General Services Administration (GSA)

Federal Supply Service

Authorized Schedule Pricelist

General Purpose Commercial
Information Technology Equipment,
Software and Services

Contract Number:
GS-35F-320DA

Special Item #s: 132-51, 132-56
Information Technology (IT) Professional Services
Health IT Services

Pricelist Current through Refresh 40
dated May 18, 2017

Period of Performance:
May 23, 2016 – May 22, 2021

Computer Technology Associates, Inc.
543 W Graaf Ave.
Ridgecrest, CA 93555
On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order are available through GSA Advantage®, a menu-driven database system. The INTERNET address GSA Advantage® is: GSAAdvantage.gov.

SCHEDULE 70 - GENERAL PURPOSE COMMERCIAL INFORMATION TECHNOLOGY EQUIPMENT, SOFTWARE & SERVICES

SPECIAL ITEM NOs.
- 132-51 INFORMATION TECHNOLOGY (IT) PROFESSIONAL SERVICES
- 132-56 HEALTH INFORMATION TECHNOLOGY (IT) SERVICES

FSC/PSC Class D302 IT AND TELECOM- SYSTEMS DEVELOPMENT
  - Systems Development Services
FSC/PSC Class D306 IT AND TELECOM- SYSTEMS ANALYSIS
  - Systems Analysis Services
FSC/PSC Class D307 IT AND TELECOM- IT STRATEGY AND ARCHITECTURE
  - Automated Information Systems Services
FSC/PSC Class D308 IT AND TELECOM- PROGRAMMING
  - Programming Services
FSC/PSC Class D310 IT AND TELECOM- CYBER SECURITY AND DATA BACKUP
  - Backup and Security Services
FSC/PSC Class D311 IT AND TELECOM- DATA CONVERSION
  - Data Conversion Services
FSC/PSC Class D399 IT AND TELECOM- OTHER IT AND TELECOMMUNICATIONS
  - Other Information Technology Services, Not Elsewhere Classified

Contract Number: GS-35F-320DA

For more information on ordering from Federal Supply Schedules click on the FSS Schedules button at fsa.gsa.gov.

Contract Period: May 23, 2016 – May 22, 2021

Computer Technology Associates, Inc.
543 W Graaf Ave.
Ridgecrest, CA  93555
(760) 446-1064
WWW.CTA.COM

Business Size: Small Business

Note 1: All non-professional labor categories must be incidental to and used solely to support hardware, software and/or professional services, and cannot be purchased separately.
1. **Awarded Special Item Numbers:**
   - 132-51 Information Technology (IT) Professional Services
   - 132-56 Health Information Technology (IT) Services

   Labor Category job titles, experience, functional responsibility, and education are provided in the Labor Category Descriptions section of this pricelist.

   Labor Category hour rates are provided in the table at the end of this pricelist.

2. **Maximum Order:**
   The Maximum Order value for Special Item Number 132-51 - Information Technology (IT) Professional Services and Special Item Number 132-56 is $500,000.

3. **Minimum Order:**
   The Minimum Order value is $100.

4. **Geographic Coverage:**
   Geographic coverage includes the 48 contiguous states, Alaska, Hawaii, Puerto Rico, Washington, DC, and U.S. Territories.

5. **Point(s) of Production:**
   Not Applicable.

6. **Discounts from List Prices:**
   All discounts are NET.

7. **Quantity Discounts:**
   2% on orders ≥$1M.

8. **Prompt Payment Terms:**
   Prompt Payment: NET 30

   Information for Ordering Offices: Prompt payment terms cannot be negotiated out of the contractual agreement in exchange for other concessions.

9. **Government Purchase Cards:**
   a. Government Purchase Cards are accepted at or below the micro-purchase threshold.
   b. Government Purchase Cards are accepted above the micro-purchase threshold.

10. **Foreign Items:**
    Not Applicable.
11. Time of Delivery:
   a. The Contractor shall deliver to destination with the number of calendar days after receipt of order (ARO), as set forth below:

<table>
<thead>
<tr>
<th>Special Item Numbers</th>
<th>Delivery Time (Days ARO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>132-51, 132-56</td>
<td>NLT 30 days OR as negotiated between Contactor and Ordering Activity based on defined requirements.</td>
</tr>
</tbody>
</table>

   b. Expedited Delivery:
      There are no items available for expedited delivery in this pricelist.

   c. Overnight and 2-day Delivery:
      There are no items available for expedited delivery in this pricelist.

   d. Urgent Requirements:
      When the Federal Supply Schedule contract delivery period does not meet the bona fide urgent delivery requirements of an ordering activity, ordering activities are encouraged, if time permits, to contact the Contractor for the purpose of obtaining accelerated delivery. The Contractor shall reply to the inquiry within 3 workdays after receipt. (Telephonic replies shall be confirmed by the Contractor in writing.) If the Contractor offers an accelerated delivery time acceptable to the ordering activity, any order(s) placed pursuant to the agreed upon accelerated delivery time frame shall be delivered within this shorter delivery time and in accordance with all other terms and conditions of the contract.

12. F.O.B.:
   Destination

13. Ordering
   a. Address:

      Computer Technology Associates, Inc.
      Attention: Angela Velez
      543 W Graaf Ave.
      Ridgecrest, CA  93555
      (703) 414-2765

   b. Procedures:
      For supplies and services, the ordering procedures are found in Federal Acquisition Regulation (FAR) 8.405. Ordering activities shall use the ordering procedures of FAR 8.405 when placing an order or establishing a BPA for supplies or services.

      i. FAR 8.405-1 Ordering procedures for supplies, and services not requiring a statement of work.
      ii. FAR 8.405-2 Ordering procedures for services requiring a statement of work.
      iii. FAR 8.405-3 Ordering procedures for Blanket Purchase Agreements (BPAs).

14. Payment Address

   For payment by check:
   Computer Technology Associates, Inc.
   2033 San Elijo Avenue, #330
   Cardiff, CA 92007
   Shown on Invoice Attn: Angela Velez

   For payment by wire transfer:
   Computer Technology Associates, Inc.
   2033 San Elijo Avenue, #330
   Cardiff, CA 92007
   Shown on Invoice Attn: Angela Velez

   Bank account information for wire transfer payments will be shown on the invoice. Payment assistance can be provided by:

   Angela Velez – angela.velez@cta.com, (703) 414-2765
15. **Warranty Provisions:**
   No manufactured goods are provided on this pricelist.

16. **Export Packing Charges:**
   Not Applicable.

17. **Terms and Conditions of Government Purchase Card Acceptance:**
   No additional terms and conditions.

18. **Terms and Conditions of Rental, Maintenance, and Repair:**
   Not Applicable.

19. **Terms and Conditions of Installation:**
   Not Applicable.

20. **Terms and Conditions of Repair Parts:**
   Not Applicable.

21. **List of Service and Distribution Points:**
   Not Applicable.

22. **List of Participating Dealers:**
   Not Applicable.

23. **Preventive Maintenance:**
   Not Applicable.

24. **Special Attributes:**
   If applicable, Section 508 compliance information on the supplies and services in this contract are available in Electronic and Information Technology (EIT) at the Contractor’s website. The EIT standard can be found at: www_SECTION508.gov/.

25. **Data Universal Number System (DUNS) Number:**
   193973948

26. **System for Award Management (SAM) Registration:**
   Contractor has registered with the SAM Registration Database, formerly known as Central Contractor Registration (CCR)
TERMS AND CONDITIONS APPLICABLE TO INFORMATION TECHNOLOGY (IT) PROFESSIONAL SERVICES (SPECIAL ITEM NUMBER 132-51)

1. SCOPE
   a. The prices, terms and conditions stated under Special Item Number 132-51 Information Technology Professional Services and Special Item Number 132-56 Health Information Technology Services apply exclusively to IT Professional Services within the scope of this Information Technology Schedule.
   b. The Contractor shall provide services at the Contractor’s facility and/or at the ordering activity location, as agreed to by the Contractor and the ordering activity.

2. PERFORMANCE INCENTIVES I-FSS-60 Performance Incentives (April 2000)
   a. Performance incentives may be agreed upon between the Contractor and the ordering activity on individual fixed price orders or Blanket Purchase Agreements under this contract.
   b. The ordering activity must establish a maximum performance incentive price for these services and/or total solutions on individual orders or Blanket Purchase Agreements.
   c. Incentives should be designed to relate results achieved by the contractor to specified targets. To the maximum extent practicable, ordering activities shall consider establishing incentives where performance is critical to the ordering activity’s mission and incentives are likely to motivate the contractor. Incentives shall be based on objectively measurable tasks.

3. ORDER
   a. Agencies may use written orders, EDI orders, blanket purchase agreements, individual purchase orders, or task orders for ordering services under this contract. Blanket Purchase Agreements shall not extend beyond the end of the contract period; all services and delivery shall be made and the contract terms and conditions shall continue in effect until the completion of the order. Orders for tasks which extend beyond the fiscal year for which funds are available shall include FAR 52.232-19 (Deviation – May 2003) Availability of Funds for the Next Fiscal Year. The purchase order shall specify the availability of funds and the period for which funds are available.
   b. All task orders are subject to the terms and conditions of the contract. In the event of conflict between a task order and the contract, the contract will take precedence.

4. PERFORMANCE OF SERVICES
   a. The Contractor shall commence performance of services on the date agreed to by the Contractor and the ordering activity.
   b. The Contractor agrees to render services only during normal working hours, unless otherwise agreed to by the Contractor and the ordering activity.
   c. The ordering activity should include the criteria for satisfactory completion for each task in the Statement of Work or Delivery Order. Services shall be completed in a good and workmanlike manner.
   d. Any Contractor travel required in the performance of IT Services must comply with the Federal Travel Regulation or Joint Travel Regulations, as applicable, in effect on the date(s) the travel is performed. Established Federal Government per diem rates will apply to all Contractor travel. Contractors cannot use GSA city pair contracts.

5. STOP-WORK ORDER (FAR 52.242-15) (AUG 1989)
   a. The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-
work is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either-

(1) Cancel the stop-work order; or
(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

b. If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if-

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and
(2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim submitted at any time before final payment under this contract.

c. If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

d. If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

6. INSPECTION OF SERVICES


7. RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall comply with all laws, ordinances, and regulations (Federal, State, City, or otherwise) covering work of this character. If the end product of a task order is software, then FAR 52.227-14 (Dec 2007) Rights in Data – General, may apply.

8. RESPONSIBILITIES OF THE ORDERING ACTIVITY

Subject to security regulations, the ordering activity shall permit Contractor access to all facilities necessary to perform the requisite IT Professional Services.

9. INDEPENDENT CONTRACTOR

All IT Professional Services performed by the Contractor under the terms of this contract shall be as an independent Contractor, and not as an agent or employee of the ordering activity.

10. ORGANIZATIONAL CONFLICTS OF INTEREST

a. Definitions.

“Contractor” means the person, firm, unincorporated association, joint venture, partnership, or corporation that is a party to this contract.

“Contractor and its affiliates” and “Contractor or its affiliates” refers to the Contractor, its chief executives, directors, officers, subsidiaries, affiliates, subcontractors at any tier, and consultants and any joint venture involving the Contractor, any entity into or with which the Contractor subsequently merges or affiliates, or any other successor or assignee of the Contractor.
An “Organizational conflict of interest” exists when the nature of the work to be performed under a proposed ordering activity contract, without some restriction on ordering activities by the Contractor and its affiliates, may either (i) result in an unfair competitive advantage to the Contractor or its affiliates or (ii) impair the Contractor’s or its affiliates’ objectivity in performing contract work.

b. To avoid an organizational or financial conflict of interest and to avoid prejudicing the best interests of the ordering activity, ordering activities may place restrictions on the Contractors, its affiliates, chief executives, directors, subsidiaries and subcontractors at any tier when placing orders against schedule contracts. Such restrictions shall be consistent with FAR 9.505 and shall be designed to avoid, neutralize, or mitigate organizational conflicts of interest that might otherwise exist in situations related to individual orders placed against the schedule contract. Examples of situations, which may require restrictions, are provided at FAR 9.508.

11. INVOICES

The Contractor, upon completion of the work ordered, shall submit invoices for IT Professional Services. Progress payments may be authorized by the ordering activity on individual orders, if appropriate. Progress payments shall be based upon completion of defined milestones or interim products. Invoices shall be submitted monthly for recurring services performed during the preceding month.

12. PAYMENTS

For firm-fixed price orders, the ordering activity shall pay the Contractor, upon submission of proper invoices or vouchers, the prices stipulated in this contract for service rendered and accepted. Progress payments shall be made only when authorized by the order. For time-and-materials orders, the Payments under Time-and-Materials and Labor-Hour Contracts at FAR 52.212-4 (MAR 2009) (ALTERNATE I – OCT 2008) (DEVIAATION I – FEB 2007) applies to time-and-materials orders placed under this contract. For labor-hour orders, the Payment under Time-and-Materials and Labor-Hour Contracts at FAR 52.212-4 (MAR 2009) (ALTERNATE I – OCT 2008) (DEVIAATION I – FEB 2007) applies to labor-hour orders placed under this contract. 52.216-31(Feb 2007) Time-and-Materials/Labor-Hour Proposal Requirements—Commercial Item Acquisition. As prescribed in 16.601(e)(3), insert the following provision:

a. The Government contemplates award of a Time-and-Materials or Labor-Hour type of contract resulting from this solicitation.

b. The offeror must specify fixed hourly rates in its offer that include wages, overhead, general and administrative expenses, and profit. The offeror must specify whether the fixed hourly rate for each labor category applies to labor performed by—

   (1) The offeror;

   (2) Subcontractors; and/or

   (3) Divisions, subsidiaries, or affiliates of the offeror under a common control.

13. RESUMES

Resumes shall be provided to the GSA Contracting Officer or the user ordering activity upon request.

14. INCIDENTAL SUPPORT COSTS

Incidental support costs are available outside the scope of this contract. The costs will be negotiated separately with the ordering activity in accordance with the guidelines set forth in the FAR.

15. APPROVAL OF SUBCONTRACTS

The ordering activity may require that the Contractor receive, from the ordering activity's Contracting Officer, written consent before placing any subcontract for furnishing any of the work called for in a task order.
16. DESCRIPTION OF IT PROFESSIONAL SERVICES AND PRICING

a. The Contractor shall provide a description of each type of IT Service offered under Special Item Numbers 132-51 Information Technology (IT) Professional Services and 132-56 Health Information Technology (IT) Services and should be presented in the same manner as the Contractor sells to its commercial and other ordering activity customers. If the Contractor is proposing hourly rates, a description of all corresponding commercial job titles (labor categories) for those individuals who will perform the service should be provided.

b. Pricing for all IT Professional Services shall be in accordance with the Contractor’s customary commercial practices; e.g., hourly rates, monthly rates, term rates, and/or fixed prices, minimum general experience and minimum education.

The following is an example of the manner in which the description of a commercial job title should be presented:

EXAMPLE: Commercial Job Title: System Engineer

Minimum/General Experience: Three (3) years of technical experience which applies to systems analysis and design techniques for complex computer systems. Requires competence in all phases of systems analysis techniques, concepts and methods; also requires knowledge of available hardware, system software, input/output devices, and structure and management practices.

Functional Responsibility: Guides users in formulating requirements, advises alternative approaches, and conducts feasibility studies.

Minimum Education: Bachelor’s Degree in Computer Science
USA COMMITMENT TO PROMOTE
SMALL BUSINESS PARTICIPATION
PROCUREMENT PROGRAMS

PREAMBLE
Computer Technology Associates, Inc. provides commercial products and services to the Federal Government. As a small business ourselves, we are committed to promoting participation of small, small disadvantaged, veteran-owned, service-disabled veteran-owned, and women-owned small businesses in our contracts. We pledge to provide opportunities to the small business community through reselling opportunities, mentor-protégé programs, joint ventures, teaming arrangements, and subcontracting.

COMMITMENT
To actively seek and partner with small businesses.
To identify, qualify, mentor and develop small, small disadvantaged, veteran-owned, service-disabled veteran-owned, and women-owned small businesses by purchasing from these businesses whenever practical.
To develop and promote company policy initiatives that demonstrate our support for awarding contracts and subcontracts to small business concerns.
To undertake significant efforts to determine the potential of small, small disadvantaged, veteran-owned, service-disabled veteran-owned, and women-owned small business to supply products and services to our company.
To insure procurement opportunities are designed to permit the maximum possible participation of small, small disadvantaged, veteran-owned, service-disabled veteran-owned, and women-owned small businesses.

We signify our commitment to work in partnership with small, small disadvantaged, veteran-owned, service-disabled veteran-owned, and women-owned small businesses to promote and increase their participation in Federal Government contracts. To accelerate potential opportunities please contact Ronda Griffin, 760-446-1064 (voice) Ronda.Griffin@cta.com.
Services Provided

CTA offers the following IT Professional Services under SIN 132-51 and 132-56. These are the services that CTA offers to our commercial and Government customers:

- Systems Development Services (FSC/PSC Class D302 – IT Systems Development)
- Systems Analysis Services (FSC/PSC Class D306 – IT Systems Analysis)
- Automated Information Systems Services (FSC/PSC Class D307 – IT Strategy and Architecture)
- Programming Services (FSC/PSC Class D308 – IT Programming)
- Backup and Security Services (FSC/PSC Class D310 – IT Cyber Security and Data Backup)
- Data Conversion Services (FSC/PSC Class D311 – IT Data Conversion)
- Other Information Technology Services, Not Elsewhere Classified (FSC/PSC Class D399 – IT Other)

All of our Labor Categories, shown in the following section may be used to support each of the types of services above. Additional CTA services are presented in the following sections.

All CTA technical services are guided by proven, repeatable processes, methodologies, techniques, and tools for the various functional disciplines within the information technology domain. This provides a comprehensive framework to manage and perform the full range of activities required to provide a full complement of IT Professional Services. CTA aggressively pursues new technologies that can help our customers meet their missions more effectively in terms of ongoing operations and changing work environments and business processes. Our structured approach and standard processes can be tailored to support each Federal agency’s information technology environment and unique technology needs, to assure we provide high quality support services that will result in more efficient and cost-effective operations.
CTA’s systems development services include activities such as systems design evaluation, systems performance monitoring, systems components modeling, systems management, and systems troubleshooting. Our approach consists of five sequential and integrated phases: requirements analysis; design; implementation, installation, and integration; test; and operations and maintenance. We develop a plan for each phase, perform a risk assessment, develop a risk mitigation plan, and refine each plan to mitigate risk.

Pertinent and reliable data are critical for effective system design, installation, and enhancement efforts. We conduct surveys with primary stakeholders; develop system configuration plans; produce installation and engineering plans; develop test, technical, and functional specifications; develop management plans; gather data; and conduct feasibility and economic analysis studies.

Major activities performed in providing system development services include:

- Defining and documenting system requirements, identifying capabilities and deficiencies in current systems functionality and performance; developing alternative solutions; evaluating data interface concepts and designs; and conducting cost analysis, risk assessments, mathematical analysis, and performance studies.
- Preparing preliminary and detailed design specifications; developing, implementing, and fine-tuning system parameters, and optimizing use of supplied data network services.
- Analyzing the performance and operation of data systems; performing routine network, hardware and software problem identification, evaluation, and resolution; providing technical support and training; developing and maintaining inventory and documentation for standard operating procedures and maintenance and operations activities.

Our systems development management support activities include:

- Monitoring and evaluating network usage and performance.
- Performing system maintenance activities (on-line and off-line).
- Performing preventive maintenance, back-ups, and archiving.
- Diagnosing and correcting hardware and software problems.
- Configuring hardware and software.
- Establishing and maintaining user accounts.
- Providing technical support for hardware, software, and peripherals.
- Developing and maintaining documentation.
- Maintaining trouble report logs.
- Producing statistical reports.
- Maintaining inventory of system hardware and software.
- Performing system security management functions.
System size and complexity, as well as the nature of the system task requirements, determine the scope of systems analysis and design activities. Modifications to existing systems may require limited design activity and update of existing specifications. Significant system enhancements could require redesigning portions of existing system with correspondingly greater documentation update activities. New system developments typically require complete top-level design and new documentation development.

Systems analysis and design activities specify the top-level design by identifying the system software components; providing a logical grouping of functional requirements; establishing subsystem interfaces, inputs and outputs, as well as developing data retention, performance, and operating environment requirements. CTA utilizes the following methods and tools to perform systems analysis and design tasks:

- **Structure Charts.** Structure charts allocate functional requirements to physical software modules. This top-level software design defines the software architecture and is the first attempt at functional to physical allocation.

- **Object and Concept Diagrams.** Object and concept diagrams are similar in purpose to structure charts, but employ different representation conventions for conveying object and object-to-object relationship information. All portray hierarchical, structural and semantic relationships among defined objects, highlight services or operations provided by the object, and detail those services implemented.

- **Ontology Engineering Editors.** Ontology editors are applications designed to assist in the creation or manipulation of ontologies that formally and explicitly represent a domain of knowledge in one of many ontology languages such as OWL.

- **N-Squared Functional Analysis.** This technique characterizes the interfaces among internal system components and between the system and external systems. This technique supports interface definition and analysis.

- **Strength and Coupling Analysis.** This technique measures the cohesiveness of the requirements allocated to a given subsystem (strength) and the degree of interdependency between subsystems (coupling).

- **System Modeling.** This method derives or verifies system and subsystem requirements. In the system specification stage of a project, system performance modeling determines subsystem performance requirement allocations.

- **User Interface Prototyping.** This method involves the creation of prototype displays and provides user feedback on display interaction responsiveness. It supports the derivation and specification of display response requirements.

- **Operations Concept Analysis.** This analytical technique assesses top-level design compatibility with the intended operations concept.

- **Requirements Traceability.** This method ensures that functional requirements are completely allocated within the top-level design.
Automated Information Systems Services (FSC/PSC Class D307 – IT Strategy and Architecture)

CTA applies process improvement techniques and re-engineering methodologies to conduct IT strategy and architecture projects. Our methodologies emphasize a complete life-cycle approach with strong emphasis on functional/business process re-engineering. Our holistic approach begins with an evaluation of the entire organizational entity as it relates to the desired functional/business process improvement. We identify and evaluate personnel functions; existing, in-house processes and tools; and any systems used to automate functional/business processes.

Our approach will be tailored to client’s specific needs, and may include:

- **Strategic Vision, Goals and Objectives** – CTA works with organizational stakeholders to identify the core operational, functional, and business processes and identify any conflicting goals. The resulting goals will be used in evaluating the success of the effort.

- **Process Analysis and Gap Identification** - CTA reviews and documents current workflow, human infrastructure, and information technology environments. Several iterations of business/process workflow may be required to fully understand all aspects of a process. Using this documented workflow, CTA identifies and defines existing process problems to be addressed during the development of an IT strategy and architecture.

- **Functional Area Re-Design** - CTA develops recommendations for addressing gaps in the current workflow processes, human infrastructure, and information technology environments. Our recommendations include a cost/benefit analysis as well as a high-level plan for implementing recommended system architecture changes without undue disruption to on-going operations.

- **IT Strategy Implementation/Management Approach** – Once our recommendations have been evaluated, CTA develops concepts of operation for each recommendation being considered for implementation. CTA also identifies the requirements for changes within the IT environment/architecture and prepares a strategic implementation plan, which includes a detailed cost/benefit analysis and high-level implementation schedule.

- **Implement and Test** – If desired, CTA will assist the organization in implementing and testing the desired strategy and architecture, including support with planning, acquisition, installation, testing, documentation, and training.

- **Final Evaluation** - Using the resulting organizational goals defined initially, CTA will assess the success of the effort, making recommendations for modifications and enhancements, if required.

Programming Services (FSC/PSC Class D308 – IT Programming)

Programming Services is the process of translating software requirements and designs into machine executable code or software programs. CTA uses a step-by-step approach which documents, tracks, and validates software implementation activities. The process begins with a thorough review of all pertinent software requirements and design documentation. Once all requirements and design artifacts are clearly understood, CTA implements software using established coding standards and conventions identified in a project-specific Software Development Plan. The Software Development Plan is prepared as part of our programming services and is presented to each client for review and customization prior to any coding activities. We employ modern agile programming techniques and use web-based version control and source code management applications, such as Jira and GitHub, to support programmer team coordination for issue tracking and software development project management functions. CTA has extensive programming experience and expertise for most modern programming languages developed primarily for web-based application development; however, our staff also offers experience in legacy languages as well, including C, C++, CMS-2, Ada, Pascal, and Fortran.

Additionally, our Programming Services includes rigorous configuration control of all software code and documentation, extensive peer reviews by highly experienced software engineers, and thorough testing. Each software component is tested using documented test descriptions and test procedures, including functional (black box) testing, structural (white box) testing, boundary condition testing, limit stressing, and exception handling.

Our objective is to create, integrate and test all components of the system software. This includes producing all media elements (graphics, animation, video, audio, etc.), developing all program code (applications, databases, web pages, etc.), integrating media with program code and testing the program for performance, functionality, content
accuracy, and usability. The ultimate project deliverables are 1) a highly effective, user-centric interface, usually mediated by the user’s browse/computer interface, 2) an architecture that embodies efficient, user-intuitive navigation, and 3) content and a feature set solution that meets user needs.

Backup and Security Services (FSC/PSC Class D310 – IT Cyber Security and Data Backup)

System/Network Security Engineering Services. CTA provides full-spectrum system security engineering (SSE) services for the development and acquisition of secure (trusted) automated information processing systems and networks. CTA’s security expertise includes traditional personal computer (PC), mid-range and mainframe systems, client/server architectures supporting large organizational enterprises (such as the Defense Finance and Accounting Service (DFAS)) and Cloud-based integrations. CTA’s experience includes systems and networks required to meet C2 through B3 trust criteria as defined in DOD 5200.28-STD, Trusted Computer System Evaluation Criteria. CTA has also provided SSE services to support development of complex Command, Control, Communications, and Intelligence (C3I) systems, and tactical weapon systems, such as the Air Force’s F-22 advanced tactical fighter. CTA provides SSE services that support all life cycle phases from concept definition to operations and maintenance. Specific SSE services and products include:

- **System Security Requirements Analysis and Specification.** CTA interfaces with acquisition organizations and system users to develop complete, realistic, and operationally responsive system and network security requirements. Requirements include those for hardware and software security mechanisms; communications security (COMSEC); and procedural, administrative, and physical security. Requirements are consistent with applicable Federal processing standards, regulations, and directives, and are documented in formats appropriate for the type of system being acquired. For example, DOD weapon system acquisition security requirements are documented in Operational Requirements Documents and in system and subsystem requirements specifications.

- **Security Risk Analyses.** CTA works with system acquisition agencies and Government security agencies to develop and document system-wide threat baselines, to analyze potential system vulnerabilities, and to quantify security risks. CTA also conducts tradeoff studies to determine the most cost-effective mechanisms to reduce risks to acceptable levels. Risk analyses are used as drivers to specifying security requirements and for development of security concepts for systems.

- **System Security Concept Development.** CTA works with acquisition organizations and system users to develop concepts of operation (CONOPS) for secure automated information processing systems. The CONOPS describes the top-level security features and mechanisms to be employed in the system and details how human users and administrators involved in system security interact with the system and the security mechanisms. For DOD acquisitions, the CONOPS evolves from a Preliminary System Security Concept to a more detailed CONOPS as the design progresses from concept development through detailed design and implementation, and finally to the test and evaluation and operational phases. The CONOPS describes to the user how they will use the system security features during operations and maintenance.

- **System Security Planning.** CTA works with acquisition agencies to develop and implement System Security Engineering Plans. The plans document the required activities and responsibilities of developers and Government agencies and ensure that adequate security is incorporated in all life cycle phases of acquisition programs.

- **Security Product Assessment.** CTA uses the experience of its staff and of emerging and proven security technology to determine viable products that can meet stringent security requirements. CTA is intimately familiar with trusted operating systems, database management systems, network products (such as firewalls, routers, gateways) and encryption technologies, and their operational implications and impacts.

- **Security Assurance Documents.** Depending on the degree of trust required, CTA develops formal and informal security policy models, Descriptive Top Level Specifications, Covert Channel Analyses, and other security assurance documents for system and network Trusted Computing Bases to support system designers and authorization agencies in implementation of adequate security into automated systems.
System and Network Security Assessment and Authorization (A&A) Support. CTA’s Information Security group provides support to Federal agencies to assess and authorize automated information systems and networks processing Sensitive Unclassified (Privacy Act) and Classified (National Security) information. Assessment and Authorization support is provided for systems processing up to Top Secret information. Assessment and Authorization support is provided for systems under development or already in operation. Assessment and Authorization of automated information processing systems is required by DOD and OMB regulations. Assessment and Authorization services provided by CTA include:

- **Security Policy Development.** CTA works with system users and administrators to develop security policies that prescribe mechanisms and procedures that must be followed in the operation and maintenance of secure systems. CTA ensures conformance of these policies with applicable Federal regulations and directives.

- **A&A Plans.** CTA works with system acquisition agencies and users to develop and document plans that ensure systems comply with approved information assurance and risk management controls. Assessment and Authorization plans document the required activities and products to support this process, and delineate the responsibilities of contractor and Government agencies to support the A&A process.

- **Security Risk Analysis.** CTA assesses threats, both unintentional and malicious, to automated systems and networks. CTA analyzes vulnerabilities against the threat baseline and documents risks.

- **Security Testing and Evaluation.** CTA uses automated tools and methods supported by security checklists and vulnerability reports to test and evaluate the security of products and systems processing classified and mission-critical information. Reports provide certification agencies with documentation detailing the extent to which automated security mechanisms in system hardware and software meet, or fail to meet, security and risk requirements.

Security Training and Awareness. CTA provides security training and awareness materials and courses to a wide variety of Federal system security personnel and users. Security training courses are available for senior executives, automated information system security managers and administrators, system accreditors, and system users. Courses are targeted for the Federal information processing environment, and are given at different levels, from introductory or overview levels which might last one or two hours to detailed courses that last for several days.

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Data Conversion Services (FSC/PSC Class D311 – IT Data Conversion)

Far too often, organizations overlook opportunities to benefit from information within the organization because it is the product of unstructured, organic workflow, or because it is locked away in standalone systems. Data that stands on its own has limited utility. It can never transcend the confines of the specific function from which it originates, or the specific tool in which it lives, to provide the kind of quality synergistic decision support your organization needs to operate effectively and efficiently. The decision support that comes from stove piped data systems tends to be skewed by a too-narrow view, and that drives inferior decisions. Capturing, converting, storing, and structuring this data enables organizations to benefit from the insights hidden in disparate data repositories.

CTA brings decades of experience in building custom-designed systems to capture, convert, and fuse data in a way that matches and supports your existing organizational processes. Our web-based application approach allows us to build and deploy tools quickly and to craft a footprint that specifically addresses the need without a bunch of extra features you don’t need, which saves you time and money and gets your data available as quickly as possible.
System Engineering and Technical Assistance (SETA) Services

CTA provides systems engineering and technical assistance services for all phases of a project life cycle, from the development of initial specifications, through design, development, integration and test, system installation, acceptance, transition, and operation and maintenance. CTA provides engineering support to identify, track, and bring to closure, technical issues that arise during the design, development, and implementation phases. We facilitate major program reviews including design reviews, test monitoring and reporting, and operational evaluations.

Specific SETA services and products include but are not limited to the following:

- **Requirements Analysis and Specifications.** CTA systems engineers in conjunction with the client identify high-level system architectural designs. We work with organizations to define and analyze requirements for system acquisitions. We prepare system requirements specifications (both hardware and software), interface requirements specifications, and statements of work (SOW). We evaluate the developers’ design for compliance with specifications to ensure the development of an operationally suitable system.

- **Operational Concept Development.** CTA uses an interdisciplinary team of systems and operational engineers to work with system users, maintainers, and the organization to define the system concept of operations. We conduct user assessments and evaluations of the system to ensure operational concerns are identified early in the development life cycle. We evaluate system prototypes developed from the operational concept and provide analyses of specifications, design materials, and early system builds to assure the final system will be operationally suitable.

- **Implementation Monitoring.** CTA engineers monitor system development through participation in major system reviews. At each phase of the system development lifecycle, we monitor project performance against schedules, analyze the design to ensure system requirements are met, and identify and resolve technical issues. For software intensive systems, we perform independent verification and validation services, participate in code reviews, witness formal and regression testing events, and maintain metrics on all development activities.

- **Test and Evaluation.** CTA engineers develop Master Test Plans. We review developer test plans and procedures for conformance and for adequacy of test coverage. We witness developer tests, review test reports, and make recommendations for acceptance of test results. CTA test engineers develop operational test plans and procedures. We conduct operational test and evaluation, develop reports, and resolve deficiencies.

- **Configuration Management.** CTA uses experienced Configuration Management specialists to work with organizations to ensure that the system developers’ change control process is well defined and meets industry best practices. We support organizations in conducting Configuration Control Boards, Functional Configuration Audits, and Physical Configuration Audits, as well as document the results of each board and audit.

- **Risk Analysis.** CTA monitors program and software risks. We conduct in-depth analyses of risks, identify risk reduction alternatives, and track risks. We work with organizations to prioritize risks and to coordinate risk mitigation actions.

Subject Matter Expert/Expert Consultant Support

CTA provides a full-range of support services and resources to meet all life cycle support requirements. To assure all functional and technical needs are addressed, highly specialized expertise may be required, including experts in target domains (e.g. government acquisition, healthcare), business process modernization; strategic systems planning; problem analysis; technical guidance on software engineering techniques and automated support tools, and business-wide information model.
CTA Health Data Analytics and Registry services are focused on the challenges associated with the coherent aggregation of health data from diverse sources (clinical data from electronic health records, claims/cost data, pharmaceutical and research and development data, and patient-generated data) for examination and discovery of insightful patterns in order to enhance patient outcomes, while limiting excessive spending. Specific CTA HDAR services include:

- Services enabling the extraction, aggregation, and quality assurance of data from multiple sources in support of performing client reporting, operational reporting and quantitative analyses of clinical, care utilization, and health costs. Our data conversion services include “interoperability” services that address the ability of health information systems to work together within and across organizational boundaries in order to advance the effective delivery of healthcare for individuals and communities (e.g., via registries). Our interoperability services are focused on the enablement of two levels of health information exchange technology: 1) **structural** interoperability that defines the syntax of the data exchange, ensuring that data exchanges between information technology systems can be interpreted at the data field level; and 2) **semantic** interoperability that takes advantage of both the structuring of the data exchange and the contextual codification of the data using ontologies so that the receiving information technology systems can interpret the data.

- In coordination with clients, CTA develops and executes analytical and/or research activities. Topics include:
  - Technologies and tools for predictive analytics on aggregated data
  - Retrospective and prospective clinical data mining/pilot studies for effective decision support
  - Registry analytics for strategic decision making and planning
  - Studies related to health care utilization and costs
  - Population health and clinical outcomes
  - Process mining for insights into provider patterns and variations in care
  - Trends and forecasting
  - Customized data and informatics needs
  - Emerging evidence base and related technologies

Our services provide clients with reporting and analytics tools, analytics reports/papers for potential publication, and consultation that is relevant and actionable.
LABOR CATEGORY DESCRIPTIONS

For equivalent experience determination, substitute two years of directly related experience for one year toward a Bachelor's degree, i.e., eight years of directly related experience is equivalent to a Bachelor’s degree.

**JOB TITLE: APPLICATION DEVELOPMENT MANAGER**

Minimum/General Experience
The position requires 10 years of experience in managing teams of software engineers and programmers in web-based application development and/or database systems development. Programming experience is required in some of the following areas: advanced HTML, CGI (Perl) and JavaScript, relational databases (SQL Server, Oracle), Active Server Pages, DHTML or other dynamic web page technologies.

Functional Responsibility
Develops application design specifications. Coordinates and manages development team resources. Leads and participates in research and identification of cost-effective development environments. Coordinates and oversees web-based application and database systems development. Tracks and statuses project progress, schedules, and costs.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

**JOB TITLE: APPLICATIONS SYSTEMS ANALYST/PROGRAMMER – LEAD**

Minimum/General Experience
The position requires 6 years of experience in performing progressively more difficult systems analysis and programming of web-based application and/or database systems, with full technical knowledge of all phases of web-based application and/or database systems development.

Functional Responsibility
Instructs, directs, monitors, and reviews the work of other systems analysis and programming personnel. Formulates and defines system scope and objectives. Devises or modifies procedures or methods to solve complex problems considering system capacity and limitations. Prepares detailed specifications from which software will be written. Designs, codes, tests, debugs, and document software. Reviews software artifacts for quality. Assures project completion and user satisfaction.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

**JOB TITLE: APPLICATIONS SYSTEMS ANALYST/PROGRAMMER - SENIOR**

Minimum/General Experience
The position requires 5 years of experience in performing progressively more difficult systems analysis and programming of web-based application and/or database systems, with full technical knowledge of all phases of web-based application and/or database systems development.

Functional Responsibility
Formulates and defines system scope and objectives. Devises or modifies procedures or methods to solve complex problems considering system capacity and limitations. Prepares detailed specifications from which software will be written. Designs, codes, tests, debugs, and documents software. Works at the highest technical level in all phases of applications systems analysis and programming activities. Provides guidance and training to less-experienced analyst/programmers.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
JOB TITLE: APPLICATIONS SYSTEMS ANALYST/PROGRAMMER – INTERMEDIATE

Minimum/General Experience
The position requires 3 years of experience in performing progressively more difficult systems analysis and programming of web-based application and/or database systems, with full technical knowledge of all phases of web-based application and/or database systems development.

Functional Responsibility
Works from specifications to develop or modify moderately complex software web-based applications and database systems. Assists with design, coding, benchmark testing, debugging, and documentation of software.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: BUSINESS SYSTEMS ANALYST - SENIOR

Minimum/General Experience
This position requires 6 years of experience in analysis of business and user needs, documentation of requirements, and translation into proper system requirement specifications.

Functional Responsibility
Formulates and defines system scope and objectives based on both user needs and a good understanding of applicable business systems and industry requirements. Devises or modifies procedures to solve complex problems considering system capacity and limitations. Guides and advises less experienced business systems analysts.

Minimum Education
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: BUSINESS SYSTEMS ANALYST - INTERMEDIATE

Minimum/General Experience
This position requires 3 years of experience in analysis of business and user needs, documentation of requirements, and translation into proper system requirement specifications.

Functional Responsibility
Formulates and defines system scope and objectives through research and fact finding, combined with an understanding of applicable business systems and industry requirements. Develops or modifies moderately complex information systems. Guides and advises less experienced business systems analysts.

Minimum Education
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: BUSINESS SYSTEMS ANALYST - ASSOCIATE

Minimum/General Experience
This position requires 1 year of experience in analysis of business and user needs, documentation of requirements, and translation into proper system requirement specifications.

Functional Responsibility
Assists in formulating and defining systems scope and objectives through research and fact finding, combined with a basic understanding of business systems and industry requirements. Analyzes business and user needs, documents requirements, and revises existing system logic difficulties, as necessary.

Minimum Education
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
**JOB TITLE: ENGAGEMENT MANAGER**

**Minimum/General Experience**
This position requires 15 years of experience in managing large, technically complex, client contracts, projects, and programs. Demonstrated leadership in all phases of complex system development and a thorough understanding of all aspect of project/program tasking, scheduling, pricing, monitoring, and reporting.

**Functional Responsibility**
Communicates effectively with all program/project team members. Manages program/project plan, schedule, and execution. Identifies and manages project plan dependencies, resource allocation, and critical path analyses. Conducts workflow and resource management and coordination. Possesses and applies problem solving and troubleshooting capabilities that span all contractual functions. Ensures and enforces time accounting and budget management. Prepares status and progress reports. Communicates with client management and technical representatives through oral presentations, meetings, briefings, and written reports.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

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**JOB TITLE: ENTERPRISE ARCHITECT - SENIOR**

**Minimum/General Experience**
This position requires 6 years of experience in designing and implementing enterprise architecture frameworks or database system architectures.

**Functional Responsibility**
Designs and defines system architectures for new or existing complex computer systems and other major systems and subsystems. Guides the development of policies, standards, and guidelines that direct the selection, development, implementation and use of information technology within an enterprise. Supports the production of whitepapers and briefings to present architecture or systems engineering information to clients and internal groups. Possesses strong data modeling, business process modeling, and UML modeling skills.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

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**JOB TITLE: ENTERPRISE ARCHITECT - INTERMEDIATE**

**Minimum/General Experience**
This position requires 3 years of experience in designing and implementing enterprise architecture frameworks or database system architectures.

**Functional Responsibility**
Designs and defines system architectures for new or existing complex computer systems and other major systems and subsystems. Guides the development of policies, standards, and guidelines that direct the selection, development, implementation and use of information technology within an enterprise. Supports the production of whitepapers and briefings to present architecture or systems engineering information to clients and internal groups. Possesses strong data modeling, business process modeling, and UML modeling skills.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
**JOB TITLE: ENTERPRISE ARCHITECT - ASSOCIATE**

**Minimum/General Experience**
This position requires 1 year of experience in designing and implementing enterprise architecture frameworks or database system architectures.

**Functional Responsibility**
Designs and defines system architectures for new or existing complex computer systems and other major systems and subsystems. Guides the development of policies, standards, and guidelines that direct the selection, development, implementation and use of information technology within an enterprise. Supports the production of whitepapers and briefings to present architectures or systems engineering information to clients and internal groups. Possesses some business process modeling skills.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

**JOB TITLE: FUNCTIONAL AREA EXPERT**

**Minimum/General Experience**
This position requires 12 years of functional area industry experience assessing functional and operational information technology within the functional area organization.

**Functional Responsibility**
Provides strong expertise in functional area industry issues and trends. Guides the determination of information technology inadequacies or deficiencies that affect the functional area’s ability to support and meet organizational goals. Generates functional area strategies for enhanced information technology operations in a cross-functional area mode throughout the organization. Participates in client strategy sessions, strategic assessments, and design reviews to validate enterprise IT implementation approach. Provides guidance and direction to other professionals, acts in an advisory capacity, and coordinates resolution of highly complex problems and tasks.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

**JOB TITLE: HEALTH IT CONSULTANT I – MASTER SME ONTOLOGY**

**Minimum/General Experience**
This position requires 12 years of medical and/or knowledge engineering experience within the Healthcare industry.

**Functional Responsibility**
In depth understanding of XML, linked data, data modeling, ontologies, the semantic web and related standards and tools. Expert level working knowledge of high-performing and very large-scale (Big Data) computing systems. Expert in one or more of the following technologies: Big Data Platforms (e.g. HPCC, HADOOP, Apache Spark); Information Retrieval, Data Mining, Natural Language Processing, Machine Learning, Neural Networks, and Semantic technologies. Experience with graphical ontology tools, and developing and applying forecasting methods and models. This includes advanced statistical/Machine Learning concepts including decision trees, ensemble modeling, clustering, and Dynamic Bayesian networks.

**Minimum Education**
Advanced degree (MS, PhD, or MD) in medicine, mathematics, computer science, engineering, or bioinformatics systems related field required, or equivalent experience.
JOB TITLE: HEALTH IT CONSULTANT II – MASTER SME DOMAIN-SPECIFIC

Minimum/General Experience
This position requires 12 years of healthcare and/or public health information technology industry experience.

Functional Responsibility
Working knowledge of existing Health IT infrastructure systems (e.g. EHRs, registries, and terminologies), high-performing and very large-scale (Big Data) computing systems and knowledge of the clinical domain. Experience with graphical ontology tools, and developing and applying forecasting methods and models. This includes advanced statistical/Machine Learning concepts including regressions, decision trees, ensemble modeling, clustering, and Bayesian networks.

Minimum Education
Master’s in Public Heath MPH, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: INFORMATION SERVICES CONSULTANT

Minimum/General Experience
This position requires 12 years of high-level, diverse, technical experience related to the study and analysis of system needs, system development, as well as system process analysis, design, and re-engineering.

Functional Responsibility
Provides high-level technical expertise supporting operational and functional end user groups. Utilizes available technology, including hardware, software, databases, and peripherals to solve end-user business problems. Provides support in identifying system needs, guiding system development, and deploying new system capabilities. Maintains current knowledge of technological developments and applications.

Minimum Education
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: INFORMATION SYSTEMS SCIENTIST - SENIOR

Minimum/General Experience
This position requires 10 years of experience performing progressively more complex enterprise-wide strategic systems planning, business information planning, and process and data modeling.

Functional Responsibility
Performs within enterprise-wide disciplines for the planning, analysis, design, and implementation of information technology systems on an enterprise-wide basis or across a major sector of the enterprise. Ensures systems are compatible with, and in compliance with, standards. Provides technical guidance in software engineering techniques and automated task support.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
**JOB TITLE: NETWORKING SPECIALIST**

**Minimum/General Experience**
This position requires 3 years of networking experience with knowledge of local and wide area (LAN) networking, communications, and related hardware and software.

**Functional Responsibility**
Analyzes network and communications hardware and software. Researches, tests, evaluates, and recommends telecommunications and data network systems. Implements recommendations for procurement, removals, and modifications to network components. Designs and optimizes network topologies and site configurations. Assists in the installation, transition, and conversion of network components and capabilities. Identifies areas of operation which need upgraded equipment. Conducts surveys to determine user needs. Develops procedures for installation, use, and maintenance of communications hardware and software. Monitors system performance.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

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**JOB TITLE: PROGRAM CONTROL SPECIALIST**

**Minimum/General Experience**
This position requires 5 years of experience, of which at least 2 years must be specialized. Specialized experience includes preparation and analysis of financial statements and development and tracking of complex project schedules.

**Functional Responsibility**
Directs financial management and administrative activities, such as budgeting, manpower and resource planning, and financial reporting. Performs administrative, contractual, and financial procedures and processes related to project management. Develops work breakdown structures and prepare charts, tables, graphs, and diagrams to assist in analyzing problems.

**Minimum Education**
Two years of college, with a Business related associate’s degree required or equivalent experience.

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**JOB TITLE: PROJECT MANAGER - SENIOR**

**Minimum/General Experience**
This position requires 12 years of experience in project management including experience in project scope and objective definition, work planning, project estimating, resource allocation, and quality assurance of information technology projects.

**Functional Responsibility**
Manages all aspects of the development and implementation of assigned projects and provides a single point of contact for those projects. Takes projects from original concept through final implementation. Interfaces with all areas affected by the project including end users, computer services, and client services. Defines project scope and objectives. Develops detailed work plans, schedules, project estimates, resource plans, and status reports. Conducts project meetings and is responsible for project tracking and analysis. Ensures adherence to quality standards and reviews project deliverables. Manages the integration of vendor and subcontractor tasks and tracks and reviews all deliverables. Provides technical and analytical guidance to project team. Recommends and takes action to direct the analysis and solutions of problems.

**Minimum Education**
Four years of college, with a Business, Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
JOB TITLE: SOFTWARE SYSTEMS ENGINEERING – SUPERVISOR

Minimum/General Experience
This position requires 8 years of experience performing progressively more complex software systems engineering and full technical knowledge of all phases of software systems programming applications.

Functional Responsibility
Supervises all activities of software systems programming personnel for assigned projects. Responsible for adherence to quality assurance directives and guidance. Makes decisions on personnel actions (hiring, terminations, training, and promotions). Controls revenue and expenses within operating unit and responsible for meeting budget goals and objectives. Provides input to policy level direction regarding software engineering standards.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: SOFTWARE SYSTEMS ENGINEER - LEAD

Minimum/General Experience
This position requires 6 years of experience performing progressively more complex software systems engineering and full technical knowledge of all phases of software systems programming applications.

Functional Responsibility
Instructs, directs, and reviews the work of other software systems programming personnel. Formulates and defines specifications for complex software programming applications and modifies and maintains complex applications using engineering release procedures. Designs, codes, tests, debugs, and documents software. Supports selection and configuration of operating systems, file maintenance routines, telecommunications networks, commercial-off-the-shelf software packages. Evaluates new and existing software products.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.

JOB TITLE: SOFTWARE SYSTEMS ENGINEER - SENIOR

Minimum/General Experience
This position requires 5 years of experience performing progressively more complex software systems engineering and full technical knowledge of all phases of software systems programming applications.

Functional Responsibility
Formulates and defines specifications for complex software programming applications and modifies and maintains complex applications using engineering release procedures. Designs, codes, tests, debugs, and documents software programs. Works at the highest technical level on all phases of software systems programming applications. Assists in the evaluation of new software products.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
JOB TITLE: SOFTWARE SYSTEMS ENGINEER - INTERMEDIATE

Minimum/General Experience
This position requires 3 years of software systems engineering experience and technical knowledge of all phases of software systems programming applications.

Functional Responsibility
Works from specifications to develop and modify moderately complex software programming applications. Assists with design, coding, benchmark testing, debugging, and documentation of programs, including utility programs, macros, subroutines, and other modules. Works on most phases of software systems programming applications.

Minimum Education
Four years of college, with a Science, Engineering, or Information Systems related bachelor’s degree required or equivalent experience.
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