• Execution of all responsibilities with little direct supervision of Team Lead.
	• Generally aware of new developments in industry and process and has ability to apply them to work as appropriate.
	• Anticipate and resolve issues specific to the team.
	• Determine time estimates and schedule for own work and resolve issues in a timely manner.
	• Identify and track issues, risks and action items.

PR3

Years of Relevant Experience:	5 plus years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in PR2 plus the following: • Plan all required process steps. • Review and understand the Application Team's workplan. • Provide status of work to Team Lead. • Anticipate, identify, track and resolve issues and risks affecting own work and work of the Application Team. Develop contingency plans as necessary. • Engage in ongoing process improvement. • Detailed functional and process knowledge. • Utilize deep modeling, design and coding skills. • Provide expertise in one or more database environments.

PR4

Years of Relevant Experience:	8 plus years
Preferred Education:	4 year college degree or equivalent technical study with advanced study preferred.
Role Description:	All roles specified in PR3 plus the following: • Converts scientific, engineering, and other technical problem formulations to formats that can be processed by computer. • Resolves symbolic formulations, prepares flowcharts and block diagrams, and encodes resultant equations for processing by applying extensive knowledge of branch of science, engineering, or advanced mathematics, such as differential equations or numerical analysis, and understanding of capabilities and limitations of computer. • This is a professional level non-supervisory position which may require coordination of programming activities being conducted by the team • Confers with other business and technical personnel to resolve problems of intent, inaccuracy, or feasibility of computer processing. • Works with necessary personnel to determine if modifications are necessary with interested personnel to determine necessity for modifications or enhancements. • Leverages excellent written and verbal communication skills to develop new business process and programming solutions as directed by business and technical stakeholders. • May coordinate activities of computer programmers.

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Quality Assurance Specialist

The Quality Assurance Specialist (QAS) is responsible for the design, pilot, and implementation of the software quality assurance review processes. The QAS Specialist will work with Application Teams during pre and post assessment periods. The QAS Specialist reports to the Quality Assurance Team Lead. For each phase end review the Quality Assurance Specialist is responsible to plan, schedule, execute, and document findings of the review. Quality Assurance Specialists must have a detailed understanding of processes which support the software development lifecycle. The Quality Assurance Lead is responsible for communicating with the State regarding the progress of the quality approach and a summary of the metrics, as well as managing the Quality Assurance Specialists.

QAS1

Years of Relevant Experience:	3 years software development and testing
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	- Assist in software activities in defined span of control for the organization. - Track and monitor process and work product improvement opportunities. - Collect, review, and evaluate the project's required work products against standard work product templates. - Verify that established measurement procedures are used and all required metrics are collected. - Respond to requests for information. - Coordinate work with others on team and across teams - Draft report of observations, minor and major non-compliance. - Develop quality standards. - Monitor progress of action item resolution activity and ensure appropriate internal stakeholders are aware of pending deadlines. - Conduct training courses with project teams on software quality review process. - Research problems before approaching Quality Assurance Lead for assistance. - Communicate accurate and useful status updates. - Manage and report time spent on all work activities. - Follow quality standards. - Ability to work in a team environment - Complete assigned tasks. - Strong communication skills; both written and spoken

QAS2

Years of Relevant Experience:	5 years software development, testing, and project management
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in QAS1 plus the following: - Conduct software quality phase end review activities (work product and process) for each software project and produce the required quality assurance reports, as specified in the project's quality assurance plan. - Ensure the software development process followed by the project teams is compliant with approved tailored processes. - Review and check project's software development activities and the associated internal tasks required by the agencies as employed by the project and specified in the project plan. - Prepare preliminary software quality audit package for review before conduct of audit. - Define quality standards. - Monitor progress of action item resolution activity and ensure appropriate stakeholders are aware of pending deadlines.

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	• Assist in managing and improving quality assurance team processes.
	• Review and understand project team work plan.
	• Determine time estimates and schedule for software quality review work. Conduct reviews according to schedule.
	• Organize and prepare work effectively to facilitate proactive resolution of problems, rather than reactive.
	• Identify and track issues, risks and action items affecting own work and work of team.
	• Report on progress of action item resolution and possible risk areas.
	• Anticipate and resolve issues specific to the team.
	• Determine time estimates and schedule for own work and resolve issues in a timely manner.

QAS3

Years of Relevant Experience:	7 years software development, testing and project management
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in QAS2 plus the following:
	• Review project's required work products to ensure compliance with approved tailored procedures and standards.
	• Review and check project's software development activities and the associated internal tasks required as employed by the project and specified in the project plan.
	• Compare actual project procedures to the specified standards, procedures, and, if required, specific 3rd party contractual requirements.
	• Perform detailed reviews of interim and final tasks as appropriate.
	• Ensure process improvement opportunities are reviewed by appropriate contact to identify training needs of the organization.
	• Perform or manage the required software quality phase end reviews of work product and process for each software project and produce the required software quality reports, as specified in the project's software quality plan.
	• Develop, and manage short and long-term plans and schedules for organization wide software quality needs.
	• Balance workload with team's capacity by managing the team's activities according to schedule and budgets.
	• Coordinate and procure the required skills and techniques required.
	• Obtain feedback from project teams regarding the overall effectiveness of processes and procedures – Forward to appropriate stakeholders and process owners.
	• Provide feedback to project teams regarding process/procedure improvement opportunities and other potential areas for improvement discovered during software quality activities.
	• Report all software quality-revealed non-compliance.
	• Provide regular reports on the results of compliance reviews to the project team, project team leaders and management. Report on progress on action item resolution and possible risk areas.
	• Anticipate and resolve issues dealing with software quality.
	• Develop options and recommendations to assist teams in resolving issues.
	• Ensure action items are addressed and closed based on agreed dates and activities.
	• Ensure that defined processes are followed.
	• Communicate related improvement measures to the project team.
	• Obtain feedback from project teams regarding the overall effectiveness of software quality processes followed. Review with team and develop continuous improvement action plans. Report status to executive team.
	• Communicate and work with customers and other personnel as necessary.
	• Communicate clearly the team goals, organizational philosophies, and policies and procedures to the team.

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	• Communicate to team members the relationship between their work assignments and the team and project objectives. • Lead efforts in developing and facilitating implementation of team goals and metrics.

Senior Architect

The Senior Architect is responsible for designing, developing, and implementing application infrastructure to provide highly-complex, reliable, and scalable applications and systems to meet the organization's objectives and requirements. Senior Architects are familiar with a variety of the application technologies, environments, concepts, methodologies, practices, and procedures and rely on experience and judgment to plan and accomplish goals. Senior Architects are able to perform a variety of complicated tasks with minimal or no direct supervision. They have proven experience defining systems and application architecture and provide vision, problem anticipation, and problem solving ability to organization. They consult with the client to define needs or problems, conduct research, perform studies and surveys to obtain data, and analyze problems to advise on or recommend solutions, utilizing knowledge of theory, principles, or technology of specific discipline or field of specialization.

SAR1

Years of Relevant Experience:	5 years software development, testing, and project management
Preferred Education:	4 year college degree in computer science or related field with advanced study preferred.
Role Description:	• Manages, organizes, and administers systems analysis and preparation of applications and operating systems programming to process data and solve problems by use of computers. • Establishes priorities and schedules, and oversees and reviews work of systems analysis personnel and programming personnel. • Reviews feasibility studies and time and cost estimates of new or revised systems. • Assists in the development of standards, procedures, and operating systems applications. • A combination of directly-related technical training and hands-on experience. • Works with stakeholders and management to ensure projects are completed on time and according to organization standards. • Consults with personnel in other information systems groups to coordinate activities. • Consults with management to clarify systems and programs intent, identify problems, suggest changes, and determine extent of application systems changes required. • Participates in developing a project plan and schedule with key milestones, contingency plans, workflow charts or diagrams, considering factors, such as resource requirements, computer storage capacity and speed, extent of peripheral equipment, and intended use of output data. • Manages conversion of workflow charts to language that can be processed by computer and entering of program codes and test data into computer. • Analyzes test runs on computer and supervises correction of coded program and input data. • Manages the revision of existing programs to increase operating efficiency or adapt to new requirements. • Compiles documentation of program development and subsequent revisions. • Trains subordinates in systems analysis, feasibility studies, programming, and program coding. • Prescribes standards for terms and symbols used to simplify interpretation of programs. • Collaborates with computer manufacturers and other users to develop new programming methods. • Prepares records and reports.

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Senior Business Subject Matter Expert

The Senior Business Subject Matter Expert (SME) brings proven experience from related businesses or organizations as well as system integration and technology experience. They consult with the client to define needs or problems, conduct research, perform studies and surveys to obtain data, and analyze problems to advise and make recommendations on business and technical solutions based on hands-on experience solving similar business problems. They are able to utilize knowledge of theory, principles, or technology of specific discipline or field of specialization.

SME1

Years of Relevant Experience:	More than 10 years
Preferred Education	4 year college degree in computer science or a related field with advanced study preferred; certifications specific to the field of project management.
Role Description	• Consults with executive-level stakeholders to define business need or problem; conducts research, performs studies and surveys to obtain data; and analyzes problems to advise on or recommend solutions, utilizing knowledge of theory, principles, or technology of specific discipline or field of specialization. • Requires knowledge in computer programming and other related technical fields as well as extensive experience in a particular business or industry subject matter. • Conducts study or survey on need or problem to obtain data required for solution. • Analyzes data to determine solution, such as installation of alternate methods and procedures, changes in processing methods and practices, modification of machines or equipment, or redesign of products or services. • Advises client or department heads on alternate methods of solving need or problem, or recommends specific solution. • Requires experience providing consulting services to governmental entities. • May be designated according to field of business and technical specialization.

Senior Database Architect

The Senior Database Architect is responsible for designing, developing, and implementing infrastructure to provide highly-complex, reliable, and scalable databases to meet the organization's objectives and requirements. Database Architects are familiar with a variety of the database technologies, concepts, methodologies, practices, and procedures and rely on experience and judgment to plan and accomplish goals. Database Architects are able to perform a variety of complicated tasks with minimal or no direct supervision. They assist in defining system and application architecture and provide vision, problem anticipation, and problem solving ability to organization. They consult with the client to define needs or issues, conduct research, perform studies and surveys to obtain data, and analyze problems to advise on or recommend solutions, utilizing knowledge of theory, principles, or technology of specific discipline or field of specialization.

SDA1

Years of Relevant Experience:	8 plus years of database experience
Preferred Education:	4 year college degree in computer science or related field with advanced study preferred.
Role Description:	• Possesses extensive knowledge of one or more database systems, and is capable of hands-on work in all phases of database design and management. • Designs, develops, and implements infrastructure to provide highly-complex, reliable, and scalable database to meet the organization's objectives and requirements. • Analyzes organization's business requirements for database design, and implements

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	changes to database as required. • Performs systems analysis on database, and resolves performance, capacity, and replication issues as necessary. • Provides detailed design and specification documentation, including flowcharts, for all aspects of the database. • Works with database analysts to develop methodologies, report views, queries, and table replications • Ensures that all the data is in the proper format. • Participates in the identification, prioritization, and development of technical initiatives and strategies. • Develops and maintains database standards and naming conventions. • Keeps up-to-date on emerging database architectures, technologies, and methodologies, and attends training classes as necessary.

Senior Program Manager

The Senior Program Manager is responsible for managing, coordinating, and establishing priorities for the complete life-cycle of projects including the planning, design, programming, testing, and implementation of business solutions designed to meet requirements of various departments in the company, such as distribution, finance, and manufacturing. Senior Program Mangers are familiar with a variety of the project management methodologies and rely on experience and judgment to plan and accomplish goals. They have proven experience leading technology projects to successful implementation. They consult with the client to define needs or problems, conduct research, perform studies and surveys to obtain data, and analyze problems to advise on or recommend solutions, utilizing knowledge of theory, principles, or technology of specific discipline or field of specialization.

SPM1

Years of Relevant Experience:	More than 10 years
Preferred Education:	4 year college degree in computer science or a related field; certifications specific to the field of project management.
Role Description:	All roles specified in PM3 plus the following: • Manages, coordinates, and establishes priorities for complete life-cycle of projects including the planning, design, programming, testing, and implementation of business solutions designed to meet requirements of various departments in the company, such as distribution, finance, and manufacturing. • Designs project plans, which identify needs and define major tasks and milestones, based on scope, resources, budget, and personnel. • Requires proven success communicating verbally and in writing to multiple project stakeholders internal and external to the organization. • Determines project needs and acquires resources required for the success of the project. • Coordinates the development of new systems and/or applications projects, the modification of existing systems or applications, or changes in current methods or techniques. • Coordinates project performance with the other work of the affected department or departments. • Excludes those who do not have full time responsibilities for project management.

Service Desk

The Service Desk Analyzes and troubleshoots computer support problems and applies his or her understanding of computer software and hardware products and services to resolve user problems.

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SD2

Years of Relevant Experience:	0-3 years A+ certification preferred
Preferred Education:	Usually prefer two years of postsecondary training in field of specialty; may accept equivalent education and experience combined.
Role Description:	• Receive telephone calls and e-mails from users having problems using computer software and hardware or inquiring how to use specific software, programming languages, electronic mail, or operating systems. • Ascertain the nature of problem, determine whether problem is caused by hardware such as modem, printer, cables, or telephone, and log in tracking system. • Escalate problems in accordance with defined procedures. • Assist users through problem solving steps • Use technical databases to research problems, and talk with co-workers to research problem and find solution. • Test software and hardware for troubleshooting and problem resolution. ▪ Provide service and preventive maintenance activities on element exchange/baseline products (products with element exchange service and traditional maintenance philosophies; i.e., terminals, printers, personal computers, etc.). ▪ Able to diagnose and detect correct equipment errors and repair products by replacing worn or broken parts, and making technical adjustments. ▪ Makes appropriate use of reference publications and diagnostic aids in resolving technical problems. ▪ Assist in coordination of changes, upgrades and new products, ensuring systems will operate correctly in current and future environment. ▪ Provide accurate and complete answers to general use and administrative environment questions in a timely manner. ▪ Support shared software, such as operating systems, configuration management tools, application and development tools, testing tools, compilers, and code editors. ▪ Communicate accurate and useful status updates. ▪ Manage and report time spent on all work activities. ▪ Follow quality standards. ▪ Ability to work in a team environment ▪ Complete assigned tasks. ▪ Strong communication skills; both written and spoken

SD3

Years of Relevant Experience:	More than 3 years A+ certification preferred; additional certification may be required based on specific technologies.
Preferred Education:	4 year college degree or equivalent technical study; may accept equivalent education and experience combined.
Role Description:	All roles specified in SD2 plus the following: • Test software and hardware to evaluate ease of use and whether product will aid user in performing work. • Write or revise training manuals and procedures. • Develop training materials, such as exercises and visual displays. • Train users on software and hardware on-site or in classroom, or recommend outside contractors to provide training. • Write software and hardware evaluation and recommendation for management review. • Implement shared software, such as operating systems, configuration management tools, application and development tools, testing tools, compilers, and code editors.

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Software Process Engineer

The Software Process Engineer is responsible for implementing and supporting a set of standard software engineering processes used by agencies. The Software Process Engineer participates in the entire life-cycle of software process improvement initiatives. This includes the planning, analysis, design, construction, testing, and implementation of new processes. The Software Process Engineer is responsible for identifying opportunities for improving existing processes and implementing appropriate solutions.

The Software Process Engineer is also responsible for supporting projects and individual Teams in the use and understanding of processes on an ongoing basis. The Software Process Engineer is responsible for collaborating with the Team Lead(s) and Program Managers to provide guidance to team members and facilitate continual software process improvement. The Software Process engineer must understand all aspects of the specific processes used by the Teams. The Software Process Engineer must also be familiar with industry process models and standards.

SPS1

Years of Relevant Experience:	3 years in Computer Software development
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	- Facilitate the implementation of standard software engineering processes. - Identify software development process improvement opportunities either independently or through working with projects and teams. - Assist in planning software process improvement initiatives. - Direct and participate in teams working on the analysis, design, construction, testing, and implementation of new processes. - Work with projects and teams to define the need for tailored processes and tools and assist in implementation, as appropriate. - Provide ongoing support to projects and teams in the use and understanding of the software processes. - Provide on-site support for teams on process related issues. - Provide assistance to the Software Process Engineer Lead in planning and scheduling activities. - Provide support in tracking and monitoring the success of process improvement initiatives. - Monitor and solicit feedback on the usability and functionality of implemented processes. - Communicate accurate and useful status updates. - Manage and report time spent on all work activities. - Follow quality standards. - Ability to work in a team environment - Complete assigned tasks. - Strong communication skills; both written and spoken

SPS2

Years of Relevant Experience:	5 years in software development and testing
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in SPS1 plus the following: - Facilitate the implementation of standard software engineering processes across agencies. - Determine time estimates and schedule for own work and resolve issues on a timely basis. - Identify and track issues, risks and action items.

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	• Determine process to support various initiatives.
	• Lead the development of content for process training and deliver process training as appropriate.
	• Coordinate with various teams about process improvement opportunities.
	• Anticipate and resolve issues specific to the team.
	• Determine time estimates and schedule for own work and resolve issues in a timely manner.
	• Identify and track issues, risks and action items.

SPS3

Years of Relevant Experience:	7 years total experience; 5 years in software development and testing.
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in SPS2 plus the following: • Organize and prepare work effectively to facilitate proactive resolution of problems. • Anticipate and resolve issues on a timely basis. • Communicate accurate and useful status as appropriate. • Demonstrate and promote a focus on client service. • Communicate effectively with suppliers as appropriate. • Work with internal customers and others to identify direction of software process. • Identify knowledge in a form that is reusable.

System Administrator

The System Administrator is responsible for server back up and security, along with performance tuning and capacity planning. System Administrators should possess an understanding of network and distributed computing concepts. This is accomplished by working with the Systems Management Team Lead to understand the scope of services to be provided and assessing the impact they will have on the technical infrastructure.

SA1

Years of Relevant Experience:	Less than 2 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	• Familiarity with most basic system administrator tools and process; for example, can boot/shutdown a machine, add and remove user accounts, use back up programs, and maintain system database files. • Maintain the project servers. • Maintain the file and print capacity • Ensures that backups are performed as appropriate. • Act as a front-line interface to users. • Accepts trouble reports and dispatch them to appropriate system administrators. • Ability to write scripts in a particular administrative language. • Programming experience with any applicable language. • Communicate accurate and useful status updates. • Manage and report time spent on all work activities. • Follow quality standards. • Ability to work in a team environment • Complete assigned tasks. • Strong communication skills; both written and spoken

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SA2

Years of Relevant Experience:	2 to 4 years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in SA1 plus the following: • Responsible for operating and other system software. • Responsible for upgrading the operating and system software and keeping patches current. • Familiarity with fundamental networking/distributed computing environment concepts. • Ability to do minimal debugging and modification of programs. • Execute the disaster recovery/back up procedures and archiving procedures. • Manage security for servers. • Responsible for performance tuning, capacity planning, database administration, and fault management. • Provide tier two support of the technical infrastructure. • Coordinating efforts with vendors if tier three support is required. • Responsible for ensuring high priority issues are resolved in a timely manner. • Responsible for keeping the environment up and running. • In many cases is responsible for identifying and reporting hardware problems. • Capable of writing purchase justifications. • Understands basic routing concepts. • Identify and track issues, risks, and action items. • Resolve and/or assist in resolving issues. • Review, prioritize, and research service requests. • Anticipate and resolve issues specific to the team. • Determine time estimates and schedule for own work and resolve issues in a timely manner.

SA3

Years of Relevant Experience:	4 plus years
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in SA2 plus the following: • Solid understanding of networking/distributed computing environment concepts. • Understands principles of routing client/server programming. • Manage expectations at all levels: customers/end users, executive sponsors. • Ensure quality standards are followed. • Understand the business application of technical support and design in an application development environment. • Work with the various Infrastructure teams and operations provider to identify the strategic direction of systems management activities. • Understands the design of consistent network-wide file system layouts • Maintain strong relationships with employees and various tier two and three support groups. • Develop plans for disaster recovery/ back up and archiving. • Manage the daily operations of the systems management team to ensure service levels are being met. • Manage the systems management team's support issue and backlog. • Monitor the team's open backlog of support issues and re-assign issues as necessary to ensure they are closed per agreed upon service levels. • Act as the first level of escalation for high priority support issues.

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	• Function as the liaison to the various support groups with whom the systems management team interfaces. • Develop the technical infrastructure maintenance strategy. • Manage the system management resources. • Act as a system's management expert. • Analyze, determine, and document requirements in terms of system management needs and implement them. • Identify, approve, and prioritize team projects. • Manages a large site or network. • Recommends policies on system use and services.

System Specialist

The System Specialist is knowledgeable on the usage and support of a collection of development platforms or technical architectures, and products that run on those platforms. The primary responsibility of a System Specialist is to ensure the availability and facilitate the productive use of a development platform or a test environment for Application Teams or end users. The System Specialist may support one or several instances of a platform/environment, applying their skills directly to a platform/environment and/or leveraging their skills across multiple platforms/environment. The System Specialist may, especially for usage and support of a platform, be part of an Application Team using the architecture. The System Specialist requires experience and skills in the environment supported and in the operations and in common usage of products for the environment The System Specialist are responsible for collaborating with Technical Architecture Specialist, Functional Architects, Programmers and vendors to coordinate and enhance the use of the platform and facilitate migration to new versions of the platform.

SS1

Years of Relevant Experience:	1-3 years in desired environment
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	• Assist in coordination of testing changes, upgrades and new products, ensuring systems will operate correctly in current and future environment. • Make recommendations on functional and technical improvements to the environment. • Participate in performance and volume analysis and design. • Participate in performance improvement activities. Identify and apply potential improvements related to the environment for an application. • Provide accurate and complete answers to general use and environment questions in a timely manner. • Provide effective on-site environment support as needed. • Accurately set severity of identified defects. • Provide input to training and/or documentation materials regarding latest technical and functional design changes. • Ensure that all work is documented for future reference. • Follow quality standards. • Ensure effective and reliable backups are being performed and distributed properly. • Proactively address customer needs. • Track and anticipate volume and type of use of the environment. • Plan and implement shared software, such as operating systems, configuration management tools, application and development tools, testing tools, compilers, and code editors. • Basic scripting and programming skills, including languages that run on specified platform. • Analytical and customer service skills. • Communicate accurate and useful status updates.

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	• Ability to work in a team environment
	• Complete assigned tasks.
	• Strong communication skills; both written and spoken

SS2

Years of Relevant Experience:	3-5 years in desired environment
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in SS1 plus the following: • Plan and manage network operating system upgrades. • Actively participate in analyzing and evaluating emerging software and hardware technologies/standards. • Serve as a liaison between teams for network planning and connectivity. • Develop appropriate functional and usability standards for the environments. • Plan or assist in planning network environment, including supporting existing structure and enhancements. • Plan and coordinate testing changes, upgrades and new and standard products, ensuring systems will operate correctly in current and future environment. • Anticipate, identify, track and resolve issues and risks affecting own work and work of the Application or Environment team. Develop contingency plans as necessary. • Analyze the functional and/or technical impact of new product releases. • Advanced scripting and programming skills, including languages that run on specified platform. • Anticipate and resolve issues specific to the team. • Determine time estimates and schedule for own work and resolve issues in a timely manner. • Identify and track issues, risks and action items.

SS3

Years of Relevant Experience:	5 plus years in desired environment
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in SS2 plus the following: • Identify opportunities for new and improved technologies/standards to be used in the organization. • Identify, plan, and implement phase-out strategies for products and technologies. • Plan and coordinate testing changes, upgrades and new products, ensuring systems will operate correctly in current and future environment. • Demonstrate expertise in teaching/conveying technical courses/concepts. • Assist in setting architecture direction and knowledge sharing. • Plan, organize, prioritize, and manage multiple work efforts the Application or Environment Teams. • Develop appropriate work programs and use to effectively schedule tasks/assignments.

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Team Lead

The Team Lead manages an Application Team to deliver services according to defined service level commitments owned by the Application Team. The Team Lead coordinates resources and work to deliver solutions to customers on time and within budget. The Team Lead is assigned responsibility and accountability for overseeing the successful completion of all work assigned to the Application Team. The Team Lead is a process expert within the Application Team, understanding the software development / maintenance processes and verifying process conformance. The Team Lead will monitor stability of production applications owned by the Application Team. The Team Lead assists Application Team members in development activities and reviews tasks as required. The Team Lead manages and updates progress towards Application Team objectives, assists Application Team members in resolving problems, and engages in personnel management and guidance to Application Team members. The Team Lead fosters a positive work environment by mentoring, supporting, and committing to the professional development of Application Team members. The Team Lead reports to the Group Lead or Program Manager, as appropriate. The difference between a TL1 and a TL2 will depend on the size of the project, and the breadth and scope of the project.

TL1

Years of Relevant Experience:	4 to 5 years, and 1 to 2 years project management experience.
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	- Monitor stability of production applications owned by Application Team. - Prepare estimates for maintenance and enhancement of existing applications and development of new applications. - Perform detailed reviews of interim and final tasks as appropriate. - Process work requests; review, prioritize, and package. - Manage and review tasks of suppliers and other interfaces to the Application Team. - Conduct structured walk-throughs or inspections; manage issues to closure. - Develop and manage short and long-term plans and schedules. - Direct the development of accurate estimates for Application Team activities as required. - Balance workload with Application Teams capacity by managing the Application Teams activities according to schedule. - Manage the accomplishment of delivery metrics to support contractual obligations in the areas of service delivery and on time performance commitments and productivity improvement. - Ensure work remains within the agreed scope. - Track work plan baseline against results. - Coordinate / communicate with Group Leads and / or Program Manager to ensure initiatives are in accordance with agreed customer commitments as planned. - Proactively identify and manage issues/risks affecting the project. - Communicate accurate and useful status to Group Lead and other management on a timely basis. - Identify and initiate continuous improvements. - Instill commitment to quality, customer service, ownership, and teamwork. - Conduct post project wrap-ups. - Monitor and measure maintenance and development process effectiveness. - Ensure that defined processes are followed. - Manage expectations of the Application Teams internal and external customers. - Facilitate communication and knowledge sharing within the Application Teams. - Maintain awareness of new developments in industry and processes and apply as appropriate. - Develop and deepen understanding of system business requirements supported by the Application Team. - Communicate clearly the Application Team goals, organizational philosophies, and

	policies and procedures to the Application Teams.
	• Conduct structured walk-throughs or inspections; manage issues to closure.
	• Communicate clearly the Application Team goals, organizational philosophies, and policies and procedures to the Application Teams.

TL2

Years of Relevant Experience:	5 plus years, and 2 to 3 years project management experience
Preferred Education:	4 year college degree or equivalent technical study.
Role Description:	All roles specified in TL1 plus the following: • Manage the resolution of high severity production problems. • Manage and direct Application Team activities employing appropriate program management and planning principles. • Coordinate work with other Team Leads as appropriate. • Coordinate and procure the required skills and techniques required by the Application Team.

Technical Architecture Specialist

The Technical Architecture Specialist is the technical expert centered on a technology, technologies or a portfolio of applications. The Technical Architecture Specialist is the technologist who coordinates with other parties in setting the technical approach and direction and implementation for work. The Technical Architecture Specialist provides technical design expertise, defines what technical requirements are needed to support defined business requirements, participates in detailed design and code reviews, reviews system performance issues, reviews test plans, and provides technical guidance to the Application Team and Test Team members. The Technical Architecture Specialist is responsible for collaborating with the Team Lead(s) to coordinate project schedules, budgets, request management, and work authorization. The expert level Technical Architecture Specialist will interface with Executive Sponsors, Group Leads, and Lead Functional Architects to convey infrastructure requirements, plan, and schedule deployment of tasks, and resolve any issues that impact the deployment of the Application Delivery systems.

TAS1

Years of Relevant Experience:	2 to 5 years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	• Define test plans and criteria for acceptance for the technical components of an application. • Ensure business requirements are supported by the technical architecture. • Assist in leading technical direction of software; coordinating and presenting proposals to Group Leads, Leads, and the client. • Define and evaluate logical and physical data models. • Assist in development of overall system technical architecture - including software and hardware. • Define test plans and criteria for acceptance for the technical components of an application. • Analyze, determine, and document technical requirements and change request impact analysis. • Participate in detailed design and product test execution as required. • Develop technical programming standards. • Ensure business requirements are supported by the technical architecture. • Conduct structured walk-throughs or inspections for technical areas; resolve issues. • Assist in defining technical programming standards. • Communicate accurate and useful status updates.

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	• Manage and report time spent on all work activities.
	• Follow quality standards.
	• Ability to work in a team environment
	• Complete assigned tasks.
	• Strong communication skills; both written and spoken
	• Perform integration of various architectures across multiple enterprises
	• Develop overall system technical architecture - including software and hardware.
	• Perform review of technical designs, code, and component test plans.
	• Resolve and / or assist in resolving cross application technical issues.
	• Conduct structured walk-throughs or inspections for technical areas; resolve issues.
	• Anticipate and resolve issues specific to the team.
	• Determine time estimates and schedule for own work and resolve issues in a timely manner.
	• Identify and track issues, risks and action items.

TAS2

Years of Relevant Experience:	5 plus years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in TAS1 plus the following:
	• Ensure consistency and completeness across data models.
	• Plan and deliver development architecture environments in coordination with the Environmental Support Specialist.
	• Assist in managing and directing team's technical architecture processes.
	• Provide assistance in scheduling design work for Lead Technical Architecture Specialist.
	• Develop and document expert practices/ standards.
	• Possesses strong analysis, presentation, documentation and quality assurance skills.
	• Analyze, determine, and document technical requirements and impact analysis for technical and development architectures.
	• Explain defect priorities and enhancement classifications to client and customer when needed.
	• Maintain awareness of new technological developments in industry and processes - implement concepts appropriately.
	• Lead or participate in setting the service levels for the application.
	• Define overall system logical architecture.
	• Provide standard, well-structured work planning which defines scope, resources, milestones, quality, risk, tasks, and acceptance criteria.
	• Prepare contingencies, scenarios, scenario plans and action items to resolve issues.
	• Lead efforts in providing technical expertise, guidance, and training to the Application and Test Teams.

TAS3

Years of Relevant Experience:	5 plus years, and 1 to 2 years project management experience
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in TAS2 plus the following:
	• Communicate effectively with IT staff, client organization and software / hardware suppliers.
	• Lead efforts in designing technical strategy, direction and approach, technical architecture, data architecture, development architecture, performance tuning, performance and capacity analysis, technical standards, technical reliability and flexibility.

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	• Design and define overall system technical architecture - including software and hardware within the framework and constraints of technical architecture.
	• Evaluate alternative designs.
	• Maintain control of specific tools and assets.
	• Own the technical architecture for a portfolio of applications, including the interpretation and application of the technical architecture.
	• Plan, design development and/or execution of architectures. Participate in the plan and design of technical architecture.
	• Assist with the preparation of estimates for new technology applications and maintenance of existing applications as part of Service Management.
	• Provide experience in utilizing the project architecture. Acknowledged as highly competent in one or more technologies.
	• Communicate accurate and useful status reports and other management on a timely basis.
	• Coordinate and conduct project architecture, infrastructure review meetings, and portfolio review meetings with Group Lead, Lead Functional Architects, and Team Leads. Integrate issues and identify impacts.
	• Communicate and resolve application interface issues.
	• Communicate to team members the relations between their work assignments and the organizational and/ or program strategy, objectives, business and technology needs of the application / system.
	• Share knowledge across teams with both similar and non-similar applications, specifically focusing on Technical Architecture
	• Interpret and communicate technical architecture to the Technology Application Architecture Team (s).

Technical Writer

The Technical Writer develops and maintains user and technical documentation and project process documentation for Application Teams. Technical Writer understands the user's view of applications and /or technology and is able to put procedures in a logical sequence. The experienced Technical Writer provides expertise on technical concepts of applications and /or user groups and structuring procedures in a logical sequence, due to a broad understanding of the applications within their Tower.

TW1

Years of Relevant Experience:	1 to 3 years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	• Develop, enhance, and maintain user documentation for multiple applications including documentation required for the operations provider.
	• Develop on-line source documentation as appropriate.
	• Maintain documentation libraries and subscription lists.
	• Identify, create, revise, and maintain documentation and templates needed by the Application Teams.
	• Ensure appropriate control access/use of documentation materials.
	• Maintain application and user documentation.
	• Ensure messages and terminology is consistent across all written materials.
	• Research and complete documentation service requests.
	• Communicate and work with customers and other Client Telecommunications personnel as necessary.
	• Work with Application Team members to enhance their understanding of end-user and technical documentation.
	• Communicate accurate and useful status updates.
	• Manage and report time spent on all work activities.

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	• Follow quality standards.
	• Ability to work in a team environment
	• Complete assigned tasks.
	• Strong communication skills; both written and spoken

TW2

Years of Relevant Experience:	3 to 5 years.
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in TW1 plus the following: • Review and prioritize documentation service requests. • Determine procedures for use of on-line documentation tools and version control documentation as appropriate. • Assist or guide other Technical Writer as needed to develop and maintain user and technical documentation for their assigned applications. • Educate both business and technical groups on the essential need for developing and using standard documentation for all processes. • Organize and prepare work effectively to facilitate proactive resolution of problems, rather than reactive. • Research problems before approaching Lead Technical Writer or Team Lead for assistance. • Assist the Application Team Lead in monitoring budget by providing estimated-time-to-complete and actuals for assigned tasks. • Identify and make recommendations around documentation and templates needed by the Application Teams. • Work with users and other State personnel to ensure that the solutions meet State business requirements. • Identify and initiate continuous improvement opportunities. • Direct the development of accurate estimates for documentation requests/activities as required • Develop options and recommendations to assist documentation team members in resolving issues. • Lead efforts in developing and facilitating implementation of the Documentation team goals and metrics. • Develop workable, practical, measurable work plans defining activities, schedules and tasks with Team Leads and the Lead Technical Writer • Review and understand the Application Teams workplan. • Anticipate and resolve issues specific to the team. • Determine time estimates and schedule for own work and resolve issues in a timely manner. • Identify and track issues, risks and action items.

TW3

Years of Relevant Experience:	5 plus years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in TW2 plus the following: • Review and approve procedures for use of on-line documentation tools as appropriate. • Identify business and technical documentation needs not currently addressed. • Manage Technical Writer. • Own documentation libraries and subscription lists. • Promote the need for developing and using standard documentation for all processes

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	within the organization.
	• Perform detailed reviews of interim and final tasks as appropriate.
	• Oversee processing of service requests.
	• Manage, deploy, and schedule Technical Writer activities.
	• Develop and manage short and long-term documentation plans and schedules.
	• Understand work requests/needs within Application Teams
	• Manage the accomplishment of delivery metrics in support of contractual obligations in the areas of service delivery, on time performance.
	• Work with Team Leads and Group Leads to set documentation goals.
	• Ensure work remains within the agreed project scope.
	• Coordinate work with other Lead Technical Writers as appropriate.
	• Coordinate and procure the required skills and techniques required by the Application Teams for documentation needs.
	• Communicate accurate and useful status reports to Group Lead and other management on a timely basis.
	• Anticipate, identify, track and resolve issues and risks affecting own work and work of the Application Team. Develop contingency plans as necessary.
	• Manage expectations of the Technical Writers' internal and external customers.
	• Define documentation quality standards as needed.
	• Conduct post project reviews and quality assessments.
	• Ensure that defined processes are followed.
	• Communicate related improvement measures to the team.
	• Communicate clearly to Technical Writers their goals, organizational philosophies, and policies and procedures.

Telecom Engineer

The Telecom Engineer configures and installs hardware, wiring, and specialized equipment according to local building and electrical codes. The Telecom Engineer may also be responsible for the end-to-end installation of cable, wiring, and related equipment. The Telecom Engineer typically works closely with facilities/construction managers and site-based project managers. The Telecom Engineer should be able to accurately estimate the time and materials needed for tasks assigned. It is not uncommon for the Telecom Engineer to supervise a team of people and coordinate activities with other construction teams.

TE1

Years of Relevant Experience	0 to 2 years
Preferred Education	4 year college degree or equivalent technical study
Role Description	▪ Ensure proper connectivity from site-to-site and internal to facility.
	▪ Experience with CAT5, Romex, and similar cables/wiring.
	▪ Pull cable and ensure adherence to all building codes.
	▪ Escalate construction and installation problems to the construction/integration manager, as needed.
	▪ Prepare all job-related paperwork.
	▪ Close out work authorization when equipment is in service.

TE2

Years of Relevant Experience	2 to 5 years
Preferred Education	4 year college degree or equivalent technical study
Role Description	All roles specified in TE1 plus the following: ▪ Inspect customer premises to ascertain available space for equipment installation ▪ Determine the type and quantity of equipment that can be installed to provide requested communication facilities. ▪ Create floor plan of equipment arrangement for customer or architect approval. ▪ Prepare cost estimate for equipment and installation and submit data to management for authorization to proceed. ▪ Order equipment and prepare installation specifications. ▪ Monitor progress of installation to ensure facilities are ready on specified date.

TE3

Years of Relevant Experience	5 plus years
Preferred Education	4 year college degree or equivalent technical study
Role Description	All roles specified in TE2 plus the following: ▪ Lead full integration teams and interact with large infrastructure teams. ▪ Act as telecommunications interface to outside vendors and construction manager. ▪ Direct activities related to the selection and installation of telephone facilities and special equipment on premises to meet customer's communication requirements.

Tester

The Tester is a member of a team which plans, constructs, and executes product tests, system tests, unit tests, load tests, volume tests, network tests as well as works with others for release control processes. The more experienced Tester manages, plans, constructs, and executes tests and integrates with release control process.

Test1

Years of Relevant Experience:	Less than 2 years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	• Create test models for product test and release control (plans, data, and scripts). • Conduct structured walk-throughs • Execute assembly or product tests. • Meet time estimates for assigned tasks. • Communicate accurate and useful status updates. • Follow quality standards. • Ability to work in a team environment • Complete assigned tasks. • Strong communication skills; both written and spoken

Test2

Years of Relevant Experience:	2 to 4 years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in Test1 plus the following: • Define product test plans and criteria for acceptance. • Develop, update, and maintain testing standards and procedures. • Resolve testing process questions / issues.

Appendix E: Job Titles and Skill Categories

	• Assist in the planning, creation, and control of the test environments.
	• Conduct inspections; resolve issues.
	• Coordinate and execute assembly or product tests with the Test Team, Application Team and the Program Manager.
	• Assist Team Lead or Test Team Lead in monitoring estimated-time-to-complete (ETC) and actuals for assigned tasks.
	• Work with Test Team members to enhance their testing skills and build technical and business knowledge.
	• Update and test release installation procedures.
	• Generally aware of new developments in industry and processes and ability to apply to work as appropriate.
	• Determine time estimates and schedule for work efforts.
	• Define and utilize entry / exit criteria for testing.
	• Schedule the design of structured walk-throughs or inspections; resolve issues.
	• Work with users to ensure that solutions meet business requirements.
	• Anticipate and resolve issues specific to the team.
	• Determine time estimates and schedule for own work and resolve issues in a timely manner.
	• Identify and track issues, risks and action items.

Test3

Years of Relevant Experience:	4 plus years
Preferred Education:	4 year college degree or equivalent technical study
Role Description:	All roles specified in Test2 plus the following: • Review and understand the Test Team work plan. • Assist in managing and directing Test Team processes. • Anticipate, identify, track and resolve issues and risks affecting own work and work of the Test and/or Application Teams. Develop contingency plans as necessary. • Research problems before approaching the Team Lead or Test Team Lead for assistance. • Assist or guide Testers as needed. • Develop understanding of system business requirements supported by the Test team • Assist Application Teams to plan and execute component and assembly tests. • Participate in assembly or product test execution as required.

Appendix E: Job Titles and Skill Categories

Voice/Data Engineer

The Voice/Data Engineer directs and participates in all activities related to the selection and installation of telephone facilities and special on-premises equipment that will meet the customer's communication requirements. The Voice/Data Engineer is responsible for all technology and connectivity involving telecommunications and data networks. The Voice/Data Engineer will typically specialize in telephony and data interfaces and systems that have proprietary functions within the communications area of a corporation/business. General wiring excluded, the Voice/Data Engineer ensures that any specialized conduit or wiring is properly deployed and installed according to code. The Voice/Data Engineer is also an expert in audio/visual, teleconferencing, and voice mail equipment. Often times, the Voice/Data Engineer is specialized or is certified in a particular piece of equipment.

VDE1

Years of Relevant Experience	0 to 2 years
Preferred Education	4 year college degree or equivalent technical study
Role Description	▪ Ensure proper connectivity of voice and data services and technologies. ▪ Interact and work with Telecom Engineer, Integration Engineer, or Project Manager. ▪ Prepare all job-related paperwork ▪ Close out work authorization when equipment is in service.

VDE2

Years of Relevant Experience	2 to 5 years
Preferred Education	4 year college degree or equivalent technical study
Role Description	All roles specified in VDE1 plus the following: ▪ Prepare equipment floor plan for customer or architect approval. ▪ Determine telephone, data services/components, and audio visual equipment placement within facility. ▪ Act as installer of equipment for data/voice or Audio visual use. ▪ Install, test, configure, and train users on products and equipment. ▪ Support systems and products associated with telecommunications/telephone and data within a facility or department.

VDE3

Years of Relevant Experience	5 plus years
Preferred Education	4 year college degree or equivalent technical study
Role Description	All roles specified in VDE2 plus the following: ▪ Familiar with at least one type of equipment or service that is highly specialized. ▪ Prepare cost estimate for equipment and installation and submit data to management for authorization to proceed with job. ▪ Order equipment and prepare installation specification. ▪ Monitor installation progress to ensure that the facilities are ready on projected date. ▪ Lead a team of installers and junior Voice/Data Engineers.

Appendix E: Job Titles and Skill Categories