



RESEARCH
AND ENGINEERING

OFFICE OF ASSISTANT SECRETARY OF DEFENSE

3030 DEFENSE PENTAGON
WASHINGTON, DC 20301-3030

MAY 7 2014

MEMORANDUM FOR THE PRESIDENT, DEFENSE ACQUISITION UNIVERSITY

SUBJECT: Functional Leader (FL) FY 2015 Annual Certification for the Engineering (ENG) and Production, Quality, and Manufacturing (PQM) Career Fields

Reference: DoDI 5000.66, Operation of the Defense Acquisition, Technology, and Logistics Workforce Education, Training, and Career Development Program

As the Under Secretary of Defense, Acquisition, Technology and Logistics (USD(AT&L)) FL for both the ENG and PQM Career Fields, and as required by the reference, I certify that for FY 2015:

- **Training Curriculum:** The current Defense Acquisition University (DAU) course documentation, content, and learning objectives are acceptable. In FY 2014 DAU course learning objectives have been updated based on the competencies revised in FY 2013. The course documentation and content is under revision to accommodate updates to Department policy issued in November 2013 and will be fully deployed in second quarter FY 2015.
- **Workforce Competencies:** ENG (formerly known as Systems Planning, Research, Development, and Engineering (SPRDE)) and PQM workforce competencies were updated in FY 2013, and adequately reflect the knowledge, skills, abilities, behaviors, and other characteristics that are needed for successful job performance required for the ENG and PQM workforce. (See Attachment A for the ENG and PQM workforce competencies.)
- **Certification Standards:** Minor changes to the ENG and PQM certification standards were made for FY 2015 and are applicable to all DoD AT&L workforce personnel seeking ENG or PQM certification after September 30, 2014. (See Attachment B for the Certification Standards for the ENG and PQM Career Fields.)
- **Position Category Descriptions (PCD):** Minor changes to the ENG and PQM PCDs were made for FY 2015 and are considered valid for DoD AT&L being coded to ENG or PQM.

My goal is to improve program success through the application of sound and rigorous engineering practices. As my staff continues to regularly evaluate the training curriculum, workforce competencies, certification standards, and position category descriptions, we will continue to seek DAU's participation in the ENG and PQM Functional Integrated Process Teams' efforts.

My point of contact regarding this certification is Ms. Aileen Sedmak who can be reached by phone at (703) 695-6364 or by e-mail at Aileen.G.Sedmak@mail.mil.

A handwritten signature in black ink, appearing to read 'S. P. Welby', with a stylized flourish at the end.

Stephen P. Welby
Deputy Assistant Secretary of Defense
Systems Engineering

Attachments
As stated

**SPRDE Competency Model
2013 Refresh**

Unit of Competence: Analytical

#	Competency	Sub-Competency Description
1	Mission-Level Assessment	Sub-Competency 1. Assess mission areas end-to-end, across system and platform boundaries, to identify and close integration and interoperability (I&I) gaps in mission critical capabilities. Identify and define the mission problem(s) or opportunity(s), analyze the solution space, and initiate the life cycle of a potential solution that could address the problem or take advantage of
2	Stakeholder Requirements Definition	Sub-Competency 2. Work with the user to establish and refine operational needs, attributes, performance parameters, and constraints that flow from the Joint Capability Integration and Development System described capabilities, and ensure all relevant requirements and design considerations are addressed to establish a set of baseline requirements.
3	Requirements Analysis	Sub-Competency 3. Ensure the requirements derived from the customer-designated capabilities are analyzed, decomposed, functionally detailed across the entire system, feasible and effective.
4	Architecture Design	Sub-Competency 4. Translate the outputs of the Stakeholder Requirements Definition and Requirements Analysis processes into alternative design solutions. The alternative design solutions include hardware, software, and human elements; their enabling processes; and related internal and external interfaces.
		Sub-Competency 5. Track and manage design considerations (boundaries, interfaces, standards, available production process capabilities, performance and behavior characteristics) to ensure they are properly addressed in the technical baselines.
		Sub-Competency 6. Generate a final design or physical architecture based on reviews of alternative designs.
		Sub-Competency 7. Conduct walkthroughs with stakeholders to ensure that requirements will be met and will deliver planned systems results under all combinations of design usage environments throughout the operational life of a system.
		Sub-Competency 8. Develop DoD Architecture Framework products to describe system data exchange requirements, formats and system interfaces for interoperable systems.
5	Implementation	Sub-Competency 9. Manage the design requirements and plan for corrective action for any discovered hardware and software deficiencies
6	Integration	Sub-Competency 10. Manage the technical issues that arise as a result of the integration processes that feed back into the design solution process for the refinement of the design.
7	Verification	Sub-Competency 11. Design and implement a testing process to compare a system against required system capabilities, to link Modeling and Simulation, Developmental Test and Evaluation and Operational Test and Evaluation together, in order to document system capabilities, limitations, and risks.
		Sub-Competency 12. Verify the system elements against their defined requirements (build-to specifications).
8	Validation	Sub-Competency 13. Evaluate the requirements, functional and physical architectures, and the implementation to determine the right solution for the problem in an operationally-representative environment.
9	Transition	Sub-Competency 14. Advance the system elements to the next level in the physical architecture or provide the end item to the user after ensuring integration with other systems and interface management, both internal and external, for use in the operational environment.
10	Design Considerations	Sub-Competency 15. Accessibility (Section 508 Compliance). Assess, design, and implement compliance with Section 508 of the Rehabilitation Act (as amended 36 CFR Part 1194), unless exempt under FAR 39.204 as a military system or National Security System.
		Sub-Competency 16. Affordability – Systems Engineering Trade-Off Analyses. Establish an affordability target at Milestone A. Utilize the affordability target as the basis for the SE trade-offs and sensitivity analyses conducted in support of Milestone B, and subsequent reviews.
		Sub-Competency 17. Anti-Counterfeiting. Assess, design, and implement activities to prevent counterfeit parts from entering the supply chain to reduce cost and prevent negative impacts to program schedule and system performance.
		Sub-Competency 18. Commercial-Off-the-Shelf. Investigate the use of commercial-off-the-shelf items, including Non-Developmental Items, as required by DoDI 5000.02, Enclosure 2, in order to realize the significant opportunities for efficiencies during system development, but also to mitigate potential harmful issues if the program is to realize the expected benefits.
		Sub-Competency 19. Corrosion Prevention and Control. Assess, design, and implement compliance with Section 2228 of title 10, United States Code, DoDI 5000.02 and 5000.67 that requires planning and execution of corrosion prevention and mitigation in DoD systems across the life cycle.
		Sub-Competency 20. Critical Safety Item (CSI). Assess, design, and implement compliance with the statutory requirements are contained in section 802 of Public Law 108-136, enacted to address aviation CSIs, and section 130 of Public Law 109-364, enacted to address ship CSIs, embedded in section 2319 of title 10, United States Code to avoid hazards through mitigating receipt of defective, suspect, improperly documented, unapproved, and fraudulent parts having catastrophic potential.
		Sub-Competency 21. Demilitarization and Disposal. Assess, design, and implement compliance with demilitarization and disposal requirements in the initial system design to ensure compliance with (1) DoDI 4160.28, Volume I, Defense Demilitarization; Program Administration, (2) DoD 4140.1-R, Supply Chain Materiel Management Regulation and DoD 4160.21-M, Defense Materiel Disposition Manual, and (3) all legal and regulatory requirements and policies relating to safety (including
		Sub-Competency 22. Diminishing Manufacturing Sources and Material Shortages (DMSMS). Assess, develop, and incorporate a technology management strategy into design activities as a best practice to reduce DMSMS cost and readiness impacts throughout the life cycle.
		Sub-Competency 23. Environment, Safety, and Occupational Health (ESOH). Identify and analyze hazards, and mitigate ESOH risks provide information needed for informed design decisions and development of ESOH-related documentation for milestone decisions.
		Sub-Competency 24. Human Systems Integration. Assess, develop, and implement Human Systems Integration and Human Factors Engineering design criteria, principles, and practices described in MIL-STD-1472, Human Engineering and MIL-STD-46855A, Human Engineering Requirements for Military Systems, Equipment and Facilities in system.

		Sub-Competency 25. Insensitive Munitions. Assess, design, and implement compliance with explosive ordnance safety requirements described in section 2389 of title 10, United States Code, which specifies that it is the responsibility of DoD to ensure insensitive munitions under development or procurement are safe, to the extent practicable, throughout development and fielding when subjected to unplanned stimuli, e.g., electro-magnetic interference, vibration, or shock.
		Sub-Competency 26. Intelligence (Life-Cycle Mission Data Plan). Ensure Intelligence Mission Data (IMD) is considered, identified, and applied throughout the life cycle of IMD-dependent programs by informing the Analysis of Alternatives (AoA) and continuing through disposal. IMD provides essential data for building system models, developing algorithms, optimizing sensor design, system testing and evaluation, and validating sensor functionality.
		Sub-Competency 27. Interoperability and Dependencies. Oversee the planning, analyzing, organizing, and integrating the capabilities of a mix of existing and new systems into a system-of-systems (SoS) capability greater than the sum of the capabilities of the constituent parts. SoS engineering is an activity that spans the entire system's life cycle; from pre-Milestone
		Sub-Competency 28. Item Unique Identification. Assess, design, and implement Item Unique Identification-enabled Serialized Item Management to provide a capability that allows DoD to locate, control, value, and manage its assets throughout the life cycle as required by DoDI 8320.04, DoDI 5000.02, and DoDI 4151.19.
		Sub-Competency 29. Open Systems Architecture (OSA). Assess, design, and implement OSAs to produce modular, interoperable systems allowing components to be added, modified, replaced, removed, and/or supported by different vendors throughout the life cycle in order to afford opportunities for enhanced competition and innovation.
		Sub-Competency 30. Operational Energy. Incorporate energy demand in design, technology, materials, and related issues into the system trade space along with other performance issues, so that energy resupply needs are not inadvertently introduced in the attempt to achieve other performance goals (e.g., survivability, lethality).
		Sub-Competency 31. Packaging, Handling, Storage, and Transportation (PHS&T). Assess, design, and implement PHS&T principles/methods to ensure the necessary equipment reaches the warfighter while minimizing risk of damage to the equipment
		Sub-Competency 32. Producibility, Quality, and Manufacturing Readiness. Assess, develop, and implement in system design (1) Producibility (the relative ease of manufacturing), (2) Quality consisting of (A) Quality Management Systems to ensure efficiency in processes and (B) Statistical Process Control to eliminate defects and control variation, and (3) Manufacturing Readiness in design activities to reduce system risk and ensure manufacturing process reliability and producibility.
		Sub-Competency 33. Reliability and Maintainability Engineering. (1) Integrate Reliability and Maintainability (R&M) Engineering design analysis, test and demonstrations within the program's systems engineering processes and document R&M inputs to the Reliability, Availability and Maintainability – Cost (RAM-C) Rationale Report, Systems Engineering Plan (SEP) and other acquisition documentation throughout all life cycle phases. (2) Evaluate government and contractor R&M engineering and design analysis to include R&M feasibility assessments, Failure Definition and Scoring Criteria, environmental study report, mission profile definition, R&M allocations, block diagrams, predictions, Failure Modes and Effects Criticality Analysis and the Failure Reporting, Analysis and Corrective Action System. (3) Ensure that R&M analysis, tests and demonstrations influencing product support planning are fully coordinated and commence early in the life cycle while verifying that technical data is
		Sub-Competency 34. Spectrum Management. Ensure systems that mount multiple emitters and receivers obtain spectrum access for each emitter and ensure that those emitters and receivers do not produce mutual interference, or interact with ordnance (see DoDD 3222.3, MIL-STD-461, MIL-STD-464, and MIL-HDBK-235-1, 237, and 240A, and "Joint Services Guide for Development of a Spectrum Supportability Risk Assessment") in compliance with the US and any host nation's requirements.
		Sub-Competency 35. Standardization. Balance the use standardized agreements, practices, products, parts, processes, interfaces, and methods with required capabilities, operational environment, technology feasibility and growth, and cost-effectiveness in system design.
		Sub-Competency 36. Supportability. Identify and mitigate the supportability life-cycle cost drivers in system design to ensure a system is affordable across the life cycle.
		Sub-Competency 37. Survivability and Susceptibility. Ensure system is designed with a balanced survivability and susceptibility approach to ensure operational crew and personnel safety while satisfying mission effectiveness and operational readiness requirements.
		Sub-Competency 38. System Security Engineering. Apply and execute the appropriate systems engineering, program protection (including supply chain risk management cybersecurity, hardware assurance, software assurance, anti-tamper, exportability protections) and certification-related policies, principles, and practices across all levels and phases of an acquisition program to increase the level of confidence that a system functions as intended, is free from exploitable
11	Tools and Techniques	Sub-Competency 39. Technical Basis for Cost. Provide technical basis for comprehensive cost estimates and program budgets that reflect program phase requirements and best practices using knowledge of Earned Value Management, cost drivers, risk factors, and historical documentation (e.g. hardware, operational software, lab/support software).
		Sub-Competency 40. Modeling and Simulation. Plan, develop, integrate, employ, and evolve the authoritative model of the system under development, and/or interpret modeling or simulation results to more fully explore concepts, refine system characteristics/designs, assess overall system performance, and better inform acquisition program decisions.
		Sub-Competency 41. Sustainability Analysis. Perform sustainability analyses to reduce system total ownership cost by uncovering previously hidden or ignored life-cycle costs, leading to more informed decisions earlier in the acquisition life cycle.
		Sub-Competency 42. Value Engineering. Perform Value Engineering, an organized, systematic technique to analyze the functions of systems, equipment, facilities, services, and supplies to ensure they achieve their essential functions at the lowest life-cycle cost consistent with required performance, reliability, quality, and safety.

Unit of Competence: Technical Management

#	Competency	
12	Decision Analysis	Sub-Competency 43. Employ procedures, methods, and tools for identifying, representing, and formally assessing the important aspects of alternative decisions (options) to select an optimum (i.e., the best possible) decision.
13	Technical Planning	Sub-Competency 44. Address the scope of the technical effort required to develop, field, and sustain the system using the mandated tool, the Systems Engineering Plan.
14	Technical Assessment	Sub-Competency 45. Develop and/or use Technical Assessment metrics (i.e., Technical Performance Measures, Measures of Effectiveness, requirements compliance, and risk assessments) to measure technical progress, review life-cycle costs, and assess the effectiveness of plans and requirements.
15	Configuration Management	Sub-Competency 46. Apply sound program practices to establish and maintain consistency of a product or system's attributes with its requirements and evolving technical baseline over its life-cycle.

16	Requirements Management	Sub-Competency 47. Use Requirements Management to incorporate new requirements and to trace back to user-defined capabilities and other sources of requirements, and to document all changes and the rationale for those changes.
17	Risk Management	Sub-Competency 48. Create and implement a Risk Management Plan encompassing risk identification, analysis, mitigation planning, mitigation plan implementation, and tracking throughout the total life-cycle of the program.
		Sub-Competency 49. Apply risk management at the earliest stages of program planning and continue throughout the total life cycle of the program through the identification of risk drivers, dependencies, root causes, and consequence management.
18	Data Management	Sub-Competency 50. Apply policies, procedures and information technology to plan for, acquire, access, manage, protect, and use data of a technical nature to support the total life cycle of the system.
19	Interface Management	Sub-Competency 51. Ensure interface definition and compliance among the elements that compose the system, as well as with other systems with which the system or system Sub-Competencies will interoperate (i.e., system-of-systems) by implementing interface management control processes and measures to ensure all internal and external interface requirement changes are properly documented in accordance with the configuration management plan and communicated to all affected configuration
		Sub-Competency 52. Evaluate how Interface Management techniques ensure that all internal and external interface changes in requirements are properly documented and communicated in accordance with the configuration management plan.
20	Software Engineering Management	Sub-Competency 53. Use quantitative methods and measures to assess and track software progress against a baseline (planned vs. actual) and provide status updates in order to make timely program decisions.
		Sub-Competency 54. Integrate essential software acquisition and SE sustainment activities related to software through the use of multidisciplinary teams to optimize design, manufacturing, and supportability processes.
		Sub-Competency 55. Determine software-related considerations, impacts and risks that must be addressed as part of the system acquisition strategy. Use Agile methods, where possible, to reduce the duration and cost of the software development lifecycle.
		Sub-Competency 56. Evaluate inputs from relevant stakeholders that translate into functional and technical requirements that are documented, managed, traceable and verifiable through the software life-cycle process and describe the desired behavior of the software system to be built to satisfy the intended user(s).
		Sub-Competency 57. Understand the software architectural structure of the system, including the definition of software components, and the relationships between software components, the system, and the operational architectures.
21	Acquisition	Sub-Competency 58. Determine the appropriate amount of systems engineering and the resources, needed during each acquisition phase to achieve acceptable levels of risk for entry into the next acquisition phase. Determine the appropriate system acquisition strategy and life cycle model to include considering agile, rapid, and other optimization approaches.
		Sub-Competency 59. Assess the proposed solution's operational viability and costs of alternative systems during the Materiel Solution Analysis Phase, taking into account the design considerations to achieve a balanced system design.
		Sub-Competency 60. During the Technology Development Phase, integrate proven technologies, develop new hardware/software prototypes, evaluate solutions, and determine performance requirements to ensure that the cost, schedule, and other constraints are met and that risks are reduced.
		Sub-Competency 61. Integrate hardware, software, and human systems, protect critical program information, ensure safety and affordability, and reduce manufacturing risks during the Engineering and Manufacturing Development Phase to demonstrate supportability and interoperability within incremental stages of system development.
		Sub-Competency 62. Apply a Low-Rate Initial Production approach to attain Initial Operational Capability and Full-Rate Production and Deployment, considering Diminishing Manufacturing Sources and Material Shortages; assess changes in the design of manufacturing processes, and apply continuous testing and evaluation practices during the Production and Deployment Phase to reveal manufacturing and production problems and ensure continuous enhancements to the product.
		Sub-Competency 63. Plan the Logistics Management system manpower needs and support plans, and apply within a Performance-Based Logistics environment, for the full system life-cycle, to ensure effective use of the system.
		Sub-Competency 64. During contract development, recognize and properly define technical aspects of desired "end user's needs" to draft technical elements of the solicitation to ultimately meet stakeholder requirements.
Unit of Competence: Professional		
#	Competency	Sub-Competency Description
22	Problem Solving	Sub-Competency 65. Make recommendations using technical knowledge and experience, developing a clear understanding of the system, identifying and analyzing problems using a Total Systems approach, weighing the relevance and accuracy of information, accounting for interdependencies, and evaluating alternative solutions.
23	Strategic Thinking	Sub-Competency 66. Formulate and ensure the fulfillment of objectives, priorities, and plans consistent with the long-term business and competitive interests of the organization in a global environment.
24	Professional Ethics	Sub-Competency 67. Maintain strict compliance to governing ethics and standards of conduct in engineering and business practices to ensure integrity across the acquisition life-cycle.
25	Leading High-Performance Teams	Sub-Competency 68. Lead teams by providing proactive and technical direction and motivation to ensure the proper application of systems engineering processes and the overall success of the technical management process. Builds and maintains effective team performance by creating an environment of trust, respect, and esprit de corps: (1) Builds successful teams, (2) Develops trust and respect, (3) Builds team cohesion, and (4) Understands the human dynamics of a team gains respect
26	Communication	Sub-Competency 69. Facilitates an open and supportive environment using effective two-way communication, both verbally and in writing, including active listening, ensuring understanding and providing constructive feedback: (1) Effectively communicates and checks for understanding, (2) Translates complex information into a clear and organized manner, and (3) Persuades others to adopt and act on specific ideas.

27	Coaching and Mentoring	Sub-Competency 70. Develops and advances the capabilities of others through use of coaching, mentoring, and leading: (1) Possesses skills to lead others, (2) Effectively manages conflict, (3) Attracts followers (charisma), (4) Develops and empowers others (including effecting career advancement), (5) Appreciates/recognizes others, (6) Helps others advance, (7) Advances ideas, (8) Coaches and mentors, (9) Effectively delegates, and (10) Respects the level of knowledge and skills of others, and
28	Managing Stakeholders	Sub-Competency 71. Builds and manages effective relationships with all stakeholders through use of influencing skills, negotiating, collaborating and a value-added approach to partnerships: (1) Accurately identifies all stakeholders along program/product/service life-cycle, (2) Possesses influencing skills, (3) Builds collaborative relations with partners, (4) Focuses on continuous improvement, (5) Possesses negotiating skills, (6) Builds consensus/buy-in, and (7) Skillfully deals with political
29	Mission and Results Focus	Sub-Competency 72. Aligns goals and work efforts toward fulfillment of the overall organizational mission through effective requirements identification, prioritization, measurement, and results orientation: (1) Prioritizes tasks, (2) Creates a shared vision and direction, (3) Effectively identifies and sets priorities, (4) Seeks/holds systems view in all efforts, (5) Possesses a positive attitude and dedication to mission success, (6) Results, mission requirements and strategic goals oriented, and (7) Knowledge
30	Personal Effectiveness/Peer Interaction	Sub-Competency 73. Takes responsibility for knowing ones strengths and weaknesses, seeks to maintain currency on issues impacting ones work environment, working and collaborating with peers, is open to feedback and instills these qualities in others: (1) Takes the initiative, (2) Ability to recognize and effectively leverage emotional intelligence, (3) Knows appropriate boundaries, (4) Learns and applies from successes and failures, and (5) Remains open minded and objective.
31	Sound Judgment	Sub-Competency 74. Seeks out and uses appropriate information and subject matter expertise to make effective decisions that balances policy, systemic needs and risks, trade-offs, and creativity, and accepts accountability for decisions: (1) Possesses decisiveness, (2) Takes accountability, (3) Makes sacrifices/trade-offs, (4) Takes calculated risks, (5) Makes evidence-based decisions, and (6) Possesses creativity and problem solving abilities.

Unit of Competence: Business Acumen

#	Competency	Sub-Competency Description
32	Industry Landscape	Sub-Competency 75. Apply knowledge of the defense industry market environment to contribute to the preparation of appropriate acquisition strategies and solicitations, and to provide necessary technical oversight of contract execution.
33	Organization	Sub-Competency 76. Apply knowledge of how company organization varies with business strategy and resource capacity (size) to inform necessary technical oversight of contract execution.
34	Cost, Pricing, and Rates	Sub-Competency 77. Apply knowledge of cost accounting basics defense companies use to manage direct and indirect costs and the use of rates to contribute to the preparation of appropriate acquisition strategies and solicitations, and to provide necessary technical oversight of contract execution.
35	Cost Estimating	Sub-Competency 78. Apply knowledge of defense company cost estimating requirements, methods, and key process elements to contribute to the preparation of government cost estimates, appropriate acquisition strategies and solicitations, and to provide necessary technical oversight of contract execution.
36	Financial Reporting and Metrics	Sub-Competency 79. Apply knowledge of company financial reports and metrics to measure company health to better enable best value program decisions.
37	Business Strategy	Sub-Competency 80. Apply knowledge of defense company strategic planning, marketing, and business development to contribute to the preparation of appropriate acquisition strategies and solicitations.
38	Capture Planning and Proposal Process	Sub-Competency 81. Apply knowledge of the company scope of work during the capture planning and proposal response development process to contribute to the preparation of appropriate acquisition strategies and solicitations.
39	Supplier Management	Sub-Competency 82. Apply knowledge of management challenges between a prime contractor and its supply chain to contribute to the preparation of appropriate acquisition strategies and solicitations, and to provide necessary technical oversight of contract execution.
40	Industry Motivation, Incentives, Rewards	Sub-Competency 83. Apply knowledge of how defense companies incentivize their workforce at various levels and that drives corporate decisions and capture strategies that could impact program execution and future competition to contribute to the preparation of appropriate acquisition strategies and solicitations, and to provide necessary technical oversight of contract
41	Negotiations	Sub-Competency 84. Apply knowledge of successful negotiations from both a government and business perspective to get a better deal for the taxpayer and promote a fair profit to contribute to the preparation of appropriate acquisition strategies and solicitations, and to provide necessary technical oversight of contract execution.

**Production, Quality, and Manufacturing Career Field
Competency Model 2013 Refresh**

#	Competency	Sub-Competency Description
Unit of Competence: Defense Acquisition Management Process		
1	Knowledge of the Department of Defense acquisition process to include the DoD 5000-Series and related policies as well as the Defense Acquisition Guide. Also includes the requirements generation process, and the Planning, Programming, Budgeting, and Execution process.	<p>Sub-Competency 1. Knowledge of Department of Defense processes for how systems evolve from mission needs through development and production to deployment and disposal as they relate to production, quality, and manufacturing functions.</p> <p>Sub-Competency 2. Knowledge of the Planning, Programming, Budgeting, and Execution Process, including development of submissions; activities associated with the planning year, programming year, budgeting year, and execution year; and commitments, obligations and expenditures, along with rates.</p> <p>Sub-Competency 3. Knowledge of the Integrated Master Plan as well as the goals, objectives, identified risks and the detailed Integrated Master Schedule.</p> <p>Sub-Competency 4. Knowledge of manufacturing and production technical requirements appropriate for each acquisition phase.</p> <p>Sub-Competency 5. Knowledge of evaluation techniques of production, quality, and manufacturing inputs into system acquisition documents.</p>
Unit of Competence: Defense Contracting Process		
2	Knowledge of the Defense contracting instructions, regulations and policies related to production, quality, manufacturing, industrial base, and systems acquisition, as well as the roles and responsibilities of the contracting, acquisition, production, quality, and manufacturing workforce.	<p>Sub-Competency 6. Knowledge of the Federal Acquisition Regulations and Defense Federal Acquisition Regulation Supplement (FAR/DFARS), as well as other contracting regulations and policies associated with production, quality, and manufacturing.</p> <p>Sub-Competency 7. Knowledge of Defense acquisition contract management to include roles and responsibilities of the Procuring Contracting Officer, Administrative Contracting Officer, Contracting Officer</p>

#	Competency	Sub-Competency Description
		<p>Representative (COR), contracting specialists, and program office staff in pricing, Source Selection, negotiations, and contract administration.</p> <p>Sub-Competency 8. Knowledge of production, quality, and manufacturing delivery requirements in Solicitations, Requests for Proposals, Requests for Information, Requests for Qualifications, and Statements of Work in order to validate manufacturing process and product delivery and identify gaps between contract proposal and requirements.</p> <p>Sub-Competency 9. Knowledge of evaluations and assessments of prospective contractors' technical capabilities, industrial capacity, manufacturing strong points, and manufacturing risks to establish requirements that should be included in a Request for Proposal.</p> <p>Sub-Competency 10. Knowledge of the existence, purpose, and relationship between the acquisition strategy, acquisition plan, and Requests for Proposals to provide input into or validate the consistency of production, quality, and manufacturing requirements throughout a system's acquisition life-cycle.</p>
3	<p>Knowledge of defense acquisition contracting activities, such as Pre-Award, Source Selection, negotiations, Post-Award, Technical Evaluations of Contractor Cost Proposals, contracting procedures, structure (Parts) of the contract, contract modifications, changes to the contract, Data Item Descriptions, and Contract Data Requirements List.</p>	<p>Sub-Competency 11. Knowledge of the structure (parts and clause) of the contract (e.g., Statement of Work/Statement of Objectives, Section L, Instructions, Conditions and Notices to Bidders, Section M, Evaluation Factors for Award, and the Incentives Clause), contract modifications, changes to the contract, Data Item Descriptions, and Contract Data Requirements List.</p> <p>Sub-Competency 12. Knowledge of analysis and resolution of production, quality, and manufacturing-related issues regarding contract changes, amendments, modification, and contract change notices.</p> <p>Sub-Competency 13. Knowledge of source selection team participation to develop source selection evaluation criteria related to research and development, manufacturing/production, quality management, manufacturing risk reduction and contractor past performance for use in assessing contractor proposals.</p> <p>Sub-Competency 14. Knowledge of the production, quality, and manufacturing activities to support the contracting officer during contract</p>

#	Competency	Sub-Competency Description
		<p>negotiations, contract modifications, and/or overhead rates for preparation of Technical Support to Negotiations and provide contracting officers with an assessment of the adequacy, reasonableness, and necessity of proposed contractor labor and material charges.</p> <p>Sub-Competency 15. Knowledge needed to support "progress payment" and award fee determination, as well as government liability, through assessment of contractor delivery progress and production, quality, and manufacturing performance.</p> <p>Sub-Competency 16. Knowledge of production, quality, and manufacturing roles, responsibilities, purpose, processes, and related activities both pre-award & post-award.</p>
Unit of Competence: Surveillance Activities		
4	<p>Knowledge of Contract Administrative Services roles, responsibilities and capabilities, including monitoring contractor deliveries and progress payments, reviews and audits of contractor facilities and processes (manufacturing and business), manufacturing in-process reviews, non-conformance material assessments, compliance reviews, process capability studies as well as the acceptance process and Material Inspection Receiving Reports (MIRR).</p>	<p>Sub-Competency 17. Knowledge of Contract Administrative Services roles, responsibilities and capabilities as well as oversight activities in accordance with regulatory requirements to ensure compliance.</p> <p>Sub-Competency 18. Knowledge of the documentation requirements related to production, quality, and manufacturing reviews and audits.</p> <p>Sub-Competency 19. Knowledge of the acceptance process and MIRRs.</p> <p>Sub-Competency 20. Knowledge of contractor performance appraisal systems and databases, including Contractor Performance and Reporting, Past Performance Information Retrieval, Product Data Reporting and Evaluation Program, and Continuous Process Improvement Management Systems available to programs for use in reporting and evaluating supplier on-time delivery and quality.</p> <p>Sub-Competency 21. Knowledge of identifying, analyzing, and reporting requirements related to product or system failures to address quality deficiencies reported by users after delivery of products by the contractor (e.g., field failure reporting feedback), and investigating and resolving Product Quality Deficiency Reports, Malfunction and Incident Report, Malfunction Investigation File, Warranty Claim actions. Supply Discrepancy</p>

#	Competency	Sub-Competency Description
		<p>Reports, etc.,.</p> <p>Sub-Competency 22. Knowledge of contractor surveillance, production line verification, first article test, process proofing, data management, and critical item control to ensure efficient restart of production line.</p> <p>Sub-Competency 23. Knowledge on tracking and reporting vendor delivery times to ensure supply availability.</p> <p>Sub-Competency 24. Knowledge of detection and documentation processes regarding the nature and extent of the nonconformance, nonconformance severity (critical, major, or minor), corrective action, root cause analysis, and continuous process improvement.</p> <p>Sub-Competency 25. Knowledge of nonconformance remedies resulting in no cost to the Government (includes transportation costs), defective or nonconforming items/supplies are corrected or replaced at the original point of delivery, and failure to remove, replace, or correct rejected items/supplies may result in price reductions or escalate to termination for default.</p>

Unit of Competence: Technology and the Industrial Base

5	<p>Knowledge of national technology and industrial base capability to support the design, development, production, operation, uninterrupted maintenance support of the system and eventual disposal, including environmental impacts.</p>	<p>Sub-Competency 26. Knowledge of the requirements for the Industrial Capabilities Assessment.</p> <p>Sub-Competency 27. Knowledge of impacts to products with single, sole, diminishing or foreign sources to highlight potential risks to Department of Defense sources of supply.</p> <p>Sub-Competency 28. Knowledge required to respond to needs for additional sources of supply and/or increases in required production capacity to satisfy accelerated requirements (e.g., production surge).</p> <p>Sub-Competency 29. Knowledge needed to review shutdown plans to ensure all key production elements (e.g., technical data, equipment, automated test equipment, tooling) are captured and retained.</p>
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#	Competency	Sub-Competency Description
6	Knowledge of Department of Defense industrial base programs including the Manufacturing Technology Program, Defense Priorities and Allocations System, Defense Production Act Title III Program, Science and Technology program structure and Technology Readiness Levels.	Sub-Competency 30. Knowledge of the Department of Defense Science & Technology program to include Technology Investment Plans, Technology Area Plans, and funding categories.
		Sub-Competency 31. Knowledge of the Department of Defense Technology Readiness Levels.
		Sub-Competency 32. Knowledge of the Manufacturing Technology Program.
		Sub-Competency 33. Knowledge of the Defense Priorities and Allocations System of the Defense Production Act Title I.
		Sub-Competency 34. Knowledge of the Defense Production Act Title III Program.
		Sub-Competency 35. Knowledge of the potential application to manufacturing and production of new and emerging technologies.
Unit of Competence: Systems Engineering Process		
7	Knowledge of systems engineering process, including traceability of requirements (the Joint Capabilities Integration and Development System process); the maturity and stability of the evolving system design; production, quality, and manufacturing criteria for Systems Engineering Technical Reviews, and the Systems Engineering Plan.	Sub-Competency 36. Knowledge of the configuration management process, to include baseline and document management.
		Sub-Competency 37. Knowledge of manufacturing maturity/readiness through the use of the Manufacturing Readiness Body of Knowledge and other assessment tools necessary to manage risk and evaluate technology maturation sufficiency.
		Sub-Competency 38. Knowledge of manufacturing readiness during the acquisition life-cycle to include reviewing manufacturing in-process reviews, non-conforming material assessment, compliance reviews, and establish a Production Readiness Review plan, identify, and assemble team members to conduct Production Readiness Reviews and Manufacturing Readiness Assessments.
		Sub-Competency 39. Knowledge needed to develop production, quality, and manufacturing technical performance measures and metrics for

#	Competency	Sub-Competency Description
		<p>acquisition programs.</p> <p>Sub-Competency 40. Knowledge of the Systems Engineering Plan development process specific to the need to create production, quality, and manufacturing inputs.</p>
8	Knowledge of the risk management process and its related impact on manufacturing risk and readiness.	<p>Sub-Competency 41. Knowledge of risk assessments and decision analysis in the selection of risk handling options.</p> <p>Sub-Competency 42. Knowledge of the impact of risk areas necessary to formulate appropriate risk strategies and provide the program manager with actionable recommendations related to managing risks.</p> <p>Sub-Competency 43. Knowledge of risk identification, assessment, and mitigation techniques.</p> <p>Sub-Competency 44. Knowledge of risk management tools to track, rate, and handle risk events, as well as identify critical path in order to determine probabilities of program completion dates and costs.</p> <p>Sub-Competency 45. Knowledge needed to mitigate risks to the contractor's ability to meet schedule and contractual requirements through analysis of potential risks and make recommendations to minimize risk to the programs</p>
9	Knowledge of the integrated product and process development ("Design-Build") approach to Concurrent Engineering, design trades for manufacturing and production (including multi-year procurement and Economic Ordering Quantities), Producibility Engineering and Planning, technical risk identification, management and reporting.	<p>Sub-Competency 46. Knowledge of program infrastructure necessary to achieve producibility goals, integrate producibility into the program's risk management strategy, and employ producibility design guidelines.</p> <p>Sub-Competency 47. Knowledge needed to assess producibility on a product level by monitoring and controlling manufacturing processes through measurement, to ensure those processes can repeatedly produce accurate, high quality products with process variability limited to a tolerable range.</p> <p>Sub-Competency 48. Knowledge of evaluation techniques for integrating producibility into initial design efforts through design objectives, key design characteristics, trade studies, manufacturing plans and in-design</p>

#	Competency	Sub-Competency Description
		complexity analysis.
		Sub-Competency 49. Knowledge of producibility evaluation techniques and their associated measurements during design to ensure producibility is optimized in manufacturing plans and reported at major technical reviews.
		Sub-Competency 50. Knowledge of evaluation techniques related to measurement of producibility processes, products, and systems.
Unit of Competence: Cost and Funding		
10	Knowledge needed of funding parameters and practices to achieve program manufacturing targets and goals. Includes knowledge of cost modeling and cost analysis (including sensitivity analysis).	Sub-Competency 51. Knowledge of the Earned Value Management system.
		Sub-Competency 52. Knowledge of production cost models.
		Sub-Competency 53. Knowledge of the Work Breakdown System.
11	Knowledge needed for the identification of manufacturing and production cost drivers, understanding manufacturing cost risks, allocation of cost targets to subsystems, and affordability.	Sub-Competency 54. Knowledge of possible production program cost drivers under various circumstances and significant production cost risks for contractor proposals, manufacturing plans, productions schedules, etc., and proper mitigation strategies.
		Sub-Competency 55. Knowledge of cost analysis methodologies to ensure manufacturing costs are collected, analyzed, and tracked against targets.
		Sub-Competency 56. Knowledge of the preparation of manufacturing investment budgets required to meet program goals.
Unit of Competence: Materials Management		
12	Knowledge of the risks associated with materials (including basic/raw materials, components, semi-finished parts, and subassemblies). Includes materials properties and maturity, security, availability (including scale-up, long-lead, single/sole/foreign sources), subcontractor management and	Sub-Competency 57. Knowledge of material maturity (e.g., manufacturability properties, maturity for program phase).
		Sub-Competency 58. Knowledge of material availability, to include scale-up risks and long-lead issues.

#	Competency	Sub-Competency Description
	supply chain issues, special handling, storage (hazardous materials), shelf-life, and Government Furnished Property/Material/Equipment/Facilities issues.	Sub-Competency 59. Knowledge of supply chain management to determine whether the contractor has the adequate supplier base to support the life-cycle of programs and contracts.
		Sub-Competency 60. Knowledge of material specifications necessary to determine production facilities suitability.
		Sub-Competency 61. Knowledge needed to assess supplier performance and determine supplier capability to ensure prime contractors control of subcontractors and vendors.
		Sub-Competency 62. Knowledge needed to identify and evaluate critical suppliers and schedules to ensure sub-contracted requirements support production schedules.
		Sub-Competency 63. Knowledge of the Diminishing Manufacturing Sources and Material Shortages (DMSMS) to assess, develop, and incorporate a management strategy into design activities as a best practice to reduce DMSMS cost and readiness impacts throughout the life cycle.
		Sub-Competency 64. Knowledge of the appropriate production, quality, and manufacturing role within system security engineering and program protection (e.g., supply chain risk management, cybersecurity, counterfeit prevention, hardware/software/ consumables assurance, anti-tamper, and exportability protections). Includes certification-related policies, principles, practices, and reporting across all levels and phases of an acquisition program to increase the level of confidence that a system functions as intended, is free from exploitable vulnerabilities, and protects critical program functions and information.

Unit of Competence: Process Capability and Control

13	Knowledge of the risks in manufacturing processes' ability to	Sub-Competency 65. Knowledge required to assess manufacturing
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#	Competency	Sub-Competency Description
	reflect the design intent (repeatability and affordability) of key characteristics, (e.g., manufacturing modeling and simulation (product and process), manufacturing process maturity, and process yields and rates.	<p>process maturity, including process capability studies to determine whether manufacturing processes are able to meet design requirements.</p> <p>Sub-Competency 66. Knowledge needed to evaluate the manufacturing process demonstration to ensure the ability of the system to operate in a useful way consistent with the program Key Performance Parameters and that system production can be supported by demonstrating the manufacturing process.</p> <p>Sub-Competency 67. Knowledge of contractor process capability and plans for future process capability objectives to ensure conformance with prescribed standards for process capability and control requirements.</p> <p>Sub-Competency 68. Knowledge needed to evaluate a contractor's capability to produce prototypes outside of the laboratory in production relevant, production representative, and pilot line environments.</p> <p>Sub-Competency 69. Knowledge of modeling and simulation in the place of actual performance data when time and expense of buying and testing the item itself is not possible, and to model processes, products, and facilities.</p> <p>Sub-Competency 70. Knowledge needed to conduct predictive analysis of results from equipment tests, inspections, and operational usage to statistically forecast the likelihood and criticality of failures, maintenance requirements, and manufacturing/design changes.</p>
Unit of Competence: Quality Management		
14	Knowledge of the risks and management efforts to control quality, and foster continuous improvement. Includes knowledge of quality management (quality models, quality strategy, quality planning, and quality tools (such as Quality Function Deployment, Design Of Experiments, Statistical Process Control, Key Characteristics, etc.), product quality (product inspection and acceptance testing - in-process and final), cost of quality, scrap, rework and repair rates, and	<p>Sub-Competency 71. Knowledge of quality management systems with process controls needed to achieve effective and efficient practices and to support the transition to production.</p> <p>Sub-Competency 72. Knowledge of product quality considerations including inspection and acceptance testing, in-process and final inspections, statistical process control, adequacy of inspection, and</p>

#	Competency	Sub-Competency Description
	Material Review Board actions, and Supplier Quality Management (including supply base quality improvement).	acceptance test procedures.
		Sub-Competency 73. Knowledge of supplier quality management and supplier base quality improvement, to include potential supplier base capabilities, sub-tier supplier quality management, and supplier quality audits.
		Sub-Competency 74. Knowledge of the full range of test and inspection techniques, including functional, destructive, and nondestructive tests/inspections, at process steps throughout the product/process.
		Sub-Competency 75. Knowledge of statistical analysis and sampling techniques to determine compliance with applicable requirements.
		Sub-Competency 76. Knowledge of failure analysis and reliability tests to ensure products perform reliably.
15	Knowledge of principles to reduce waste in new and existing processes to improve production efficiency and effectiveness.	Sub-Competency 77. Knowledge of continuous process improvement tools to include Theory of Constraints, Lean, Six Sigma, Cost of Poor Quality, Value Stream Mapping, etc.
		Sub-Competency 78. Knowledge of failure modes and effects analysis methods in reviewing components, assemblies, and subsystems to identify failure modes, identify the causes and effects, and document results.
		Sub-Competency 79. Knowledge of the Value Engineering Program to support the efforts for efficiency, effectiveness, costs reduction, and utilization of new and appropriate technologies.
Unit of Competence: Manufacturing Workforce		
16	Knowledge of the number of personnel required, as well as skills, availability, and training/certification requirements needed to support the manufacturing effort.	Sub-Competency 80. Knowledge of workforce size, skill levels, and training requirements.
		Sub-Competency 81. Knowledge of contractor's ability to meet staffing requirements to ensure successful production and quality management.

#	Competency	Sub-Competency Description
		Sub-Competency 82. Knowledge of risks associated with contractor bargaining unit agreements.
Unit of Competence: Facilities		
17	Knowledge of the capabilities and capacity of public or private (government or contractor) manufacturing facilities, such as, maintenance/repair depots, prime contractor, subcontractor, supplier, and vendor engineering/manufacturing plants, including tooling and test equipment.	<p>Sub-Competency 83. Knowledge of suitability of existing or planned facilities to meet current and future capacity from specifications.</p> <p>Sub-Competency 84. Knowledge of potential safety, health, and environmental issues, as well as processes to ensure compliance.</p> <p>Sub-Competency 85. Knowledge of tooling and test equipment design, fabrication, proofing, and accountability.</p> <p>Sub-Competency 86. Knowledge of equipment maintenance requirements, including calibration/metrology.</p> <p>Sub-Competency 87. Knowledge of manufacturing facility shutdown, restart, and surge implications, risks, and recovery.</p>
Unit of Competence: Manufacturing Assessment		
18	Knowledge of the organization of all elements needed to translate the design into an integrated and fielded system (meeting program goals for affordability and availability). Includes manufacturing strategy development, manufacturing planning, scheduling & control, materials planning, and industrial engineering activities.	<p>Sub-Competency 88. Knowledge of manufacturing strategy development including contractor and government program manufacturing strategies as related to the acquisition strategy development.</p> <p>Sub-Competency 89. Knowledge of manufacturing/production planning activities to include the development of the manufacturing plan (or production plan).</p> <p>Sub-Competency 90. Knowledge of work instructions development.</p> <p>Sub-Competency 91. Knowledge of production planning, scheduling and control systems.</p> <p>Sub-Competency 92. Knowledge of materials planning systems,</p>

#	Competency	Sub-Competency Description
		Make/Buy decisions, and Bills of Material.
Unit of Competence: Professional		
19	Problem Solving	Sub-Competency 93. Knowledge of how to leverage technical knowledge and experience in developing a clear understanding of systems, identifying and analyzing problems using a total systems approach, weighing the relevance and accuracy of information, accounting for interdependencies, and evaluating alternative solutions.
20	Strategic Thinking	Sub-Competency 94. Knowledge of contingency planning & solutions planning.
21	Professional Ethics	Sub-Competency 95. Knowledge of the governing ethics and standards of conduct in engineering and business practices to ensure integrity across the acquisition life-cycle.
22	High-Performance Teams	Sub-Competency 96. Knowledge of approaches to direct and motivate teams to ensure the proper application of systems engineering processes and the overall success of the technical management process. Knowledge of steps necessary to create an environment of trust, respect, and esprit de corps: (1) Builds successful teams, (2) Develops trust and respect, (3) Builds team cohesion, and (4) Understands the human dynamics of a team gains respect credibility, and trust.
23	Communication	Sub-Competency 97. Knowledge of effective two-way communications, i.e., verbal and written, including active listening, ensuring understanding and providing constructive feedback: (1) Effectively communicates and checks for understanding, (2) Translates complex information into a clear and organized manner, and (3) Persuades others to adopt and act on specific ideas.
24	Coaching and Mentoring	Sub-Competency 98. Knowledge of the steps necessary to develop and advance the capabilities of others through use of coaching, mentoring, and interpersonal skills including: (1) Skills to lead others, (2) Managing conflict, (3) Attracting followers (charisma), (4) Developing and empowering others (including effecting career advancement), (5) Appreciating/recognizing others, (6) Helping others advance, (7)

#	Competency	Sub-Competency Description
		Advancing ideas of others, (8) Coaching and mentoring, (9) Delegating responsibilities, (10) Respecting the level of knowledge and skills of others, and (11) Teaching and training both formally and informally.
25	Managing Stakeholders	Sub-Competency 99. Knowledge of how to build and manage effective relationships with all stakeholders through use of influencing skills, negotiating, collaborating and a value-added approach to partnerships including: (1) Identifying all stakeholders along program/product/service life-cycle, (2) Use of influencing skills, (3) Building collaborative relations with partners, (4) Applying continuous improvement, (5) Use of negotiating skills, (6) Building consensus/buy-in, and (7) Navigating the political climate.
26	Mission and Results Focus	Sub-Competency 100. Knowledge of the overall organizational mission and how to align goals and work efforts toward its fulfillment through requirements identification, prioritization, measurement, and results orientation as well as: (1) prioritizing tasks, (2) creating a shared vision and direction, (3) identifying and setting priorities, (4) seeking/taking systems view in all efforts, (5) possessing a positive attitude and dedication to mission success, (6) being results, mission requirements and strategic goals oriented, and (7) capturing/sharing knowledge.
27	Personal Effectiveness/Peer Interaction	Sub-Competency 101. Knowledge of individuals' strengths and weaknesses, maintaining currency on issues impacting ones work environment, working and collaborating with peers, open to feedback and instilling these qualities in others: (1) taking the initiative, (2) leveraging emotional intelligence, (3) knowing appropriate boundaries, (4) learning and applying lessons from successes and failures, and (5) remaining open minded and objective.
28	Sound Judgment	Sub-Competency 102. Knowledge of approaches to seeking out and utilizing appropriate information and subject matter expertise in making decisions that balances policy, systemic needs and risks, trade-offs, and creativity, and accepts accountability for decisions. Judgment should be characterized as: (1) decisiveness, (2) accountability, (3) sacrifices/trade-offs, (4) calculated risks, (5) evidence-based decisions, and (6) creative and problem solving abilities.

#	Competency	Sub-Competency Description
Unit of Competence: Business Acumen		
29	Industry Landscape	Sub-Competency 103. Knowledge of the scope of the defense industry market environment.
30	Organization	Sub-Competency 104. Knowledge of how company organization varies with business strategy and resource capacity (size).
31	Cost, Pricing, and Rates	Sub-Competency 105. Knowledge of cost accounting basics defense companies use to manage direct and indirect costs and the use of rates for proposal submission and program execution.
32	Cost Estimating	Sub-Competency 106. Knowledge of the importance of defense company cost estimating requirements, methods, and key process elements.
33	Financial Reporting and Metrics	Sub-Competency 107. Knowledge of company financial reports and metrics to measure company health to better enable best value program decisions.
34	Business Strategy	Sub-Competency 108. Knowledge of defense company elements of a strategic planning, marketing, and business development process.
35	Capture Planning and Proposal Process	Sub-Competency 109. Knowledge of the company scope of work during the capture planning and proposal response development process.
36	Supplier Management	Sub-Competency 110. Knowledge of management responsibilities and challenges between a prime contractor and its supply chain.
37	Industry Motivation, Incentives, Rewards	Sub-Competency 111. Knowledge of strategies and incentives industry/defense companies use to influence corporate decisions or effect future competition.
38	Negotiations	Sub-Competency 112. Knowledge of negotiation techniques, from both the Government and business perspectives, to enable the Government to obtain on time delivery of products that meet all requirements, at the best price.

**CERTIFICATION STANDARDS & CORE PLUS DEVELOPMENT GUIDE
ENGINEERING LEVEL I**

Type of Assignment	Representative Activities
Functional Engineer	<ul style="list-style-type: none"> ● Plans, organizes, and conducts, <u>and/or monitors</u> engineering activities relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components for a functional specialty (i.e., reliability and maintainability, systems safety, materials, avionics, structures, propulsion, chemical/biological, human systems interfaces, weapons, Computer Engineer/Scientist, etc.). ● Demonstrates how systems engineering technical processes and technical management processes guide engineering activities for a functional specialty.
General Engineer	<ul style="list-style-type: none"> ● Plans, organizes, and conducts, <u>and monitors</u> engineering design, development, and sustainment activities for systems or systems components. ● Demonstrates how systems engineering technical processes and technical management processes guide design, development, and sustainment activities.
Research Engineer or Scientist	<ul style="list-style-type: none"> ● Plans, organizes, and conducts science and technology research and engineering activities supporting acquisition programs, projects, or activities. ● Demonstrates how systems engineering technical processes and technical management processes guide science and technology research and engineering activities.
Technical Support (Applicable to Level 1 Only)	<ul style="list-style-type: none"> ● Plans, organizes and conducts technical activities relating to the design, development, research, fabrication, installation, modification, sustainment, inspection, production, application, standardization, testing and/or analysis of systems or systems components for a technical specialty. ● Demonstrates how systems engineering technical processes and technical support processes guide design, development and sustainment activities.

Core Certification Standards (required for DAWIA certification)

Acquisition Training	ACQ 101 Fundamentals of Systems Acquisition Management
Functional Training	<ul style="list-style-type: none"> ● SYS 101 Fundamentals of Systems Planning, Research, Development, and Engineering ● CLE 001 Value Engineering ● CLE 004 Introduction to Lean Enterprise Concepts ● CLM 017 Risk Management
Education	<ul style="list-style-type: none"> ● Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science ● Note: Civilians serving as an 0802, 0856, or 0895 must meet the OPM education requirements in lieu of this education standard. ● Note: Civilians serving in a 08XX Professional Engineering series position must meet the OPM education requirements in lieu of this education standard.
Experience	<ul style="list-style-type: none"> ● One year of technical experience in an acquisition position from among the following career fields/paths: ENG, S&TM, IT, T&E, PQM, FE, PM, or LCL ● Similar experience gained from other government positions or industry is acceptable as long as it meets the above standard.

Core Plus Development Guide (desired training, education, and experience)	Type of Assignment			
	Func Eng	Gen Eng	Res Eng	Tech Supt
BCF 106 Fundamentals of Cost Analysis	✓	✓		
BCF 107 Applied Cost Analysis (R)	✓	✓		
CLB 009 Planning, Programming, Budgeting, and Execution and Budget Exhibits	✓	✓	✓	✓
CLB 024 Cost Risk Analysis Introduction	✓	✓	✓	

<u>CLB 026</u> Forecasting Techniques	✓	✓	✓	
<u>CLB 029</u> Rates		✓		
<u>CLC 008</u> Indirect Costs	✓	✓	✓	
<u>CLC 011</u> Contracting for the Rest of Us	✓	✓	✓	✓
<u>CLC 056</u> Analyzing Contract Costs	✓	✓		
<u>CLC 060</u> Time and Materials Contracts	✓	✓	✓	
<u>CLE 009</u> ESOH in Systems Engineering	✓	✓		✓
<u>CLE 011</u> Modeling and Simulation for Systems Engineering	✓	✓	✓	
<u>CLE 015</u> Continuous Process Improvement Familiarization	✓	✓	✓	✓
<u>CLE 021</u> Technology Readiness Assessments	✓	✓	✓	✓
<u>CLE 036</u> Engineering Change Proposals for Engineers	✓			
<u>CLE 045</u> Introduction to DoD Science & Technology Management		✓	✓	✓
<u>CLL 011</u> Performance Based Life Cycle Product Support (PBL)	✓			
<u>CLM 013</u> Work-Breakdown Structure	✓	✓	✓	✓
<u>CLM 021</u> Introduction to Reducing Total Ownership Costs (R-TOC)	✓	✓	✓	
<u>CLV 016</u> Introduction to Earned Value Management	✓			✓
<u>EVM 101</u> Fundamentals of Earned Value Management	✓	✓	✓	
<u>IRM 101</u> Basic Information Systems Acquisition	✓			✓
<u>LOG 101</u> Acquisition Logistics Fundamentals	✓	✓		✓
<u>LOG 102</u> Fundamentals of System Sustainment Management'	✓	✓		✓
<u>PQM 101</u> Production, Quality, and Manufacturing Fundamentals	✓	✓		
<u>TST 102</u> Fundamentals of Test and Evaluation	✓	✓	✓	✓
Education				
None specified				
Experience				
One (1) year of technical experience (in addition to core certification experience)				

Notes:

- 1** The Core Certification Standards section lists the training, education, and experience REQUIRED for certification at this level.
- 2** "(R)" following a course title indicates the course is delivered as resident based instruction.
- 3** When preparing your IDP, you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

CERTIFICATION STANDARDS & CORE PLUS DEVELOPMENT GUIDE
ENGINEERING LEVEL II

Type of Assignment	Representative Activities
Functional Engineer	<ul style="list-style-type: none"> Organizes, <u>analyzes</u>, conducts, and/or monitors/<u>oversees</u> engineering activities in a functional specialty relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components. Analyzes, conducts, and/or monitors engineering activities in a functional specialty relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components. Applies systems engineering technical and technical management processes to a functional specialty in IPT environments.
General Engineer	<ul style="list-style-type: none"> Organizes, conducts, and/or monitors/<u>oversees</u> engineering design and development activities for systems or systems component. Applies systems engineering technical and technical management processes during systems development.
Research Engineer	<ul style="list-style-type: none"> Organizes, conducts, and/or monitors science and technology research and engineering activities supporting acquisition programs, projects, or activities. Applies systems engineering technical and technical management processes to managing or conducting science and technology research and engineering activities.

Core Certification Standards (required for DAWIA certification)

Acquisition Training	<ul style="list-style-type: none"> ACQ 201A Intermediate Systems Acquisition, Part A ACQ 201B Intermediate Systems Acquisition, Part B (R)
Functional Training	<ul style="list-style-type: none"> LOG 103 Reliability, Availability, and Maintainability (RAM) SYS 202 Intermediate Systems Planning, Research, Development, and Engineering, Part I SYS 203 Intermediate Systems Planning, Research, Development, and Engineering, Part II (R) CLE 003 Technical Reviews
Education	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science
Experience	<ul style="list-style-type: none"> 2 Two years of technical experience in an acquisition position with Of that: - At least 1 year in a ENG or S&TM position. - Remainder may come from IT, T&E, PQM, PM, or LCL. Similar experience gained from other government positions or industry is acceptable as long as it meets the above standards.

Core Plus Development Guide (desired training, education, and experience)

	Type of Assignment		
	Func Eng	Gen Eng	Res Eng/Sci
Training			
BCF 103 Fundamentals of Business Financial Management	✓	✓	
BCF 220 Acquisition Business Management Concepts	✓	✓	✓
BCF 225 Acquisition Business Management Application (R)	✓	✓	✓
CLB 030 Data Collection and Sources	✓	✓	
CLC 041 Predictive Analysis and Systems Engineering	✓	✓	
CLC 063 Sole Source Proposal Technical Evaluations	✓	✓	✓
CLE 007 Lean Six Sigma for Manufacturing	✓	✓	
CLE 008 Six Sigma: Concepts and Processes	✓	✓	✓

CLE 016 Outcome-Based Performance Measures	✓		
CLE 017 Technical Planning	✓	✓	✓
CLE 026 Trade Studies	✓	✓	✓
CLE 036 Engineering Change Proposals for Engineers	✓	✓	✓
CLE 062 Human Systems Integration	✓	✓	✓
CLE 066 Systems Engineering for Systems of Systems	✓	✓	✓
CLL 012 Supportability Analysis	✓	✓	
CLM 014 IPT Management and Leadership	✓	✓	✓
CLM 031 Improved Statement of Work	✓	✓	✓
CLM 032 Evolutionary Acquisition	✓	✓	
CLV 017 Performance Measurement Baseline	✓		
IRM 202 Intermediate Information Systems Acquisition (R)	✓	✓	
LOG 200 Intermediate Acquisition Logistics, Part A	✓	✓	
LOG 201 Intermediate Acquisition Logistics, Part B (R)	✓	✓	
LOG 204 Configuration Management	✓	✓	✓
LOG 211 Supportability Analysis (R)	✓	✓	
LOG 235 Performance-Based Logistics	✓	✓	
PMT 251 Program Management Tools Course, Part I	✓	✓	✓
PQM 201A Intermediate Production, Quality, and Manufacturing, Part A	✓	✓	
STM 202 Intermediate S&T Management (R)			✓
TST 204 Intermediate Test and Evaluation (R)	✓	✓	✓
Education			
Graduate degree in a discipline such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science			
Experience			
Two (2) years of technical experience (in addition to core certification experience)			

Notes:

1 The Core Certification Standards section lists the training, education, and experience REQUIRED for certification at this level.

2 "(R)" following a course title indicates the course is delivered as resident based instruction.

5 When preparing your IDP, you and your supervisor should consider the training, education, and experience listed in the Core Plus Development Guide at this and the lower level(s) if not already completed.

13 Some continuous learning (CL) modules have been created by extracting lessons in their entirety from a training course. If this is the case for the CL module(s) identified in the above core certification standards, the course from which the CL module was extracted is identified in the "Notes" section of the CL course description and the course can be substituted to meet the certification standard.

CERTIFICATION STANDARDS & CORE PLUS DEVELOPMENT GUIDE
ENGINEERING LEVEL III

Type of Assignment	Representative Activities
Functional Engineer	<ul style="list-style-type: none"> ● Leads, and/or manages, <u>or provides technical oversight of</u> engineering activities in a functional specialty relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components. ● Ensures appropriate systems engineering technical and technical management processes are properly applied to functional specialty activities that support IPT environments.
General Engineer	<ul style="list-style-type: none"> ● Leads, and/or manages, <u>or provides technical oversight of</u> design and development activities for systems or systems components. ● Ensures appropriate systems engineering processes are properly applied during systems development.
Research Engineer	<ul style="list-style-type: none"> ● Leads and/or manages science and technology research and engineering activities supporting acquisition programs, projects, or activities. ● Ensures appropriate systems engineering processes are properly applied during science and technology activities.

Core Certification Standards (required for DAWIA certification)

Acquisition Training	None
Functional Training	<ul style="list-style-type: none"> ● SYS 302 Technical Leadership in Systems Engineering (R) ● CLE 012 DoD Open Systems Architecture (OSA) ● CLE 068 Intellectual Property and Data Rights ● CLL 008 Designing for Supportability in DoD Systems
Education	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science
Experience	<ul style="list-style-type: none"> ● Four years of technical experience in an acquisition position <u>with-Of that:</u> ● - At least 3 years in a ENG or S&TM position ● - Remainder may come from IT, T&E, PQM, PM, or LCL ● Similar experience gained from other government positions or industry is acceptable as long as it meets the above standards.

Core Plus Development Guide (desired training, education, and experience)	Type of Assignment		
	Func Eng	Gen Eng	Res Eng/Sci
Training			
ACQ 370 Acquisition Law (R)	✓	✓	✓
ACQ 450 Leading in the Acquisition Environment (R)	✓	✓	✓
ACQ 451 Integrated Acquisition for Decision Makers (R)	✓	✓	✓
ACQ 452 Forging Stakeholder Relationships (R)	✓	✓	✓
ACQ 453 Leader as Coach (R)	✓	✓	✓
BCF 302 Advanced Concepts in Cost Analysis (R)	✓	✓	✓
CLC 113 Procedures, Guidance, and Information	✓	✓	✓
CLC 131 Commercial Item Pricing	✓	✓	✓
CLL 014 Joint Systems Integrated Support Strategies (JSISS)	✓	✓	✓
CLL 015 Product Support Business Case Analysis (BCA)	✓	✓	✓
CLL 022 Title 10 Depot Maintenance Statute Overview	✓	✓	
CLL 023 Title 10 U.S.C. 2464 Core Statute Implementation	✓	✓	

CLL 024 Title 10 Limitations on the Performance of Depot-Level Maintenance (50/50)	✓	✓	
CLL 025 Depot Maintenance Interservice Support Agreements (DMISA)	✓	✓	
CLL 203 Diminishing Manufacturing Sources and Material Shortages (DMSMS) Essentials	✓	✓	
CLL 204 Diminishing Manufacturing Sources and Material Shortages (DMSMS) Case Studies	✓	✓	
CLM 005 Industry Proposals and Communication	✓	✓	
CLM 016 Cost Estimating	✓	✓	
CLM 034 Science and Technology—Lesson from PMT 352A	✓	✓	✓
CLM 035 Environmental Safety and Occupational Health—Lesson from PMT 352A	✓	✓	✓
CLM 055 Program Leadership	✓	✓	✓
CLR 151 Analysis of Alternatives	✓	✓	✓
EVM 201 Intermediate Earned Value Management (R)	✓	✓	✓
IRM 304 Advanced Information Systems Acquisition (R)	✓	✓	✓
LOG 206 Intermediate Systems Sustainment Management	✓	✓	
LOG 350 Enterprise Life Cycle Logistics Management (R)	✓	✓	✓
PMT 257 Program Management Tools Course, Part II	✓	✓	✓
PMT 352A Program Management Office Course, Part A	✓	✓	
PMT 352B Program Management Office Course, Part B (R)	✓	✓	
PMT 400 Program Manager's Skills Course (R)	✓	✓	✓
PMT 401 Program Manager's Course (R)	✓	✓	✓
PQM 201B Intermediate Production, Quality, and Manufacturing, Part B (R)	✓	✓	
PQM 203 Preparation of Commercial Item Description for Engineering and Technical Personnel	✓	✓	
PQM 301 Advanced Production, Quality, and Manufacturing (R)	✓	✓	
SAM 301 Advanced Software Acquisition Management (R)		✓	
STM 303 Advanced S&T Management (R)			✓
TST 303 Advanced Test and Evaluation (R)	✓	✓	✓
Education			
Graduate degree in a discipline such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science			
Experience			
Four (4) years of technical experience (in addition to core certification experience)			

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Notes:

1 The Core Certification Standards section lists the training, education, and experience REQUIRED for certification at this level.

2 "(R)" following a course title indicates the course is delivered as resident based instruction.

5 When preparing your IDP, you and your supervisor should consider the training, education, and experience listed in the Core Plus Development Guide at this and the lower level(s) if not already completed.

13 Some continuous learning (CL) modules have been created by extracting lessons in their entirety from a training course. If this is the case for the CL module(s) identified in the above core certification standards, the course from which the CL module was extracted is identified in the "Notes" section of the CL course description and the course can be substituted to meet the certification standard.

**CERTIFICATION STANDARDS & CORE PLUS DEVELOPMENT GUIDE
PRODUCTION, QUALITY AND MANUFACTURING LEVEL I**

Type of Assignment	Representative Activities
Engineer	<ul style="list-style-type: none"> Establishes production planning and control process and measures the overall effectiveness of the organization, methods, systems, and procedures. Builds producibility into designs (tooling, facilities and products). Builds quality characteristics into the designs of products and services.
Industrial Specialist	<ul style="list-style-type: none"> Develops and carries out plans for the expansion, conversion, integration or utilization of industrial production facilities and conducts surveys of industrial plants to determine capacity and potential for production of specific commodities. Performs <u>production</u> surveillance/oversight of Defense contractors providing services or supplies (to include Contractor proposal reviews) <u>based on mission and function of each agency and local organization</u>. Performs Industrial Base studies <u>for capability and capacity</u>. Performs <u>Participates in</u> Pre and Post award conferences <u>as subject matter experts</u>.
Quality Assurance Specialist	<ul style="list-style-type: none"> Ensures the proper quality characteristics have been integrated into the products and validates/verifies adherence to specified requirements through test and measurement. <u>Performs quality assurance surveillance/oversight of Defense contractors providing services or supplies (to include Contractor proposal reviews) based on mission and function of each agency and local organization</u>. <u>Performs Industrial Base studies for quality management</u>. <u>Participates in Pre and Post award conferences as subject matter experts</u>.
Business/Industrial Specialist	Performs planning, estimating, scheduling, or expediting the use of labor, machines, and materials in manufacturing operations producing equipment, systems, facilities, supplies, or maintenance.

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Core Certification Standards (required for DAWIA certification)

Acquisition Training	ACQ 101 Fundamentals of Systems Acquisition Management
Functional Training	<ul style="list-style-type: none"> PQM 101 Production, Quality, and Manufacturing Fundamentals CLE 003 Technical Reviews CLM 017 Risk Management
Education	Formal education not required for certification
Experience	<ul style="list-style-type: none"> 1 year of acquisition experience in manufacturing, production, or quality assurance Similar experiences gained from other government or industry positions are acceptable as long as they meet the above standards.

Core Plus Development Guide (desired training, education, and experience)

Training	Type of Assignment			
	Eng	Ind Spc	QA Spc	Bus & Ind Spc
BCF 106 Fundamentals of Cost Analysis	✓	✓	✓	✓
CLB 007 Cost Analysis	✓			✓
CLC 001 Defense Subcontract Management	✓	✓	✓	✓
CLC 006 Contract Terminations		✓	✓	✓
CLC 007 Contract Source Selection	✓	✓	✓	✓
CLC 011 Contracting for the Rest of Us	✓	✓	✓	✓
CLE 001 Value Engineering	✓	✓	✓	✓

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CLE 004 Introduction to Lean Enterprise Concepts	✓	✓	✓	✓
CLE 011 Modeling and Simulation for Systems Engineering	✓			✓
CLE 201 ISO 9000	✓	✓	✓	✓
CLM 014 IPT Management and Leadership	✓	✓	✓	✓
CLM 024 Contracting Overview	✓	✓	✓	✓
CLM 032 Evolutionary Acquisition	✓	✓	✓	✓
EVM 101 Fundamentals of Earned Value Management	✓	✓	✓	✓
LOG 101 Acquisition Logistics Fundamentals	✓	✓	✓	✓
LOG 102 Fundamentals of System Sustainment Management'	✓		✓	✓
SYS 101 Fundamentals of Systems Planning, Research, Development, and Engineering	✓		✓	✓
TST 102 Fundamentals of Test and Evaluation	✓		✓	✓

Education

Baccalaureate degree ([desired](#)) in engineering, chemistry, physical science, mathematics, statistics, manufacturing or production management, industrial technology or management, business, quality assurance, or a related field

Experience

At least 4 weeks of rotational assignments at a contractor and/or governmental industrial facility that includes experience in quality, manufacturing, engineering, and contracting

Notes:

1 The Core Certification Standards section lists the training, education, and experience REQUIRED for certification at this level.

2 "(R)" following a course title indicates the course is delivered as resident based instruction.

3 When preparing your IDP, you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

13 Some continuous learning (CL) modules have been created by extracting lessons in their entirety from a training course. If this is the case for the CL module(s) identified in the above core certification standards, the course from which the CL module was extracted is identified in the "Notes" section of the CL course description and the course can be substituted to meet the certification standard.

**CERTIFICATION STANDARDS & CORE PLUS DEVELOPMENT GUIDE
PRODUCTION, QUALITY AND MANUFACTURING LEVEL II**

Type of Assignment	Representative Activities
Engineer	<ul style="list-style-type: none"> Leads teams in establishing production planning and control processes and optimizing the overall effectiveness of the organization, methods, systems, and procedures. Leads teams in building producibility into and evaluating effectiveness of designs (tooling, facilities and products). Leads teams in building quality characteristics into and evaluating effectiveness of quality systems used in the designs of products and services.
Industrial Specialist	<ul style="list-style-type: none"> Reviews and evaluates adequacy of plans for the expansion, conversion, integration or utilization of industrial production facilities and conducts surveys of industrial plants to determine capacity and potential for production of specific commodities. Performs <u>production</u> surveillance/oversight of Defense contractors providing services or supplies (to include Contractor proposal reviews) <u>based on mission and function of each agency and local organization</u>. Performs Industrial Base studies <u>for capability and capacity</u>. Performs <u>Participates in</u> Pre and Post award conferences <u>as subject matter experts</u>.
Quality Assurance Specialist	<ul style="list-style-type: none"> Reviews and evaluates adequacy of plans, activities and systems to ensure the proper quality characteristics have been integrated into the products and validates/verifies adherence to specified requirements through test and measurement. <u>Performs quality assurance surveillance/oversight of Defense contractors providing services or supplies (to include Contractor proposal reviews) based on mission and function of each agency and local organization</u>. <u>Performs Industrial Base studies for quality management</u>. <u>Participates in Pre and Post award conferences as subject matter experts</u>.
Business/Industrial Specialist	Reviews and evaluates adequacy of plans, estimates, schedules, or the use of labor, machines, and materials in manufacturing operations producing equipment, systems, facilities, supplies, or maintenance.

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Core Certification Standards (required for DAWIA certification)	
Acquisition Training	<ul style="list-style-type: none"> ACQ 201A Intermediate Systems Acquisition, Part A ACQ 201B Intermediate Systems Acquisition, Part B (R)
Functional Training	<ul style="list-style-type: none"> PQM 201A Intermediate Production, Quality, and Manufacturing, Part A PQM 201B Intermediate Production, Quality, and Manufacturing, Part B (R)
Education	Formal education not required for certification
Experience	<ul style="list-style-type: none"> 2 years of acquisition experience in manufacturing, production, or quality assurance Similar experiences gained from other government or industry positions are acceptable as long as they meet the above standards.

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Core Plus Development Guide (desired training, education, and experience)	Type of Assignment			
	Eng	Ind Spc	QA Spc	Bus & Ind Spc
Training				
BCF 103 Fundamentals of Business Financial Management	✓	✓	✓	✓
BCF 107 Applied Cost Analysis (R)	✓	✓	✓	✓
CLC 040 Predictive Analysis and Scheduling	✓	✓	✓	✓
CLC 041 Predictive Analysis and Systems Engineering	✓	✓	✓	✓
CLC 042 Predictive Analysis and Quality Assurance	✓	✓	✓	-

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CLE 007 Lean Six Sigma for Manufacturing	✓	✓	✓	✓
CLE 008 Six Sigma: Concepts and Processes	✓	✓	✓	✓
CLE 015 Continuous Process Improvement Familiarization	✓	✓	✓	✓
CLE 017 Technical Planning	✓			✓
CLE 028 Market Research for Engineering and Technical Personnel	✓	✓		✓
CLE 032 Sustainable Manufacturing for DoD – Part 1	✓	✓	✓	✓
CLE 301 Reliability and Maintainability	✓	✓	✓	✓
CLM 021 Introduction to Reducing Total Ownership Costs (R-TOC)	✓	✓	✓	✓
CLM 025 Commercial-Off-The-Shelf (COTS) Acquisition for Program Managers	✓	✓	✓	✓
CLV 017 Performance Measurement Baseline	✓	✓	✓	✓
HBS 434 Process Improvement	✓	✓	✓	✓
HBS 437 Strategic Thinking	✓	✓	✓	✓
LOG 103 Reliability, Availability, and Maintainability (RAM)	✓		✓	✓
LOG 200 Intermediate Acquisition Logistics, Part A	✓	✓	✓	✓
LOG 204 Configuration Management	✓	✓	✓	✓
PMT 251 Program Management Tools Course, Part I	✓	✓	✓	✓
PMT 257 Program Management Tools Course, Part II	✓	✓	✓	✓
PQM 203 Preparation of Commercial Item Description for Engineering and Technical Personnel	✓			
SYS 202 Intermediate Systems Planning, Research, Development, and Engineering, Part I	✓			
SYS 203 Intermediate Systems Planning, Research, Development, and Engineering, Part II (R)	✓			
TST 204 Intermediate Test and Evaluation (R)	✓			

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Education

Baccalaureate degree ([desired](#)) in engineering, chemistry, physical science, mathematics, statistics, manufacturing or production management, industrial technology or management, business, quality assurance, or a related field

Experience

- At least one 30-day rotational assignment at a contractor and/or government industrial facility that includes experience in quality, manufacturing, engineering, and contracting.
- Two (2) years experience in manufacturing, production, or quality assurance (in addition to core certification experience)

Notes:

- The Core Certification Standards section lists the training, education, and experience REQUIRED for certification at this level.
- "(R)" following a course title indicates the course is delivered as resident based instruction.
- When preparing your IDP, you and your supervisor should consider the training, education, and experience listed in the Core Plus Development Guide at this and the lower level(s) if not already completed.
- Some continuous learning (CL) modules have been created by extracting lessons in their entirety from a training course. If this is the case for the CL module(s) identified in the above core certification standards, the course from which the CL module was extracted is identified in the "Notes" section of the CL course description and the course can be substituted to meet the certification standard.

**CERTIFICATION STANDARDS & CORE PLUS DEVELOPMENT GUIDE
PRODUCTION, QUALITY AND MANUFACTURING LEVEL III**

Type of Assignment	Representative Activities
Engineer	<ul style="list-style-type: none"> ● Trains, organizes and provides guidance to teams in establishing production planning and control processes and optimizing the overall effectiveness of the organization, methods, systems, and procedures. ● Trains, organizes and provides guidance to teams in building producibility into and evaluating effectiveness of designs (tooling, facilities and products). ● Trains, organizes and provides guidance to teams in building quality characteristics into and evaluating effectiveness of quality systems used in the designs of products and services.
Industrial Specialist	<ul style="list-style-type: none"> ● Trains, organizes and provides guidance to teams reviewing and evaluating adequacy of plans for the expansion, conversion, integration or utilization of industrial production facilities and conducting surveys of industrial plants to determine capacity and potential for production of specific commodities. ● Trains, organizes and provides guidance to teams performing production surveillance/oversight of Defense contractors providing services or supplies (to include Contractor proposal reviews) based on mission and function of each agency and local organization. ● Trains, organizes and provides guidance to teams performing Industrial Base studies for capability and capacity. ● Trains, organizes and provides guidance to teams performing Pre and Post award conferences as subject matter experts.
Quality Assurance Specialist	<ul style="list-style-type: none"> ● Trains, organizes and provides guidance to teams reviewing and evaluating the adequacy of plans, activities and systems to ensure the proper quality characteristics have been integrated into the products and validating/verifying adherence to specified requirements through test and measurement. ● Trains, organizes and provides guidance to teams performing quality surveillance/oversight of Defense contractors providing services or supplies (to include Contractor proposal reviews) based on mission and function of each agency and local organization. ● Trains, organizes and provides guidance to teams performing Industrial Base studies for quality management. ● Trains, organizes and provides guidance to teams performing Pre and Post award conferences as subject matter experts.
Business/Industrial Specialist	Trains, organizes and provides guidance to teams reviewing and evaluating adequacy of plans, estimates, schedules, or the use of labor, machines, and materials in manufacturing operations producing equipment, systems, facilities, supplies, or maintenance.

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Core Certification Standards (required for DAWIA certification)

Acquisition Training	None required
Functional Training	PQM 301 Advanced Production, Quality, and Manufacturing (R)
Education	Formal education not required for certification
Experience	<ul style="list-style-type: none"> ● 4 years of acquisition experience in manufacturing, production, or quality assurance ● Similar experiences gained from other government or industry positions are acceptable as long as they meet the above standards.

Core Plus Development Guide (desired training, education, and experience)

Type of Assignment

Training

Eng | Ind | QA | Bus &

		Spc	Spc	Ind Spc
ACQ 370 Acquisition Law (R)	✓	✓	✓	✓
CLC 040 Predictive Analysis and Scheduling	✓	✓	-	✓
CLC 042 Predictive Analysis and Quality Assurance	✓	✓	✓	-
CLE 007 Lean Six Sigma for Manufacturing	✓	✓	✓	✓
CLE 015 Continuous Process Improvement Familiarization	✓	✓	✓	✓
CLE 021 Technology Readiness Assessments	✓	✓	✓	✓
CLL 008 Designing for Supportability in DoD Systems	✓	✓		✓
CLM 055 Program Leadership	✓	✓	✓	✓
HBS 406 Coaching	✓	✓	✓	✓
HBS 409 Decision Making	✓	✓	✓	✓
HBS 424 Leading and Motivating	✓	✓	✓	✓
HBS 427 Meeting Management	✓	✓	✓	✓
HBS 441 Team Management	✓	✓	✓	✓
PMT 352A Program Management Office Course, Part A	✓			
SYS 302 Technical Leadership in Systems Engineering (R)	✓			

Education

Master's degree (*desired*) in [engineering](#), [chemistry](#), [physical science](#), [mathematics](#), [statistics](#), [manufacturing or production management](#), [industrial technology or management](#), business, [quality assurance](#), [production management](#), [engineering](#), or a related field

Experience

At least one 90-day rotational assignment at a contractor and/or government industrial facility that includes experience in quality, manufacturing, engineering, and contracting

Notes:

1 The Core Certification Standards section lists the training, education, and experience REQUIRED for certification at this level.

2 "(R)" following a course title indicates the course is delivered as resident based instruction.

5 When preparing your IDP, you and your supervisor should consider the training, education, and experience listed in the Core Plus Development Guide at this and the lower level(s) if not already completed.

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AT&L Workforce Position Category Description (PCD)

Career Field: Engineering
Career Path: N/A
Short Title: ENG
Category Code: S **Ref:** (a) DoDD 5000.52 dtd 12 Jan 2005
Date Approved: 16 Sep 2013 (b) DoDI 5000.66 dtd 21 Dec 2005
Last Reviewed: [XX May 2014](#) (c) DoD Desk Guide for AT&L Workforce Career Management dtd 10 Jan 2006

Notes:

1. This PCD is intended to assist in determining which AT&L career field/path to assign to an AT&L position per Title 10 sec. 1721. If 50% or more of the duties and responsibilities of the position match the "General Acquisition-Related Duties" described below AND the preponderance of those duties match the "AT&L Career Field/Path Specific Duties" described below, assign the position to this position category.
2. All acquisition positions require management attention with respect to certification requirements and individual development. See reference (c).
3. Critical Acquisition Position (CAPs) are a subset of acquisition positions and Key Leadership Position (KLPs), are a subset of CAPs. Both CAPs and KLPs represent positions with responsibility and authority that are critical to the success of a program or effort. These positions require management attention with respect to Acquisition Corps membership, tenure and other specific statutory requirements. See reference (c).

General Acquisition Related Duties: The conceptualization, initiation, oversight, design, development, test, contracting, production, deployment, logistical support, modification, and disposal of weapons and other systems, supplies, or services (including construction) to satisfy DoD needs, intended for use in, or in support of, military missions.

AT&L Career Field/Path Specific Duties: Plan, manage, monitor/oversee, or perform analysis, research, design, development, fabrication, installation, modification, or sustainment of systems or systems components across the entire life cycle;

Apply/ Applies and/or monitors/oversees one or more of the DoD Systems Engineering Technical Processes or Technical Management Processes (See Defense Acquisition Guidebook, Chapter 4, Section. 4.3) for a specific domain (analytic or engineering specialty) at a system of systems, system, subsystem or component level.

Technical Processes:

- stakeholders requirements definition
- requirements analysis
- architectural design
- implementation
- integration
- verification
- validation
- transition

Technical Management Processes:

- decision analysis
- technical planning
- technical assessment
- requirements management
- risk management
- configuration management
- technical data management
- interface management.

Typical Line and Staff Position Titles: Project officer, project engineer, scientist, supervising project engineer, computer engineer/scientist, computer engineer/scientist, operations research analyst, software engineer, naval architect, specialty engineers such as materials or structures engineer, reliability engineer, design engineer, cost engineer.

Typical Position Locations: Acquisition organizations within the service components (i.e., Systems Commands, Materiel Commands, DRPMs. PEOs, as well as organizations/field activities directly supporting such organizations). Other DoD Components, Agencies and OSD/Service/HQ staff elements performing/supporting acquisition related functions such as: DCMA; research, development, and engineering centers and laboratories; manufacturing and maintenance centers and facilities.

Typical Career Codes:

Civilian Personnel		Uniformed Personnel			
OCC Series	Army AOC	Navy AQD	Air Force AFSC	Marine Corps MOS	
0180 15xx	51S	ASx	61SX	72xx 8059	8846
04xx			62EX	75xx 8061	8848
08xx				8057	8820 8852
13xx				8058	8824 8858

Recommended Changes/Updates: Forward to: Director, Learning Capabilities Integration Center (Attn: Dir, Academic Programs), Defense Acquisition University, 9820 Belvoir Road, Suite 3, Fort Belvoir, VA 22060-5565 or call 703-805-4090

AT&L Workforce Position Category Description (PCD)

Career Field: Production, Quality & Manufacturing
Career Path: Not Specified
Short Title: PQM
Category Code: H **Ref:** (a) DoDD 5000.52 dtd 12 Jan 2005
Date Approved: 20 Jul 2009 (b) DoDI 5000.66 dtd 21 Dec 2005
Last Reviewed: [XX May 2014](#) (c) DoD Desk Guide for AT&L Workforce Career Management dtd 10 Jan 2006

Notes:

1. This PCD is intended to assist in determining which AT&L career field/path to assign to an AT&L position per Title 10 sec. 1721. If 50% or more of the duties and responsibilities of the position match the "General Acquisition-Related Duties" described below AND the preponderance of those duties match the "AT&L Career Field/Path Specific Duties" described below, assign the position to this position category.
 2. All acquisition positions require management attention with respect to certification requirements and individual development. See reference (c).
 3. Critical Acquisition Positions (CAPs) are a subset of acquisition positions and Key Leadership Positions (KLPs), are a subset of CAPs. Both CAPs and KLPs represent positions with responsibility and authority that are critical to the success of a program or effort. These positions require management attention with respect to Acquisition Corps membership, tenure and other specific statutory requirements. See reference (c).
-

General Acquisition Related Duties: The conceptualization, initiation, design, development, test, contracting, production, deployment, logistical support, modification, and disposal of weapons and other systems, supplies, or services (including construction) to satisfy DoD needs, intended for use in, or in support of, military missions.

AT&L Career Field/Path Specific Duties: The specific duties fall into one or both of the following categories within this career field:

Production & Manufacturing:

- Monitors and/or manages the manufacturing and production efforts at industry or Government facilities throughout the system acquisition process.
- Assesses and reports on the availability of resources for production and realistic industry approaches to manufacturing and supply chain management.
- Conducts feasibility assessments of risk during transition period and throughout the acquisition process.
- Provides advice, assistance and recommendations to support "make" or "buy" decisions and alternative production processes.
- [Performs production/manufacturing surveillance/oversight of Defense Contractors and their associated Production/Service contracts which provide supplies and/or services \(to include Contractor proposal reviews\).](#)
- [Performs Industrial Base capability and capacity studies.](#)

Quality Assurance:

- Manages Quality Assurance (QA) processes to establish essential quality standards and controls.
 - Develops, executes and evaluates policies, procedures, plans and test provisions for QA requirements throughout the various phases of the systems acquisition cycle.
 - Ensures QA plans are integrated into the systems engineering process.
 - Performs process and product-oriented reviews and audits to ensure compliance with QA requirements
 - Provides expert support and guidance on QA-related matters to other program office and in-plant functional acquisition personnel.
 - Accepts and fields Materiel for U.S. and foreign customers.
 - [Performs Data Collection and Analysis related to quality of manufacturing and production along with executive process performance and process capability analysis.](#)
 - [Prepare sampling plans to assure Product Quality for materiel acceptance.](#)
 - [Participates in Material Review Boards and Corrective Action Boards to assist in the identification, root cause, and corrective action for the disposition of nonconforming material.](#)
 - [Conducts Cost of Poor Quality Studies for continual improvement.](#)
-

Typical Line and Staff Position Titles:

Production & Manufacturing: Supervisory, Production, Manufacturing, Industrial Engineer; Production Management, Industrial Specialist; Production Officer; General, Aerospace, Mechanical Engineer.

Quality Assurance: QA Supervisor, Representative, or Staff Specialist; Mathematical Statistician, QA Engineer, Supervisory and/or Quality Engineer, Supervisory and/or General Engineer, Pharmacist, Physical Scientist, Chemist, Electronic Technician, Product Line Specialist (PLS), QA Director/ Chief (Division, Branch or Section); QA Surveillance Representative/Specialist, Engineer Technician, Entomologist, Computer Specialist, Product Auditor; Aircraft, Aerospace, Ammunition, Automotive, Chemicals, Clothing, Electronics, Materiel, Mechanical, Medical, Nuclear, Processes, Shipbuilding, Computer Software, or Subsistence.

Typical Position Locations: Acquisition organizations within the service components (i.e., Systems Commands, Materiel Commands, DRPMs, PEOs, as well as organizations/field activities directly supporting such organizations). Other DoD

Components, Agencies and OSD/Service/HQ staff elements performing/supporting acquisition related functions such as DCMA, DLA and plant offices and component program offices.

Typical Career Codes

Civilian Personnel			Uniformed Personnel			
OCC Series	Army AOC		Navy AQD	Air Force AFSC	Marine Corps MOS	
0018 0660 11xx 52	51A		AHx	62	6002 8058	8860 <u>58</u>
0028 —08xx 43xx	51C		<u>AGx</u>	63	75xx 8059	<u>8862</u>
03xx 04 4404 45xx					8057 8060	
0414 4450 1910						<u>8061</u>

Recommended changes/updates: Forward to: Director, Learning Capabilities Integration Center (Attn: Dir, Academic Programs), Defense Acquisition University, 9820 Belvoir Rd., Suite 3, Ft. Belvoir, VA 22060-5565 or call 703-805-4090.

