GENERAL SERVICES ADMINISTRATION

Federal Supply Service

Authorized Federal Supply Schedule Price List

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 for GSA Advantage! is http://www.gsaadvantage.gov/.

Professional Engineering Services (PES)

Contract Number: GS-10F-0078U
Contract Period: December 13, 2007 to December 12, 2012
Modification Number PS-0003, Dated February 26, 2009
NAICS 541330/SIC 8711

PD Systems, Inc.
5845 Richmond Highway
Suite 600
Alexandria, VA 22303
Tel: (703) 778-7699
Fax: (703) 778-4781

Business Size: Small
PD Systems Internet Address: www.pd-sys.net

Table of Contents

Contract Information

1.a Special Item Number(s)	Description
871-2	Concept Development and Requirement Analysis
871-3	System Design, Engineering and Integration
871-4	Test and Evaluation
871-5	Integrated Logistics Support
871-6	Acquisition and Life Cycle Management
2. Maximum Order	$1,000,000.00
3. Minimum Order	$100.00
4. Geographic Coverage	Contiguous 48 United States and District of Columbia. Other geographic coverage by arrangement.
5. Points of Production	Alexandria, Virginia, USA
6. Discount Deducted	Prices shown on price list are Net (discount deducted)
7. Quantity Discounts	N/A
8. Prompt Payment Terms	N/A
9a. Government Purchase cards below micropurchase level	Accepted
9b. Government Purchase Cards above micropurchase level	Accepted
10. Foreign Items	None
11a. Time of Delivery	Quotes by individual orders
11b. Expedited Delivery	Services available for expedited delivery when negotiated by individual orders
12. FOB Points	FOB Destination (48 contiguous United States and DC)
13a. Ordering Address (Primary)	PD Systems, Inc. 5845 Richmond Highway, Suite 600 Alexandria, VA 22303 Attn: William Molino PH: 703-778-7694 FX: 703-778-7285 EMAIL: wmolino@pd-sys.net
13b. Ordering Procedures: BPA	For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPAs), a sample BPA can be found at the GSA/FSS Schedule homepage (fss.gsa.gov/schedules).
14. Payment Address	PD Systems, Inc. 5845 Richmond Highway, Suite 600 Alexandria, VA 22303
15. Warranty	Standard Commercial
16. Export Packing Charges	N/A

17. Terms and conditions of Government Purchase Cards Acceptance.	PD Systems will accept Government purchase cards up to the authorized amount for that individual at the time of order
18. Terms and conditions of rental, maintenance, and repair	N/A
19. Terms and conditions of installation	N/A
20. Terms and conditions of repair parts	N/A
20a. Terms and conditions of any other services	N/A
21. List of service and distribution points	Corporate Offices, Alexandria, VA
22. List of participating dealers	N/A
23. Preventative Maintenance	N/A
24a. Environmental attributes	N/A
24b. Section 508 Compliance	The EIT standards can be found at http://www.Section508.gov/
25. Data Universal Number System (DUNS) number	806797317
26. Central Contractor Registration (CCR)	PD Systems, Inc. is a currently registered contractor in the CCR database.

SINs and Professional Engineering Disciplines Awarded

All SINs were awarded under the **Mechanical Engineering** discipline.

Recovery Purchase SINs: 871-2, 871-2RC
871-3, 871-3RC
871-4, 871-4RC
871-5, 871-5RC
871-6, 871-6RC

ME SIN 871-2 – Concept Development and Requirements Analysis

Services required under this SIN involve abstract or concept studies and analysis, requirements definition, preliminary planning, the evaluation of alternative technical approaches and associated costs for the development or enhancement of high level general performance specifications of a system, project, mission or activity. Typical associated tasks include, but are not limited to requirements analysis, cost/cost-performance trade-off analysis, feasibility analysis, regulatory compliance support, technology conceptual designs, training, privatization and outsourcing. Example: The development and analysis of the total mission profile and life cycle of the improved satellite including examination of performance and cost tradeoffs. Inappropriate use of this SIN is providing professional engineering services not specifically related to concept development and requirements analysis and its associated disciplines.

ME SIN 871-3 – System Design, Engineering and Integration

Services required under this SIN involve the translation of a system (or subsystem, program, project, activity) concept into a preliminary and detailed design (engineering plans and specifications), performing risk identification/analysis/mitigation, traceability, and then integrating the various components to produce a working prototype or model of the system. Typical associated tasks include, but are not limited to computer-aided design, design studies and analysis, high level detailed specification preparation, configuration management and document control, fabrication, assembly and simulation, modeling, training, privatization and outsourcing. Example: The navigation satellite concept produced in the preceding stage will be converted to a detailed engineering design package, performance will be computer simulated and a working model will be built for testing and design verification. Inappropriate use of this SIN is providing professional engineering services not specifically related to concept development and requirements analysis and its associated disciplines.

ME SIN 871-4 – Test and Evaluation

Services required under this SIN involves the analysis, planning and detailed design of all engineering specific logistics support including material goods, personnel, and operational maintenance and repair of systems throughout their life cycles. Typical associated tasks include, but are not limited to ergonomic/human performance analysis, feasibility analysis, logistics planning, requirements determination, policy

standards/procedures development, long-term reliability and maintainability, training, privatization and outsourcing. Example: The full range of life cycle logistics support for the navigation satellite will be identified and designed in this stage including training, operation and maintenance requirements, and replacement procedures. Inappropriate use of this SIN is providing professional engineering services not specifically related to integrated logistics support and its associated disciplines.

ME SIN 871-5 – Integrated Logistics Support

Services required under this SIN involves the analysis, planning and detailed design of all engineering specific logistics support including material goods, personnel, and operational maintenance and repair of systems throughout their life cycles. Typical associated tasks include, but are not limited to ergonomic/human performance analysis, feasibility analysis, logistics planning, requirements determination, policy standards/procedures development, long-term reliability and maintainability, training, privatization and outsourcing. Example: The full range of life cycle logistics support for the navigation satellite will be identified and designed in this stage including training, operation and maintenance requirements, and replacement procedures. Inappropriate use of this SIN is providing professional engineering services not specifically related to integrated logistics support and its associated disciplines.

ME SIN 871-6 – Acquisition and Life Cycle Management

Services required under this SIN involve all of the planning, budgetary, contract and systems/program management execution functions required to procure and/or produce, render operational and provide life cycle support (maintenance, repair, supplies, engineering specific logistics) to technology-based systems, activities, subsystems, projects, etc. Typical associated tasks include, but are not limited to operation and maintenance, program/project management, technology transfer/insertion, training, privatization and outsourcing. Example: During this stage the actual manufacturing, launch, and performance monitoring of the navigation satellite will be assisted through project management, configuration management, reliability analysis, engineering retrofit improvements and similar functions. Inappropriate use of this SIN is professional engineering services not specifically related to acquisition and life cycle management and associated disciplines.

Labor Rates

PD Systems, Inc. GSA PES Schedule: GS-10F-0078U
Contract Period of Performance: 12/13/2007 – 12/12/2012
Modification Number PS-0003, Dated February 26, 2009

Rates are valid through 12/12/2012

Labor Category	Customer Site	PD Systems' Site
Analyst, Engineer I	37.40	45.72
Analyst, Engineer II	46.14	55.56
Analyst, Engineer III	55.72	61.68
Analyst, Engineer IV	59.71	71.40
Analyst, Engineer V	71.35	80.69
Analyst, Logistics I	31.30	35.70
Analyst, Logistics II	39.83	47.33
Analyst, Logistics III	44.65	55.64
Analyst, Logistics IV	54.15	64.15
Analyst, Logistics V	61.04	67.25
Engineer I	44.67	52.11
Engineer II	54.70	62.15
Engineer III	60.98	68.42
Engineer IV	81.49	88.93
Engineer V	91.69	99.13
Logistician I	28.81	32.45
Logistician II	40.45	48.15
Logistician III	53.27	58.90
Manager I	59.37	72.29
Manager II	72.73	90.27
Manager III	106.11	127.40
Admin Specialist I	25.50	28.15
Admin Specialist II	34.53	40.43
Admin Specialist III	41.76	43.47
Admin Specialist IV	50.70	59.64
CADD Operator I	28.15	36.87
CADD Operator II	48.83	53.43
Technical Writer/Editor I	32.16	36.79
Technical Writer/Editor II	36.12	42.49
Technical Writer/Editor III	47.92	51.50
Technician I	3087	35.11
Technician II	34.77	40.74
Technician III	42.70	44.70
Training Specialist I	38.43	44.98

Training Specialist II	42.07	50.25
Training Specialist III	57.14	63.52
Training Specialist IV	66.51	80.27
Training Specialist V	93.84	110.01

Labor Category Descriptions

1. Analyst, Engineering

Minimum/General Requirements:
Experience in conducting strategic planning for high technology programs, developing concepts analyzing requirements, or supporting acquisition and product sustainment activities over the complete life cycle. Analysis experience for each labor category level shown in Table 1 must be related to planning, design, development, evaluation, control, and/or operation of tactical, electronic or mechanical systems and be in the PES primary disciplines of electrical, chemical and/or mechanical engineering. Experience must further be in one or more of the PES functional specialties (e.g., analysis of mission, program goals and objectives; requirements analysis; special studies and analysis; cost/cost-performance trade-off analysis; cost engineering; feasibility analyses; organizational performance assessment or regulatory compliance support; technology conceptual designs; life cycle support; operational and maintenance, program/project management; technology transfer/insertion assessments; training; privatization; and outsourcing).

Functional Responsibilities:
Plans, organizes, directs, and conducts strategic planning for high technology programs, concept development and requirements analysis, or acquisition and life-cycle management tasks in problem areas of moderate scope and complexity addressing topics such as producibility, design, manufacturing, research, systems, processes, technology, materials, analytical tools, application environment and test/evaluation. Applies specialized knowledge of PES-related primary disciplines and functional specialties. Work requires the modification and extension of existing methods and may require the use of advanced techniques. Plans and conducts work requiring judgment in the evaluation, selection, and adaptation and/or modification of methodologies and tools. Normally receives guidance or consults with consultants or functional specialists on unusual or complex problems. Work is reviewed by a consultant, functional specialist, or manager to ensure accuracy, and to ensure it satisfies customer needs and complies with the contractor s overall consulting standards. Identifies and applies novel approaches and use of appropriate analysis techniques. Has moderate/extensive technical responsibility for interpreting, organizing, executing, and coordinating assignments, including the interface with other personnel assigned to a task. Keeps abreast of new PES-related methodologies, databases, and tools for PES primary disciplines and functional specialties. Makes decisions, which are considered authoritative and which demonstrate mature judgment in anticipating and solving complex problems. Work is reviewed by the task manager to ensure it satisfies customer needs and complies with the contractor s overall consulting standards.

Minimum Education:
BS/BA in engineering, math, business or physical science or specific experience in quantitative analysis such as statistics, chemistry, biology, metallurgy, tolerance analysis, dimensional stacking, forecasting, economics, modeling, computer simulation, and finite element analysis, and physics. An MS/MA in engineering, math, business or physical science will substitute for two years of the engineering analyst experience requirements.

Table 1. Analyst, Engineering Experience and Education Requirements

Labor Category Experience and Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
Analyst, Engineering I	2 Years	1 Year	6 Years	4 Years	<1 Year
Analyst, Engineering II	5 Years	3 Years	8 Years	7 Years	2 Years
Analyst, Engineering III	8 Years	6 Years	12 Years	10 Years	4 Years
Analyst, Engineering IV	9 Years	7 Years	13 Years	11 Years	5 Years
Analyst, Engineering V	10 Years	8 Years	14 Years	12 Years	6 Years

2. Analyst, Logistics

Minimum/General Requirements:
Experience in the integrated logistics support field, including any of the areas of logistics program planning and concept development; logistics program management and execution; logistics requirements analyses, documentation development and reporting; provisioning, supply support, and inventory control; logistics automated information systems and analysis tools; maintenance concepts and requirements analyses; and technical manual development and training. Logistics analysis experience for each labor category level shown in Table 2 must be related to planning, design, development, evaluation, control, and/or logistics support of tactical, electronic or mechanical systems and be in the PES primary disciplines of electrical, chemical and/or mechanical engineering.

Functional Responsibilities:
Plans, organizes, directs, and conducts strategic planning for high technology programs, concept development and requirements analysis, or acquisition and life-cycle management tasks in problem areas of moderate scope and complexity addressing topics such as: business, cost/pricing, supply, maintenance, contractor logistics support, packaging, shipping, handling, transportation, inventory, warehousing, supply chain integration, analytical tools, operations research, production, program/project, project control, test and training. Prepares or supervises engineering and technical personnel in the development of logistics products and for providing requisite support services.

Performs technical and management analyses for logistic strategic planning, investigation of logistic concepts and processes, and resolution of emergent logistic supportability problems. Performs analyses and develops ILS management plans to support acquisition and life cycle support requirements planning. Monitors program schedules and integrates/develops recommendations for corrective or remedial action; develops status reports reflecting support milestone progress and problems. Performs/reviews logistics support analyses and develops maintenance concepts. Prepares content for contract technical packages (SOW, CDRL, Specifications).

Minimum Education:
BS/BA in engineering, math, business or physical science or specific experience in quantitative analysis such as statistics, chemistry, biology, metallurgy, tolerance analysis, dimensional stacking, forecasting, economics, modeling, computer simulation, and finite element analysis, and physics. An MS/MA in engineering, math, business or physical science will substitute for two years of the engineering analyst experience requirements.

Table 2. Analyst, Logistics Experience and Education Requirements

Labor Category Experience and Education Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
Analyst, Logistics I	2 Years	<1 Year	6 Years	4 Years	<1 Year
Analyst, Logistics II	5 Years	3 Years	8 Years	7 Years	2 Years
Analyst, Logistics III	8 Years	6 Years	12 Years	10 Years	4 Years
Analyst, Logistics IV	9 Years	7 Years	13 Years	11 Years	5 Years
Analyst, Logistics V	10 Years	8 Years	14 Years	12 Years	6 Years

3. Engineer

Minimum/General Requirements:
Experience in engineering as it relates to: concept, requirements analysis, trade studies, design, rapid prototyping, manufacturing processes, systems engineering and integration, production engineering, industrial and project management, system maintenance, quality assurance, test and evaluation, software development/integration, field engineering, and logistics/sustainment. Engineering experience for each labor category level shown in Table 5 must be related to design, integration, test, analysis, manufacture of systems/equipment and life cycle support and be in the PES primary disciplines of electrical, chemical and/or mechanical engineering. Additional experience includes the application of automated design tools to create and model system designs and processes, development of models, conduct of simulations, and performance of hardware/software assessments. General experience includes knowledge and application of engineering

tools/techniques throughout the life cycle, and skills in interfacing software with imbedded and non-imbedded hardware systems.

Functional Responsibilities:

Performs professional work in research, development, design, testing, analysis, production, construction, maintenance, operation, planning, estimating, or standardization of facilities, systems, structures, processes, equipment, devices, or materials, requiring knowledge of the art and science of engineering. Provides comprehensive definition of all aspects of system development from analysis of mission needs to verification of system performance. Analyzes/develops system requirements; develops specifications, solutions and alternatives as part of engineering studies; and assesses risks and costs to satisfy those requirements. Formulates preliminary designs, performs tests, takes measurements, or performing system analyses of simulations. Applies reverse engineering and reengineering disciplines to develop production planning and manufacturing documents. Develops block diagrams and logic flow charts and translates detailed design into prototype or pre-production hardware/software. Prepares schematics, layouts, and diagrams; develops design solutions, and prepares relevant procurement and design documentation. Implements performance and technical standards and conducts appropriate tests to assess, debug and validate system performance.

Minimum Education:

BS/BA in engineering, computer science, information systems, math, business, physical science or other related scientific or technical discipline or specific experience in engineering applications/techniques such as manufacturing methods, production management, metallurgy, material science, computer-aided design and drafting, modeling and computer simulation. An MS/MA in engineering, computer science, information systems, math, business, physical science would substitute for two years of the engineer position experience requirements.

Table 3. Engineer Experience and Education Requirements

Labor Category Experience and Education Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
Engineer I	<1 Year	<1 Year	6 Years	4 Years	<1 Year
Engineer II	4 Years	2 Years	8 Years	6 Years	1 Year
Engineer III	6 Years	4 Years	10 Years	8 Years	2 Years
Engineer IV	8 Years	6 Years	12 Years	10 Years	4 Years
Engineer V	10 Years	8 Years	14 Years	12 Years	6 Years

4. Logistician

Minimum/General Requirements:
Demonstrated ability to develop, test and deliver configuration and logistic management support services designed to provide clients with logistics technology to ensure effective and economical support for production and servicing products, systems, or equipment. Logistics experience for each labor category level shown in Table 6 must be related to the elements of logistics support and to the PES primary disciplines of electrical, chemical and/or mechanical engineering. Must be knowledgeable in the analysis of government logistics requirements, including familiarity with government logistics systems, capabilities, and processes. Should have experience with major systems and equipment and all aspects of integrated logistics support (ILS) elements and related planning, analysis, and management. Must be capable of assessing system and equipment impact of ILS elements. Must have experience in performing maintenance and conducting equipment training.

Functional Responsibilities:
Provides direct interface with customer technical and management personnel for development of ILS program strategies and associated planning, business process review and improvement, the assessment of alternative logistic concepts, the investigation and resolution of emergent logistic supportability problems, and life cycle costing and economic business case analysis. Provides expertise to specify requirements for the development of ILS management plans to support acquisition and life cycle support requirements planning. Provides guidance for the development of interactive electronic technical manuals and distance learning methodologies. Conducts analysis, planning and detailed design of logistics support including material goods, personnel, and operational maintenance and repair of systems throughout their life cycles. Performs human factor analysis, feasibility analysis, logistics planning, requirements determination, policy standards/procedures development, long-term reliability and maintainability, and training tasks. Provides assistance in the areas of logistics support; ILS; logistics program planning; concept development; logistics program management and execution; logistics requirements analyses, documentation development and reporting; provisioning, supply support, and inventory control; logistics automated information systems and analysis tools; maintenance concepts and requirements analyses; technical manual development and training.

Minimum Education:
BS/BA in engineering, logistics, computer science, information systems, math, business, physical science or other related scientific or technical discipline or specific experience in logistics engineering applications/techniques. An MS/MA in engineering, logistics, computer science, information systems, math, business, physical science would substitute for two years of the logistician position experience requirements.

Table 4. Logistician Experience and Education Requirements

Labor Category Experience and Education Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
Logistician I	<1 Year	<1 Year	6 Years	4 Years	<1 Year
Logistician II	4 Years	2 Years	8 Years	6 Years	1 Year
Logistician III	6 Years	4 Years	10 Years	8 Years	2 Years

5. Manager

Minimum/General Requirements:
Progressive experience which includes: managing, directing, and implementing engineering and technology projects, demonstrated ability to provide guidance and technical direction for projects, proven expertise in program/project management, manufacturing, purchasing, management/control of funds and resources, contracts, testing, and business. Management experience for each labor category level shown in Table 8 must be related to planning, concept development and requirements analysis, design engineering, test and evaluation, acquisition and life cycle management and to the PES primary disciplines of electrical, chemical and/or mechanical engineering. Must possess extensive knowledge of technical and management concepts, procedures and practices. General experience includes increasing responsibilities in: systems design and management; management of diverse functional activities and technical/support personnel; managing complex, multi-task commercial and government contracts; and allocation/prioritization of resources.

Functional Responsibilities:
Serves as the contractor's single contract manager, and shall be the contractor's authorized technical interface with the Government Contracting Officer (CO), Contracting Officer's Representatives (CORs), government management personnel, and customer agency representatives. Directs all phases of programs/projects from inception through completion. Coordinates the preparation of project plans, milestones, and operating budgets; development of project approaches/concepts; and obtaining proper resources within and across organizational boundaries. Reviews and evaluates work of staff, provides task oversight and prepares periodic performance reports. Acts as primary customer contact for task activities, leading task review sessions with customer to discuss cost, schedule, and technical performance. Evaluates requirements, establishes task approach, organizes personnel resources, and directs engineering efforts for services or system/equipment research, development, integration, test, and sustainment. Establishes milestones and monitors adherence to master plans and schedules. Identifies program problems and obtains solutions. Directs the work of technical, engineering, and support

personnel assigned to the task and is responsible for overall task performance, product quality and timeliness of efforts.

Minimum Education:
BS/BA in engineering, logistics, computer science, information systems, math, business, physical science or other related management or technical discipline or specific experience in program/project management, corporate management, or consulting. An MS/MA in engineering, logistics, computer science, information systems, math, business, physical science would substitute for two years of the manager position experience requirements.

Table 5. Manager Experience and Education Requirements

Labor Category Experience and Education Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
Manager I	12 Years	8 Years	>20 Years	16 Years	4 Years
Manager II	16 Years	12 Years	>24 Years	20 Years	8 Years
Manager III	18 Years	14 Years	>26 Years	>22 Years	10 Years

6. Administrative Specialist

Minimum/General Requirements:
Demonstrated progressive project and program administration and/or clerical experience. Possesses excellent grammar and composition skills. Administrative specialist experience for each labor category level shown in Table 9 must be related to technical text processing, graphics, databases, presentations and specialized administrative skills to support scientific or engineering tasks incidental to and in support of PES primary disciplines of electrical, chemical and/or mechanical engineering. Understands and has knowledge of applicable policies, organization, and possesses a high level of technical skill. Proficient in PC-based computers, printers, scanners and local area networks and various administrative/clerical software that could include one or more: word processing, databases, e-mail, Internet browsers, document publishing and graphics software programs. Proven administrative skills associated with project office or operational support functions including the preparation of correspondence; the coordination/scheduling of meetings, training sessions and conferences; and the oversight of daily administrative operations. Demonstrated familiarity with engineering-related nomenclature and Government correspondence standards and procedures.

Functional Responsibilities:

Performs specialized program/project administrative duties support project management staff, which may include maintaining records or technical reports, verifying statistical reports for accuracy and completeness, making travel, meeting, or conference arrangements, taking inventory of equipment and supplies, and helping prepare financial or technical reports. Properly prepares, formats, and prints administrative correspondence. Proofreads, edits, and corrects correspondence. Operates computer equipment, telecommunications equipment, including telephones/facsimile machines and basic office equipment, including reproduction machines/GBC binder systems. Composes correspondence that requires an understanding of engineering/technical nomenclature. Prepares required administrative reports. Coordinates and plans office administration and support. Provides administrative-type support to managers, engineers, specialists and analysts. This includes, but is not limited to, documentation planning and support, project administration, general office support, executive secretarial support, human resource planning, event planning and administration, office relocation planning, mail services, records, data input, etc.

Minimum Education:
High School diploma or General Education diploma or one year certificate in communications, microcomputer/office technology or office administration. A BS/BA in administration, computer science, information systems, business, or physical science would substitute for four years of the administrative specialist position experience requirements.

Table 6. Administrative Specialist Experience and Education Requirements

Labor Category Experience and Education Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
Admin Specialist I	<1 Year	<1 Year	<1 Year	<1 Year	<1 Year
Admin Specialist II	1 Year	<1 Year	1 Year	2 Years	<1 Year
Admin Specialist III	2 Years	1 Year	6 Years	4 Years	<1 Year
Admin Specialist IV	4 Years	2 Years	8 Years	6 Years	<1 Year

7. CAD Operator

Minimum/General Requirements:
Progressively responsible experience in detailed design and engineering activities using computer-aided design (CAD) software for equipment, product engineering and design projects. CAD Operator experience for each labor category level shown in Table 10 must be related to creating/revising: site plans, riser diagrams, interface/interconnect drawings, equipment/product layouts, mechanical designs, electrical schematics, flowcharts, professional renderings, and animations. CAD Operator support of scientific or

engineering tasks are incidental to but in support of PES primary disciplines of electrical, chemical and/or mechanical engineering. Must be experienced in use of CAD and drafting/analysis tools (such as AutoCAD , ProENGINEER , Mechanical Desktop , SolidWorks , True Space , Pro/MECHANICA , Algor , Spicer , Ivector , Interactive PreAssembly , Auto-Z ' etc.) Demonstrated experience in preparing specifications and drawings using CAD and related engineering design software. Experienced in the proper use of printers, plotters and other computer-based drafting peripheral devices. Must be proficient in quality assurance standards for engineering designs.

Functional Responsibility:

Supports engineering design efforts and develops two dimensional (2-D) and virtual three dimensional (3-D) renderings and animations, provides design and drafting support using computer-based drafting and design tools. Creates original 2-D and 3-D drawings and objects from sketches or red-lined design or arrangement drawings and/or specifications. Converts 2-D drawings to 3-D solid or wire-frame objects and creates animations using 3-D objects. Understands/applies Government drawing and configuration management standards. Works closely with design originators, preparing drawings of unusual, complex or original design that require a high degree of precision. Must be capable of preparing drawings of electrical circuits, machined parts, wiring diagrams and schematics from interpreting draft layouts, sketches or other sources. Ensures that anticipated problems during manufacture, assembly, installation, and operation are resolved by drawing produced. Independent judgment required in selecting and interpreting data based on knowledge of the design. Responsible for ensuring compliance with delivery schedules, works closely with system and design engineers, task leads and managers. Ensures adherence to quality assurance processes and procedures.

Minimum Education:

High School diploma or General Education diploma and a one-year trade certificate in CAD, engineering or architectural drafting. A BS/BA in graphics arts, computer science, information systems, art, business, or physical science would substitute for four years of the CAD Operator position experience requirements.

Table 7. CAD Operator Experience and Education Requirements

Labor Category Experience and Education Equivalency	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	High School Plus Specific Experience	AS Plus Specific Experience	PhD Plus Specific Experience
CAD Operator I	<1 Year	<1 Year	2 Years	<1 Year	<1 Year
CAD Operator II	2 Year	<1 Year	6 Years	4 Years	<1 Year

8. Technical Writer, Editor

Minimum/General Requirements:
Demonstrated skills in technical writing, reviewing and/or editing of technical documentation in business, government, or industry. Technical Writer-Editor experience for each labor category level shown in Table 12 must be related to developing, editing, and producing technical and graphic documentation for engineering or technology systems that are incidental to but support of PES primary disciplines of electrical, chemical and/or mechanical engineering. Must have a thorough understanding of computer processing, including commonly used information technology and engineer terminology and must possess good organizational skills. Requires a sound foundation in grammar, punctuation and use of the English language as well as composing, editing, and formatting using personal computers. Transforms technical information into clear, readable documents. Requires progressive knowledge of technical writing, production of reports or documents and a good understanding of applicable Government and/or industry standards.

Functional Responsibility:
Duties include writing, editing, and graphics presentation of engineering and management information for both technical and non-technical personnel. Organizes material and completes writing assignments with regard to order, clarity, conciseness, style, and terminology. Collects and organizes information and prepares, in clear and concise language, technical documents such as functional descriptions, procedure manuals, service manuals, special reports, training materials, installation guides, system specifications, brochures, bulletins, slide/sound/movie presentations and related technical publications concerned with the design, test, production, installation, operation, and maintenance of electronic, electrical, mechanical, chemical and other equipment. Acquires or verifies knowledge of subject by interviewing workers engaged in developing new products and services or in making improvements, observing methods of production, referring to blueprints, schematics, engineering drawings, trade and engineering journals, manuals, or similar publications. Revises text and recommends changes in scope, format, and content to ensure conformance with established standards. Performs final quality assurance on all materials. Must be capable of typing technical narrative and data and transcribing audio to written text. Will be responsible for accurate spelling, proper grammar usage, proper format, and proofreading finished documents.

Minimum Education:
An Associates of Arts or Sciences Degree in English, journalism, literature, communications, business, technical writing, biology, chemistry or other related disciplines or specific experience in technical writing and editing. A BS/BA in English, literature, graphics arts, computer science, information systems, business, or physical science would substitute for four years of the Technical Writer-Editor position experience requirements.

Table 8. Technical Writer-Editor Experience and Education Requirements

Labor Category Experience and Education Equivalency	AS Plus Specific Experience	High School Plus Specific Experience	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	PhD Plus Specific Experience
Tech Writer-Editor I	4 Years	8 Years	<1 Year	<1 Year	<1 Year
Tech Writer-Editor II	8 Years	12 Years	4 Years	2 Years	1 Year
Tech Writer-Editor III	12 Years	16 Years	8 Years	4 Years	2 Years

9. Technician

Minimum/General Requirements:
Demonstrated experience in the design, assembly, production, inspection, installation, calibration, test, trouble shoot, operation and/or maintenance of electronic, electromechanical, and/or mechanical systems and components. Technician experience for each labor category level shown in Table 9 must be related to analysis skills, knowledge of diagnostic tools, comprehension of testing methodologies applied to engineering or technology tasks that are incidental to but in support of PES primary disciplines of electrical, chemical and/or mechanical engineering. Progressive experience in fabrication, assembly, electrical/mechanical stresses, material capabilities, and instrumentation. Possesses soldering skills for repair of equipment and hardware and ability to read mechanical drawings.

Functional Responsibility:
Applies advanced technical knowledge to solve unusually complex problems (i.e., those that typically cannot be solved solely by interpreting manufacturers manuals or similar documents). Uses judgment and initiative to recognize inconsistencies or gaps in data and seek sources to clarify information. Analyzes technical data to determine applicability to design problems; selects from several possible design layouts; calculates design data; and prepares layouts, detailed specifications, parts lists, estimates, procedures, etc. Applies conventional engineering practices to develop, prepare, or recommend schematics, designs, specifications, electrical drawings, and parts lists. Responsible for following inspection procedures in conducting monitoring/witnessing of hardware activities in design, prototyping, fabrication, assembly, integration, test, fielding and sustainment. Performs test/calibration procedures, observes results, and records information for evaluation. Conducts tests or experiments requiring selection and adaptation or modification of a wide variety of critical test equipment and test procedures; sets up and operates equipment; records data, measures and records problems of significant complexity that sometimes require resolution at a higher level; and analyzes data and prepares test reports. Applies technical knowledge of electrical and mechanical principles in fault isolation, identifying malfunction cause, and restoring equipment/system operations.

Minimum Education:
An AS two-year degree in electronic, electrical, electromechanical or mechanical specialization, military technician school, or equivalent experience related to maintenance and repair of systems/equipment or technical trade school certification. A BS in engineering technology, computer science, information systems, or physical science would substitute for four years of the Technician position experience requirements.

Table 9. Technician Experience and Education Requirements

Labor Category Experience and Education Equivalency	AS Plus Specific Experience	High School Plus Specific Experience	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience	PhD Plus Specific Experience
Technician I	<1 Year	2 Years	<1 Year	<1 Year	<1 Year
Technician II	2 Years	4 Years	<1 Year	<1 Year	<1 Year
Technician III	4 Years	8 Years	<1 Year	<1 Year	<1 Year

10. Training Specialist

Minimum/General Requirements:
Demonstrated experience in developing computer-based and/or multimedia training products or in the delivery of training curricula. May also have experience in the planning, implementation, management and execution of training programs. Requires experience in instructional system design or course instruction with knowledge of digital video, CD-ROM and network delivery techniques. Experience may also include areas of expertise such as media selection, web-based training, interactive video-training, distance learning, computer-based training, instructional videos, synchronous/asynchronous training, instructor led courses, self-study materials, and training device design, integration, and application. Must have progressive experience in developing and providing training on computer hardware and application software. Demonstrated ability to effectively communicate and interface with new trainees and provide clear, concise hands on training.

Functional Responsibility:
As part of a training team, develops training products and/or provides training services. Performs training course/curricula design and/or the authoring, media digitization, and graphics implementation of training products. Responsibilities may also include defining curricula and preparing course content/materials such as, instructor materials (course outline, background material, instructor guide and training aids) and student materials (student guides, workbooks, handouts, laboratory/classroom practical exercises, audiovisual/multi-media presentation materials, completion certificates and course

critique forms). Responsible for setting up and platform instruction, soliciting student feedback, and reporting on student performance. Performs training assessments and develops input to training program management plans to support acquisition and life cycle support requirements planning. Monitors training program schedules and integrates/develops recommendations for corrective or remedial action. Plans, develops, and coordinates product training programs for support personnel and customers. Obtains information needed to prepare training programs for equipment/system operation and maintenance; prepares training materials; develops course content; determines training course methodology; and coordinates the development of training aids. Conducts training sessions and develops criteria for evaluating effectiveness of training activities. Revises lesson plans to meet new training requirements and modify curricula to keep technical information up-to-date.

Minimum Education:

High School or General Education diploma with substitution for two years of Training experience requirement with experience as an instructor in trade sponsored apprenticeship program or specific military/job corps training. An AS/AAS in a trade would substitute for two years of Training Specialist position experience requirements.

Table 10. Training Specialist Experience and Education Requirements

Labor Category Experience and Education Equivalency	High School Plus Specific Experience	AS Plus Specific Experience	BS/BA Plus Specific Experience	MS/MA Plus Specific Experience
Training Specialist I	6 Years	4 Years	<1 Year	<1 Year
Training Specialist II	8 Years	6 Years	4 Years	2 Years
Training Specialist III	10 Years	8 Years	6 Years	4 Years
Training Specialist IV	12 Years	10 Years	8 Years	6 Years
Training Specialist V	14 Years	12 Years	10 Years	8 Years