Department of Defense Facilities Engineering Career Field Certification

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Table of Contents

Table of Contents

Abstract

The Facilities Engineering Acquisition Career Field was born out of a need identified by the Tri-Service Engineering Senior Executive Board and approved on July 16, 2001 by the Under Secretary of Defense for Acquisition, Technology and Logistics. Dr. Get W. Moy, Naval Facilities Engineering Command, selected as first Functional Advisor, worked through Mr. Steve Tkac, Director of Acquisition Education, Training and Career Development, for Defense Acquisition University to develop education curriculum to meet the definition of the newly formed Facilities Engineering Career Field (Beranek, 2000). Whereas the career field definition was expansive with responsibilities for acquisition professionals entering this field, there were minimal education and training requirements for the acquisition professional to progress through the Level I, Level II, and Level III certifications (Defense_Acquisition_University, 2019d). It has been documented that Program Management and Facilities Engineering career fields are parallel in terms of complexities and requirements, however, the education and training requirements are vastly different (Van Hutton, 2011). There are other acquisition career fields with education and training requirements with more requirements to best prepare the acquisition professionals. Facilities Engineering Acquisition Career Field Certification is in need of a thorough review and overhaul ensuring the acquisition professionals are best equipped to represent the government and be stewards of taxpayer funds with the facility projects they are associated.

Chapter 1 – Introduction

The Defense Acquisition Workforce Improvement Act, signed into law on November 5, 1990 required the Depart of Defense to establish education, training, and requirements for the civilian workforce (Congress, 1990b). The establishment of the Facilities Engineering Career Field recognized that "training requirements mandated by the other career fields did not address the type of work and issues that workforce members were likely to perform" (Beranek, 2000). The subsequent education, training, and requirements established may not be consistent with the Tri-Service Engineering Senior Executive Board intended Facility Engineers to "encompass a variety of professional individuals with diverse skills focused on the design, construction, and life-cycle maintenance of military installations, facilities, civil works projects, airfields, roadways, and ocean facilities" (Beranek, 2000). The training, education, and requirements appear to not be consistent with the expectations of the Tri-Service Engineering Senior Executive Board as well as the Under Secretary of Defense for Acquisition, Technology, and Logistics memorandum dated July 16, 2001 (Aldridge, 2001a). The other thirteen defense acquisition career fields have education, training, and requirements that appear to be more in line with professional acquisition people. Attention may be needed to review and update the education and training, for each of the three levels of certification of the facilities engineering career field to meet stated expectations when the career field was established in 2001.

Background

The Defense Acquisition Workforce Improvement Act, included within Title XII of Public Law 101-510 of the National Defense Authorization Act for Fiscal Year 1991, "directs the Secretary to establish uniform procedures for the effective management of persons serving in acquisition positions in DoD" (Congress, 1990a). "The Secretary of each military department

required to establish acquisition career program boards for advise in managing the accession, training, education, and career development of military and civilian personnel in the acquisition workforce" (Congress, 1990a). In addition, the law "directs the Secretary to establish policies and procedures for the establishment and implementation of the education and training programs authorized" (Congress, 1990a).

The Tri-Service Engineering Senior Executive Board signed memorandum on October 10, 2000 requesting the establishment of the Facilities Engineering Career Field. The Board referenced a Jefferson Solutions Report, dated March 23, 1998. The report "reviewed the functions performed by the Department of Defense to provide a more consistent definition of DoD acquisition force members" (Beranek, 2000). Citing the Defense Acquisition Workforce Improvement Act (DAWIA) included within law within Public Law 101-510 of the National Defense Authorization Act, "it is appropriate for the Services to request the establishment of a Facilities Engineering Career Field for personnel performing or supporting facilities related acquisition"(Beranek, 2000). A meeting of the Service DACM, held on March 29, 2000, included "the concept for a facilities engineering career field notionally approved, with the stipulation that a Tri-Service definition be formulated" (Beranek, 2000). The Board enclosed the definition of the Facilities Engineering Career Field within their memorandum. The definition included; "the Facilities Engineering Career Field encompasses a variety of professional individuals with diverse skills focused on design, construction, and life-cycle maintenance of military installations, facilities, civil works projects, airfields, roadways, and ocean facilities. It involves all facets of life-cycle management, from planning through disposal, including design, construction, environmental protection, base operations and support, housing, real estate, and real property maintenance. Additional duties include advising or assisting Commanders, and

acting as, or advising program managers and other officials as necessary, in executing all aspects of their responsibilities for facility management and the mitigation/elimination of environmental impact, in direct support of the Defense Acquisition process" (Beranek, 2000).

A memorandum, dated July 16, 2001, from Mr. E.C. Aldridge, Jr., Under Secretary of Defense, Acquisition, Technology, and Logistics acted upon recommendation from the Tri-Service Engineering Executive Board and immediately established a facilities engineering acquisition career field (Aldridge, 2001b). Functional Advisor position was established, with "term of approximately two years and will be rotated among the Military Departments" (Aldridge, 2001b). The functional advisor would be responsible to "develop a recommended facilities engineering position category description and career path for inclusion in DoD 5000.52-M Acquisition Career Development Program" (Aldridge, 2001b).

An article within the facilities engineering communities of practice section of the Defense Acquisition University web site, date unknown, titled "The Facilities Engineering Career Field: Not Your Typical AT&L Career Field" (Unknown, Unknown) provides broadening information and understanding of the responsibilities of people in the facilities engineering acquisition career field. The article identified "the Department of Defense (DoD) is the world's largest steward of properties, responsible for more than 46,425 square miles in the United States and abroad – larger than the size of the state of Virginia – with some 621,850 buildings and structures valued at approximately $600 billion" (Unknown, Unknown). The article noted "in order to succeed, the professionals who working the DoD must be prepared to consider a variety of solutions to make the best acquisition decisions" (Unknown, Unknown). The article articulated that "unlike the old days, when the normal solution for new requirements was simply a new construction project, today the facilities engineering professional is faced with clients who want to know all

the available option" (Unknown, Unknown). The article identified a Facilities Engineering Functional Integrated Process Team (FE FIPT) and subject matter experts from the Army, Navy, and Air Force, in partnership with DAU, began the development of the FECF curriculum" (Unknown, Unknown). There were three courses developed to cover the three certification levels of the facilities engineering acquisition career field; "ACQ-101, Fundamentals of Systems Acquisition Management, FE-201, under development for Level II certification and scheduled for delivery in October 2003, and FE-301, Level III certification delivered in late 2004" (Unknown, Unknown). The article concludes that "the creation of the Facilities Engineering Career Field recognizes the importance and complexity of the facilities engineering business and, equally important, the roles in helping to accomplish the DoD mission" (Unknown, Unknown).

Mr. Darrell Van Hutton, "Course Director for The Program Manager's Course (PMT 401)" (Van Hutten, 2011) of the Defense Acquisition University, authored a briefing dated February 4, 2011 titled "Program Management and Facilities Engineering"(Van Hutten, 2011). Mr. Hutton stated that the "concepts, principles, and macro processes are pretty much the same however, terminology is different, dollar values may be higher, and decision points different" (Van Hutton, 2011). Mr. Hutton also stated that Program Management and Facilities Engineering " attract a lot of attention, lots of stakeholders with lots of rules and regulations, high impact to mission and others, technical important though more about leadership and management" (Van Hutten, 2011). Mr. Hutton confirmed facilities engineering is like program management as it relates to "the integration of all the functions to deliver a capability; Contracting, Funding, POM, Real Estate, Utilities, Environmental, Construction, Facilities Services, Technical, Engineering, Design, Planning, Transportation, Maintenance, and Requirements" (Van Hutten, 2011). Within the briefing charts Mr. Hutton included two slides

that pictorially showed the "Facilities Engineering Lifecycle and the Integrated Defense, Acquisition, Technology, and Logistics Life Cycle Management System" (Van Hutten, 2011). Whereas the processes are different the intend and requirements to work through the acquisition process to deliver a quality product to the customer is the same. Mr. Hutton concluded the briefing with the following thoughts; "FE like PM, is a contact sport where relationships matter, can't do it effectively my email, can't do it effectively without electronic tools. It is an engineer's delight including problem solving, technical, competing interests, expectations and requirements, and people matter requiring leadership" (Van Hutten, 2011). Mr. Hutton also stated both program management and facilities engineering "attract a lot of attention, deal with a lot of money, and have program impact" (Van Hutten, 2011).

Problem Statement

The Department of Defense acquisition career field certification standards for facilities engineering lacks depth and breadth in the requirements with respect to career field definition and is inconsistent with requirements of the thirteen other Defense Acquisition Workforce Improvement Act career fields.

Purpose of This Study

The purpose of this qualitative study is to explore the Department of Defense Facilities Engineering Acquisition Career Field Certification requirements as well as inconsistencies with certification requirements of other Department of Defense acquisition career fields.

Significance of This Study

The significance of this study is to further discussion on the on-going development of the Facilities Engineering acquisition career field. This career field has the widest range of expected knowledge from the professionals in the Department of Defense acquisition fields. The

requirements to attain certification do not align with the career field description. Literature review did not identify any previous study performed with respect to the facilities engineering acquisition career field. The career field has been in a status quo situation, since inception in 2001, with Acquisition Functional Chief annually validating the career field description as well as no changes required to the requirements, education or training, at any of the three certification levels (Dalton, 2019).

Nearly eight years after the facilities engineering career field was approved the Chief of the U.S. Army Corps of Engineer's provided guidance on July 1, 2009, for the assimilation of Army Civilian positions into the career field (Defense_Acquisition_University, 2009). The Corps expected upwards to nine thousand (9,000) positions to be added to the facilities engineering career field when assimilation would be complete in November of 2009 (Defense_Acquisition_University, 2015). The Corps of Engineers is the responsible agent, representing the Army. and executing facility projects in the Military Construction program.

In recent months there has been statements made to eliminate the facilities engineering career field because it doesn't support warfighting (Mehta, 2019). Changes are needed to the facilities engineering career field; however, elimination of the career field should not be a consideration.

Research Questions

The problem statement and purpose of study provided the background to establish research questions. These research questions provided a framework and boundaries for this study. The derived questions include;

1. How is Department of Defense Facilities Engineering acquisition career field defined for education and training?
2. How are the requirements for Department of Defense Facilities Engineering acquisition career field aligned and meeting expectations of career field definition?
3. How are requirements at each level of certification for Department of Defense Facilities Engineering acquisition career field aligned with other Defense Acquisition Workforce Improvement Act career fields?

Overview of the Research Methodology

The objective of the research is to identify how the Facilities Engineering acquisition career field was developed; how supported through Defense Acquisition University; inconsistencies with certification requirements of other acquisition career fields; and recommendations for potential future state. Multiple searches were conducted over a number of occasions, through the Webster University library access to EBSCOhost, in an attempt to obtain information and documentation. The methodology of the research for this paper provides an understanding of how education and training for the facilities engineering acquisition career field is not in parallel with the other thirteen Department of Defense acquisition career field.

Limitations

Limitations were identified in the process and restrictions imposed on the development of this research paper. This first limitation of this research paper is requirement for all sources and materials to be derived only from historical documents. A second limitation of the paper is the inability to interview persons of interest, influential, or with direct knowledge of the establishment of the facilities engineering acquisition career field and certification requirements.

There was no latitude provided to conduct interviews of anyone associated with the topic of the paper to provide insight, clarity, or additional information. A third limitation of the paper are that assumptions made when there was not clear intent or explanation identified within the materials of the literature review. A fourth limitation of the paper is author's lack of experience to conduct a literature review. The potential exists that better queries could have been written which may have identified additional and pertinent documents for use in the paper. A fifth limitation of the paper is the limited published materials, papers or documents, with respect to the facilities engineering acquisition career field.

Chapter 2 – Literature Review

A literature review on the topic of Department of Defense Facilities Engineering career field certification identified a number of different sources including; articles, meeting notes, presentations, articles, memorandums, Public Laws, regulations, web sites, and Defense Acquisition University to provide an overview, intention, and expectation for this acquisition career field.

The parameters of how the review initially was conducted was not well documented resulting in information and documents that may not be complete with respect to their origin. Multiple searches were conducted over a number of occasions, through the Webster University library access to EBSCOhost and ProQuest databases, in an attempt to obtain information and documentation. Searches conducted included, though not limited to; Acquisition Certification Facilities Engineering; Facilities Engineering Certification; Federal Facilities Engineering Acquisition Certification; Federal Acquisition Certification; Facilities Engineering; Federal Acquisition Certification; Acquisition Certification. A number of items of potential interest were identified.

An additional search was completed through EndNoteX9 to the Library of Congress. The following phrasings were used in the searches; Facilities Engineering Acquisition; Facilities Engineering Acquisition Certification; Federal Acquisition Certification; Facilities Acquisition Certification; Federal Facilities Acquisition. The results varied from zero items identified to hundreds of thousands. A scanning of the results with quantity included topics and items not related to the facilities engineering acquisition career field or not associated with acquisition within the United States.

The literature review is intended to address the problem statement that the Department of Defense acquisition career field certification standards for facilities engineering lacks depth and breadth in the requirements with respect to career field definition and is inconsistent with requirements of other Defense Acquisition Workforce Improvement Act career fields. In addition, the results of the review are intended to help answer the following research questions;

1. How is Department of Defense Facilities Engineering acquisition career field defined for education and training?
2. How are the requirements for Department of Defense Facilities Engineering acquisition career field aligned and meeting expectations of career field definition?
3. How are requirements at each level of certification for Department of Defense Facilities Engineering acquisition career field aligned with other Defense Acquisition Workforce Improvement Act career fields?

The literature review was accomplished through an iterative process. The first process included gathering sources and documents from multiple searches through EBSCOhost and ProQuest databases. Each of the identified sources was given a preliminary review for potential to be aligned with the research topic. Sources not indicating support for the topic were not included within the literature review for this paper. This process identified forty-six potential sources for the paper. A second and more detailed review of each source was performed.

Resultant of this second iteration, the forty-six literature review sources were segregated into three sections; Twenty-seven sources that align with the problem statement and research questions; Ten sources that marginally align with the problem statement and research questions and research questions; and Nine sources that do not align as well or may not provide meaningful insight to advance the knowledge base. The thirty-eight aligned and marginally aligned sources

provide documentation and information used in this research paper. The sources for each section are not provided in any particular order of importance or ranking.

Sources aligned with problem statement and research questions;

Establishment of the Facilities Engineering Career Field and Designation of a Facilities Engineering Functional Advisor, Aldridge, 2001, Memorandum

Memorandum signed by The Under Secretary of Defense for Acquisitions, Technology and Logistics officially established the facilities engineering acquisition career field on 16 July 2001. The memorandum directed the creation of a Functional Advisor. The Functional Advisor was tasked with identification of and accomplishment of career development requirements. In addition, the Functional Advisor was tasked to recommend position category description and career path for inclusion in DoD 5000.52M – Acquisition Career Development Program. Functional Advisor also required to advise with development of policy and procedures for civilian and military personnel that will occupy facilities engineering acquisition career field positions (Aldridge, 2001b).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Issuance of the AT&L Workforce Desk Guide, Anderson, 2006, Memorandum

This memorandum provides a comprehensive guide to acquisition workforce professionals relating to career management. The desk guide provides background, history, general, as well as specific requirements related to attaining education and experience. In addition, the guide provides information with respect to the career field certification process (Anderson, 2006).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

NEW DAU CREDENTIALS AVAILABLE TO ARMY ACQUISITION, Army, 2019, email

Electronic message received from the Director Army Career Management (DACM) Office identified the establishment of a credentialing program which is being developed by the Defense Acquisition University. At this time the intention of the credentialing program is not to replace the current certification requirements for the acquisition professionals. The credentialing program is intended to provide complementary educational opportunities addressing specialized topics. The first three credentials to be offered by Defense Acquisition University include: Agile, Digital Engineering, and Services Acquisition. A fourth credential, Cyber Security, is scheduled to be available in February 2020 (Army, 2019b).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Army Modernization Strategy: Investing in the future, Army, 2019, Booklet

The Army Modernization Strategy identifies the intent for what programs the Army intends to pursue and how they intend to achieve their end state. A critical enabler to the strategy is the modernization of installations and facilities to support new technologies and materiel that enable multi domain operations. Included in the modernization effort is installation and facility support for the eight current cross functional teams. Risks are identified if facilities and infrastructure are not modernized in a timely manner to support the development and fielding of these weapon systems and formation (Army, 2019a).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Army Acquisition Civilian Leadership Development Plan, Army, Briefing

This briefing chart provides the framework for the career development plan of a Department of Defense acquisition professional. The plan identifies; generic Defense Acquisition Workforce Improvement Act Training Level 1, Level 2, and Level 3; Civilian Education System courses; leadership training; and higher education against the backdrop of the general schedule grades 7-15 as well as Senior Executive Service (Army, Unknown).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Facilities Engineering Career Field, Beranek, Moy, Aimone, 2000, Memorandum

This memorandum, from the Tri-Service Engineering Senior Executive Board recommended the establishment of the facilities engineering acquisition career field. Memorandum cited that other career field training requirements did not meet the need of facilities engineering. Memorandum cited need to develop appropriate training and education requirements. Definition of the facilities engineering career field was attached to the memorandum. The depth and breadth of expectations were identified as well as confirmation that career field is in direct support of the Defense Acquisition process (Beranek, 2000).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Facilities Engineering (FE) Career Field Update, Dalton, 2017, Briefing

Briefing provided by the Acquisition Functional Leader for the Facilities Engineering Acquisition Career Field provided historical information, update on actions related to the Corps of Engineers, and identification that change in career field name is in progress. Back up slides

provide information reinforcing the participation in the facilities engineering career field (Dalton, 2017).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Fiscal Year (FY) 2020 Annual Certification - Facilities Engineering (FE) Acquisition Career Field, Dalton, 2019, memorandum

Memorandum from the Acquisition Functional Leader for the Facilities Engineering Acquisition Career Field certified that the education established by the Defense Acquisition University is adequate to meet the requirements of professional staff assigned to this career field. Notation was made of adjustment happening with respect to Level 1 certification. In addition, confirmation provided that the position category description posted on the Defense Acquisition University website is current (Dalton, 2019).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

Guidance for Assimilation of Army Civilian Positions in Facilities Engineering Career Field, Defense Acquisition University, 2009, memorandum

Announcement made on the web site by the Commander of the U.S. Army Corps of Engineers that assimilation of Army civilian positions would be occurring into the Facilities Engineering Career Field. The article provides reassurance of the validity of the facilities engineering acquisition career field with recognition by the Corps of Engineers to be a part of the career field (Defense_Acquisition_University, 2009).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Facilities Engineering Career Field Expansion, Defense Acquisition University, 2015, Web Site

Announcement made on the web site by the Commander of the U.S. Army Corps of Engineers that assimilation of Army civilian positions would be occurring into the Facilities Engineering Career Field. The article provides reassurance of the validity of the facilities engineering acquisition career field with recognition by the Corps of Engineers to be a part of the career field (Defense_Acquisition_University, 2015).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Defense Acquisition University 2019 Catalog, Defense Acquisition University, 2019, Electronic Catalog

This electronic catalog is the 2019 version for the Defense Acquisition University. The document outlines all that Defense Acquisition provides with respect to education for the DoD acquisition workforce. There is detailed information about each of the fourteen acquisition career fields including facilities engineering. There is also identification of the Acquisition Functional Leader for each of the career fields (Defense_Acquisition_University, 2019b).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Public Law No: 101-510, Congress, 1990

The law discusses the National Defense Authorization Act. In addition, Title VIII discusses acquisition policy, management, and related matters. Advisory panel is identified to streamline and codify defense acquisition laws. Included is the Defense Acquisition Workforce Improvement Act (Congress, 1990b).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions

DAWIA Career Field Certifications, Defense Acquisition University, 2019, Web Site

The website provides general and historical information with respect to the Defense Acquisition Workforce Improvement Act and the certification requirements. References are provided to additional areas within the Defense Acquisition University website for additional information (Defense_Acquisition_University, 2019a).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

WHAT EVER HAPPENED TO CERTIFICATION? Fast, 2009, Defense AR Journal

This article from the Defense AR Journal provides a snapshot of the history of the Defense Acquisition Workforce Improvement Acts, issues with the acquisition program, and efforts by the Department of Defense to attract and retain acquisition talent (Fast, 2009).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Federal Buildings Personnel Training Act (FBPTA) Implementation: Three Government Agencies in Action, Gilligan, Mino, Hirchak, Krasley, 2015, Conference Briefing

This conference briefing identified how multiple federal government agencies have implemented the Federal Buildings Personnel Training Act of 2010. In addition to Government Services Administration presentation included responses from; Office of the Assistant Secretary of Defense, DoD; DoD Defense Health Agency; and Veterans Administration. Presentation introduced the Defense Competency Assessment Toll and compared it to the Federal Buildings Personnel Training Act. Defense Health Agency already has higher standards to meet state and

federal accreditation standards. Development and training of facility staff is lacking. Defense Health Agency also presented roadmap to train and educate facility management staff. The roadmap encompasses many different learning environments including Corps of Engineers, Navy, and Defense Acquisition University. Department of Veterans Affairs actually has Facilities Management School with full curriculum provided (B. Gilligan, Mino, George, Hirchak, Roy D., Krasley, Dr. Paul, 2015).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Program Management and Facilities Engineering, Van Hutton, 2011, Briefing

This briefing, presented by the then Director of the PMT-401 course, compared the Program Management and Facilities Engineering Acquisition Career Fields. The myth was dispelled that facilities engineering is somehow an inferior career field to the other thirteen and especially when compared to program management. The briefing identified that facilities engineering and program management are parallel programs, while having differing lifecycle acquisition paths, both having great complexity and requiring a high degree of integration (Van Hutton, 2011).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

DAWIA Certification Now Available for Facilities Engineering Career Field, Gasiorek-Nelson, 2001, Program Manager Magazine

This article from Program Manager magazine in 2001 introduced the Facilities Engineering Acquisition Career field. Brief history provided how the Tri-Service Executive Board petitioned to create the new career field. The article identified a number of the diverse

skill set required of professionals certified in the facilities engineering career field. There was brief explanation of the Defense Acquisition workforce improvement act (DAWIA) which was signed into law in November of 1990 (Gasiorek-Nelson, 2001).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

STRENGTHENING THE ACQUISITION WORKFORCE: Focus on the Task at Hand, Machis, 2015, Contract Management Magazine

The article in Contract Management magazine discusses issues associated with getting the acquisition workforce the needed training and experience to be successful. The article also is critical of the Defense Acquisition University and their Core Plus courses. It identified courses were generic in nature and did not address the needs of any specific career field. The article contends that if the acquisition workforce were provided specific skills and experiences required for their job then a major strengthening would occur. The article also touches upon the need for job-focused learning. This would include learning on the job training in specific skills and attributes needed at that specific time within that career field (Machis, 2015).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Facilities Engineering Career Field, McElhenney, 2009, Brochure

This brochure provides information about the Facilities Engineering Acquisition Career Field. The career track provides a portion of the functional definition that the Tri-Service Engineers wrote when they fought to establish the career field. There is graphic that identifies the requirements for Level 1, Level 2, and Level 3 certification in facilities engineering. There

are brief descriptions of Facilities Engineering 201 and Facilities Engineering 301 courses (McElhenny, 2009).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

How 'night court' will impact the Pentagon's acquisition office, Mehta, 2019, Defense News Magazine

This article in the Defense News, Ellen Lord, Under Secretary of Defense for Acquisition and Sustainment discussed how the review by the Secretary of Defense may adversely affect many of the Army's programs, especially within the fourth estate. Defense Acquisition University is part of the fourth estate where anything that is perceived to not be directly tied into war-fighting needs may be eliminated by the Department of Defense. Specifically, Ms. Lord stated that it's not a good use of acquisition funds for facility engineers to have program at Defense Acquisition University (Mehta, 2019).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Improving Acquisition Training and Certification Throughout the Federal Workforce, Richard, 2007, Contract Management Journal

This article in the Contract Management magazine, published in 2007, spoke to issues with education for acquisition professionals in the Department of Defense as well as civilian agencies. There is discussion of the need for a capable, agile civilian workforce as well as shaping reform in the acquisition community. Strategic relationships were forged between Federal Acquisition Institute and Defense Acquisition University in an attempt to leverage the defense and non-defense agencies and their training capabilities. The article identifies how most

reforms adopted were to benefit the defense community and more is needed for civilian acquisition work force (Richard, 2007).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Department of the Army, Acquisition Career Field Certification Policy, Spisak, 2019, Memorandum

The memorandum provides policy update regarding management of the Acquisition Career Field certification for consistency across the Army Acquisition Workforce. Historical references are made to the Defense Acquisition Workforce Improvement Act of 1990, Public Law 101-510. Roles and responsibilities are provided for those associated with Army acquisition professionals (Spisak, 2019).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Facilities Engineering Career Field, United States Army Corps of Engineers, Briefing

The briefing document provides information relative to the Facilities Engineering Career Field. Whereas the briefing has not date, it is assumed to have been written no earlier than fall of 2001. The briefing provides historical information about the inception and approval of the career field (United_States_Army_Corps_of_Engineers, Unknown-b).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Facilities Engineering (FE) Acquisition Career Field Overview, United States Army Corps of Engineers, Briefing

The briefing document provides information relative to the Facilities Engineering Career Field as it relates to the Unites States Army Corps of Engineers. Whereas the briefing has not date, it is assumed to have been written no earlier than 2005 though no later than early 2009. The briefing provides historical information about the career field as well as Corps' assimilation confirmation (United_States_Army_Corps_of_Engineers, Unknown-a).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Facilities Engineering Career Field Service DACM/FIPT Meeting - Dec 18, 2008

The document provides meeting agenda and notes from the quarterly team meeting. The team discusses items and issues related to the Facilities Engineering Career Field. The document provides insight to the progress and issues in the career field (Unknown, 2008a).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

Facilities Engineering Career Field Service DACM/FIPT Meeting - Oct 21, 2008

The document provides meeting agenda and notes from the quarterly team meeting. The team discusses items and issues related to the Facilities Engineering Career Field. The document provides insight to the progress and issues in the career field (Unknown, 2008b).

This document provides alignment with overarching paper intent, aligns with problem statement, and assists with resolving research questions.

The Facilities Engineering Career Field: Not Your Typical AT&L Career Field, Electronic Document

Document provides a description of the Department of Defense's stewardship responsibilities with respect to real property. The document also describes roles and

responsibilities of the facility engineering professional and the breadth and depth of disciplines for which knowledge is required to be successful in the career field. The document confirms the Facilities Engineering acquisition career field established on July 16, 2001. Document confirms that level I certification would be ACQ-101 Fundamentals of Systems Acquisition Management. Level II class, FE-201, scheduled to deploy in October 2003 and Level III class, FE-301, delivered in late 2004 (Unknown, Unknown).

This document provides alignment with overarching paper intent that Facilities Engineering has value, aligns with problem statement, and assists with resolving research questions.

Sources marginally aligned with problem statement and research questions;

PREFERRED JOB COMPETENCIES OF ENGINEERING LEADERS IN DOD, Clardy, Sarkani, Mazzuchi, 2017, Defense AR Journal

This article in the Defense AR Journal addressed job competencies of engineering leaders in DoD. The article discusses that Defense Acquisition University had developed a Acquisition Workforce Qualification Initiative (AWQI) to assist with identification of experience gaps and gauge proficiency against standards. The article focuses on lead systems engineers however has broad application throughout all of the acquisition career fields (Clardy, 2017).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Public Law 111-308, Congress, 2010

This law discusses the Federal Buildings Personnel Training Act of 2010. Whereas the law is directed at General Services Administration it provides information about core competencies needed for cradle to grave activities associated with facilities (Congress, 2010).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Position Category Description - Record of Changes, Defense Acquisition University, 2019, Web Site

This page houses all of the Position Category Description (PCD) Changes for each of the DoD acquisition programs since 12 Mar 2007. There is a tab specific to the Facilities Engineering Career Field. There have been minimal changes within the career field as documented on this page (Defense_Acquisition_University, 2019d).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Facilities Engineering Community, Defense Acquisition University, 2019, Web Site

Web page provides generic information with respect to the Facilities Engineering Acquisition Community hosted on the Defense Acquisition University website. References are provided to additional areas within the Defense Acquisition University website for additional information (Defense_Acquisition_University, 2019c).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

AR 420-1 Army Facilities Management, Department of Army, 2019, Regulation

This Army regulation addresses management of Army facilities. It describes management of public works activities; facilities operation and maintenance; military construction development and execution; and master planning (Department_of_the_Army, 2019).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Life Cycle Logistics Acquisition Workforce Competency Survey using the Defense, Emmert, 2018, Memorandum

This memorandum introduced the DoD Defense Competency Assessment Tool (DCAT). The DCAT was developed to assess civilian employee competency gaps and proficiency levels in the technical and non-technical competencies within their occupational series. The assessment referenced in this document was specific for the Life Cycle Logistics career field. Otherwise the assessment is a helpful tool to determine gaps (Emmert, 2018).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

ACQUISITION WORKFORCE, GAO, 2013, Report

This Government Accountability Office report discussed how agencies of the federal government obtain training for acquisition workforce however, they have limited insight with respect to cost of benefits derived from the training investment. There is a general discussion of the issues faced (GAO, 2013).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

The acquisition work force: Recruiting and retaining new talent, Johnson, 2008, Federal Times Magazine

This article in the Federal Times Magazine foresaw in 2008 the need to revise how the acquisition workforce was recruited for employment and subsequently retained to continue employment. The article stated that employees may wander in and out of public employment throughout their career and the days of people spending thirty years or more in one place are over. The article further expands to discuss efforts by the Federal Acquisition Institute to develop the Federal Acquisition Intern Coalition to facilitate recruiting and build a community for the workforce (Johnson, 2008).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Pentagon's Lord looks to foster 'high-potential talent' with workforce development plan, Mehta, 2017, Defense News Magazine

This article in the Training & Sim section of the Defense News discusses how Ellen Lord, Under Secretary of Defense for Acquisition, Technology, and Logistics discusses how she intends to prioritize civilian workforce development. The Defense Innovation Board suggested the Department of Defense create a new career to address needs with high-tech jobs. Defense Security Cooperation Agency was contemplating establishing an educational entity similar to Defense Acquisition University (Mehta, 2017b).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Lord Tinkering with AT&L reorg plan, industry relationships, Mehta, 2017, Defense News Magazine

This article in the Pentagon section of the Defense News discusses how Ellen Lord, Under Secretary of Defense for Acquisition, Technology, and Logistics is preparing to reorganize. The 2017 National Defense Authorization Act required Ms. Lord to split the organization into two pieces; Research and Engineering; and Acquisition and Sustainment. Whereas the new structure created new offices the intention was to par down funding and push activities to the major defense contractors (Mehta, 2017a).

This document provides marginal alignment with overarching paper intent, superciliously aligns with problem statement, and assists with providing background to the research questions.

Sources not aligned well with problem statement and research questions;

Agencies Generally Use External Sources for Acquisition Training and Face Similar Workforce Training Challenges, GAO, 2013, Report

This Government Accountability Office report discussed how agencies of the federal government make use of external sources to secure acquisition training. However, none of the data includes the Department of Defense (GAO-13-231, 2013).

This document does not align well with addressing the problem statement or resolving research questions.

Sustainable Facilities Tools, General Services Administration, Web Site

The website dashboard provides a general understanding of the Facilities Management Institute which is General Services Administration's resource for professional development for federal buildings personnel. Links provided give access to resources, self-assessments, and training opportunities. There is also a Federal Facilities Skills Assessment Tool to assess

personnel subject to FBPTA to demonstrate knowledge and skills (General_Services_Administration, Unknown).

This document does not align well with addressing the problem statement or resolving research questions.

Professional Development for Federal Buildings Personnel, Gilligan, Briefing

The briefing slides presented identified professional development for staff who work for the General Services Administration and work in the buildings section. Core competencies were identified as well as recommended curriculum and the need for compliance. The presentation identified tat Department of Defense has, by far, the most Government Services Administration space and spends nearly as much as all other agencies supported in operations and maintenance costs annually. Career paths were identified for facility management, energy management, and building operations careers. There were also screen shots of pages from their website addressing the Federal Buildings Personnel Training Act of 2010 (B. Gilligan, Unknown).

This document does not align well with addressing the problem statement or resolving research questions.

ARMY FACILITIES MANAGEMENT A New Strategy for a New Environment, Neve, Hawkins, 1990, Report

Report completed by the Logistics Management Institute provided insight into the standard organization and standard approach to managing facilities. The report addressed that each installation is different and as such each my not feel required to fully comply with the regulations. There is discussion that if deviations from standard are to be allowed then there must be quantitative measures for which to develop objectives for which to be judged (Neve, 1990).

This document does not align well with addressing the problem statement or resolving research questions.

AFE to conduct certification programs in conjunction with annual national conference, Palko, 1996, Plant Engineering Journal

This article from the Plant Engineering magazine how the Association for Federal Engineering planned to conduct training in conjunction with their national conference. This 1996 article discusses how private industry struggled to meet the training needs of their facilities staff (Palko, 1996).

This document does not align well with addressing the problem statement or resolving research questions.

On Acquisition Training: An Important Next Step, Soloway, 2005, Defense AT&L Magazine

The article in the Workforce Development magazine from 2005 discusses the apparent disparity in funding provided by the Department of Defense offices for acquisition certification training as opposed to other federal agencies. Congress established a funding stream for the civilian agency training through the 2003 Services Acquisition Reform Act. The Act also attempted to better align the Federal Acquisition Institute with the Defense Acquisition University (Soloway, 2005).

This document does not align well with addressing the problem statement or resolving research questions.

Rules and Regulations: DEPARTMENT OF DEFENSE, 2013, Federal Register

This document provides a listing in the Federal Register for final rule changes to be made within the Defense Acquisition Regulations System. Whereas the document pertains to facility

related matters, the nature of the changes is specific and outside the scope of this paper (Unknown, 2013).

This document does not align well with addressing the problem statement or resolving research questions.

Program Management - Specific Functional Requirements for Key Leadership Positions, 2019, Electronic Document

Document provides specific functional requirements for key leadership positions with attributes and demonstrated experience beyond Level III Certification. The document identifies education, training, experience, competencies, technical management, and business management for positions within the following acquisition career fields; Program Management; Senior Contracting Official; Program Lead Contracting Officer; Chief Engineer / Lead Systems Engineer; Program Lead Business Financial Manager; Program Lead Cost Estimating; Product Support Manager; Chief Developmental Tester; Program Lead, Production, Quality, and Manufacturing (PL, PQM); and Program Lead Information Technology. Comparable career fields to Facilities Engineering are noted in this document however Facilities Engineering is not included (Unknown, 2019).

Whereas this document should align well because of the parallel perceived responsibilities of Program Management and Facilities Engineering, this document does not align well with addressing the problem statement or resolving research questions.

400 Level Training Courses, USAASC, 2019, Electronic Document

Document identifies a number of 400 level (PMT and ACQ) that are beyond the Defense Acquisition Workforce Improvement Act Level III certification requirements but are stated as being intended for program management acquisition professionals. There are also 45x level

acquisition courses that are available any Level III certified acquisition professional with at least three years of experience. The PMT 401and PMT 402 are statutorily required for program executive officers, deputy program officers, and program managers/deputy program managers if ACAT I and II programs (USAASC, 2019).

This document does not align well with addressing the problem statement or resolving research questions.

Chapter 3 – Research Methodology

Overview

The objective of the research is to identify how the Facilities Engineering acquisition career field was developed; how its supported through Defense Acquisition University; and inconsistencies with certification requirements of other Defense acquisition career fields supported by Defense Acquisition University. Multiple searches were conducted over a number of occasions, through the Webster University library access to EBSCOhost, in an attempt to obtain information and documentation. The intent of this paper is to provide an understanding of how the facilities engineering acquisition career field is not in parallel with the other thirteen Department of Defense acquisition career field.

Research Questions

1. How is Department of Defense Facilities Engineering acquisition career field defined for education and training?
2. How are the requirements for Department of Defense Facilities Engineering acquisition career field aligned and meeting expectations of career field definition?
3. How are requirements at each level of certification for Department of Defense Facilities Engineering acquisition career field aligned with other Defense Acquisition Workforce Improvement Act career fields?

Research Design

The historical research on the topic of Department of Defense Facilities Engineering Career Field Certification intended to identify a number of different sources including; studies, articles, meeting notes, presentations, articles, memorandums, Public Laws, regulations, web

sites, and Defense Acquisition University documents providing overview, intention, and expectation for this acquisition career field. Expectations included at least one study having been completed since the career field is nearly twenty years old.

The search for historical documents was flawed by the inexperience of the researcher and the inability to craft adequate search criteria or phrases to identify available sources of material. The parameters of how the review initially was conducted was poorly documented resulting in information and documents that may not be complete with respect to their origin. Multiple searches were conducted over a number of occasions, through the Webster University library access to EBSCOhost and ProQuest databases. The results of these queries resulted in limited information and articles and no studies identified with respect to facilities engineering acquisition career field.

The expectation was to find at least one study conducted on the Facilities Engineering Career Field and numerous articles, websites, regulations, and other government sites. The focus of the searches was to find relative information to provide information speaking in favor of or against the research questions and problem statement. Cognitive biases potentially influence the extent of each search conducted and there was overconfidence an abundance of materials would readily be identified.

Searches conducted included, though not limited to; Acquisition Certification Facilities Engineering; Facilities Engineering Certification; Federal Facilities Engineering Acquisition Certification; Federal Acquisition Certification; Facilities Engineering; Federal Acquisition Certification; Acquisition Certification. A number of items of potential interest were identified. Upon review of the documents about half of the documents appeared aligned to address the

paper topic, a quarter were determined to be marginally aligned with the problem statement or research questions, and the remaining quarter of the documents had no real connection to the paper topic.

An additional search was completed through EndNoteX9 to the Library of Congress. The following phrasings were used in the searches; Facilities Engineering Acquisition; Facilities Engineering Acquisition Certification; Federal Acquisition Certification; Facilities Acquisition Certification; Federal Facilities Acquisition. The results varied from zero items identified to hundreds of thousands. A scanning of the results with quantity included topics and items not related to the facilities engineering acquisition career field or not associated with acquisition within the United States.

Bias and Error

This qualitative paper was required to be completed using only historical information. There was no allowance for interviews or questionnaires to subject matter experts or people who may have first-hand knowledge of the decision-making process implored with respect to the facilities engineering acquisition career field. The inexperience of the researcher combined with being a subject matter expert with respect to planning and execution of facilities projects provided opportunity for unintended biases to be present in the paper. There is potential for bias to have occurred in the drafting of the problem statement, how research was conducted, analysis of the data, conclusions, and recommendations. In addition, since there was not either depth or breath of material uncovered during the research there is also the potential that errors exist in the documents.

The first potential source of error would be if the recorded reality is incorrect. There are not any published studies completed addressing the facilities engineering acquisition career field. There are also few published articles on the career field as well. With little data available it's possible when data was collected previously it was misinterpreted and the published items unintentionally misled the reader. In conjunction with potential error in research there is also the possibility that the recorded history may have errors unto itself. Miscommunication, oversight, human error, and bias could all be factors causing an historical record to not be accurate.

Bias is a part of life. There is always the risk that any judgement or decision made may be flawed or influenced by cognitive biases. Cognitive bias includes distinguishing information founded on our personal likings and understandings (Bilal). The inexperience of the researcher and the intimate knowledge of the subject matter has provided a pathway for many unintentional biases included in the compilation of the paper. In no particular order or priority, the paper could contain the following biases; confirmation; anchoring; availability heuristic; conservatism; framing effect; authority; deformation professionnelle; and framing (Bilal). Confirmation bias includes seeking information or interpreting it in a manner that is consistent with preconceived notions or thoughts (Bilal). Anchoring bias includes reliance on specific information to a point where it the value of other information is influenced or changed (Bilal). Availability heuristic occurs when decisions subconsciously based on what comes to mind quickly and relevant to the situation (Bilal). Conservatism happens when a person overconfident their own opinions and underestimates new information or facts (Bilal). Framing effect allows a person to make influenced decisions based on how information was presented (Bilal).

Chapter 4 – Findings

Collected Data / Information

The historical research included documents providing data and information supporting the research questions and ultimately the problem statement of this paper. Included is general background information to assist with understanding the establishment of the Facilities Engineering Acquisition Career Field; certification requirements for all three (3) Levels of certification; and how the career field relates to a sampling of other acquisition career fields. The data and information include the following:

House of Representatives, H.R. 4739 – National Defense Authorization Act for Fiscal Year 1991. This document became Public Law 101-510 on November, 5, 1990. Included within Title XII language the Secretary of Defense to ensure establishment of an Acquisition corps for each of the military departments. Secretary also directed to establish specific education, training, experience, policy and procedure. This document provided the basis for the Tri Service Engineering Senior Executive Board to request the establishment of the Facilities Engineering Acquisition Career Field (Congress, 1990a, 1990b).

Memorandum from the Tri-Service Engineering Senior Executive Board recommended the establishment of the facilities engineering acquisition career field. Memorandum cited that other career field training requirements did not meet the need of facilities engineering. Memorandum cited need to develop appropriate training and education requirements. Figure 1 identifies the definition of the facilities engineering career field stated by the Tri-Service

Engineering Senior Executive Board and attached to the memorandum.

The Facilities Engineering career field encompasses a variety of professional individuals with diverse skills focused on the design, construction, and life-cycle maintenance of military installations, facilities, civil works projects, airfields, roadways, and oceanic facilities. It involves all facets of life-cycle management from planning through disposal, including design, construction, environmental protection, base operations and support, housing, real estate, and real property maintenance. Additional duties include advising or assisting commanders and acting as, or advising, program managers and other officials as necessary in executing all aspects of their responsibilities for facility management and the mitigation or elimination of environmental impact in direct support of the defense acquisition process.

Figure 1: Facilities Engineering Career Field Description

The depth and breadth of expectations were identified as well as confirmation that career field is in direct support of the Defense Acquisition process (Beranek, 2000).

The career field definition provides the basis that the Defense Acquisition University would need to develop training classes to meet the requirements. The proposed courses would need to be reviewed by the Acquisition Functional Leader for Facilities Engineering to ensure adequate courses are developed to meet the acquisition professional's needs to be successful in the career field (Defense_Acquisition_University, 2019b). Figure 2 provides information with respect to functional leaders.

FUNCTIONAL LEADERS

The functional leaders are senior leaders who specialize in a functional area of acquisition, technology, and logistics. Requirements for functional areas may change as a result of new technologies, mission requirements, or Service member needs, and it is the job of the functional leaders to ensure that their respective functional areas maintain relevance. Functional leaders are involved in chairing integrated product teams (IPTs) to address career development issues and identify training, education, and experience requirements.

Figure 2: Functional Leader Description

The next piece of information comes from a memorandum signed by The Under Secretary of Defense for Acquisitions, Technology and Logistics officially established the

facilities engineering acquisition career field on 16 July 2001. The memorandum directed the creation of a Functional Advisor. The Functional Advisor was tasked with identification of and accomplishment of career development requirements. In addition, the Functional Advisor was tasked to recommend position category description and career path for inclusion in DoD 5000.52M – Acquisition Career Development Program. Functional Advisor also required to advise with development of policy and procedures for civilian and military personnel that will occupy facilities engineering acquisition career field positions (Aldridge, 2001b).

This article from Program Manager magazine in 2001 introduced the Facilities Engineering Acquisition Career field. Figure 3 identifies the twelve acquisition career fields as of the addition of Facilities Engineering in 2001. Brief history provided how the Tri-Service Executive Board petitioned to create the new career field. The article identified a number of the diverse skill set required of professionals certified in the facilities engineering career field. There was brief explanation of the Defense Acquisition workforce improvement act (DAWIA) which was signed into law in November of 1990 (Gasiorek-Nelson, 2001).

Acquisition Career Fields Under DAWIA

Military and civilian personnel may now choose from the following 12 acquisition career fields:

- Acquisition Logistics
- Auditing
- Business, Cost Estimating and Financial Management
- Information Technology
- Contracting
- Facilities Engineering
- Industrial Property Management
- Manufacturing, Production, and Quality Assurance
- Program Management
- Purchasing
- Test and Evaluation
- Systems Planning, Research, Development, and Engineering.

Figure 3: Twelve DAWIA Career Fields - 2001

The next piece of information is a memorandum providing a comprehensive guide to acquisition workforce professionals relating to career management. The desk guide provides background, history, general, as well as specific requirements related to attaining education and experience. In addition, the guide provides information with respect to the career field

certification process (Anderson, 2006). The document includes a summary of the Defense Acquisition Workforce Improvement Act history, November 1990 – January 2006. This document also identifies the Defense Acquisition Career Manager "(DACM) as the single point of contact with authority to manage the acquisition workforce education, training, and Career Develop Program" (Anderson, 2006).

An article in the Contract Management magazine, published in 2007, spoke to issues with education for acquisition professionals in the Department of Defense as well as civilian agencies. There is discussion of the need for a capable, agile civilian workforce as well as shaping reform in the acquisition community. Strategic relationships were forged between Federal Acquisition Institute and Defense Acquisition University in an attempt to leverage the defense and non-defense agencies and their training capabilities. The article identifies how most reforms adopted were to benefit the defense community and more is needed for civilian acquisition work force. The article also identifies that the government workforce had been going through downsizing and Department of Defense now taking initiative to reshape the acquisition workforce and ensure they are educated, trained, and equipped (Richard, 2007).

This article in the Federal Times Magazine foresaw in 2008 the need to revise how the acquisition workforce was recruited for employment and subsequently retained to continue employment. The article stated that employees may wander in and out of public employment throughout their career and the days of people spending thirty years or more in one place are over. The article further expands to discuss efforts by the Federal Acquisition Institute to develop the Federal Acquisition Intern Coalition to facilitate recruiting and build a community for the workforce (Johnson, 2008).

The document provides meeting agenda and notes from the quarterly team meeting, held 21 October 2008, of the Director Acquisition Career Management (DACM) / Functional Integrated Product Team (FIPT). The team discusses items and issues related to the Facilities Engineering Career Field. The document provides insight to the progress and issues in the career field including the following:

- Tri-Service Engineering Executive Board will be known as Engineering Senior Executive Panel (ESEP) (Unknown, 2008b)
- ESEP chairmanship rotate bi-annually between senior engineering representative from Naval Facilities, U.S. Army Corps of Engineers, and Air Force Civil Engineer. Chairman will be Functional Advisor for Facilities Engineering Career Field (Unknown, 2008b).
- Army making plans to assimilate with largest populations expected from; U.S. Army Corps of Engineers, U.S. Army Installation Management Command, Assistant Chief of Staff for Installation Management, and U.S. National Guard Bureau (Unknown, 2008b).

Acquisition 101 is still actively promoted as the Level I training requirement. At this point a Level II class, FE201, is active, and pilot course for Level III, FE301, is held on 29 September – 3 October. Twenty-four students attended with attendance nearly even among Navy and Army only. More pilot classes being scheduled for fiscal year 2009 (Unknown, 2008b). Defense Acquisition University developing fulfillment standards for FE301 with completion expected in February 2009. Defense Acquisition University also just published the iCatalog. The iCatalog is an electronic version of the Defense Acquisition University's printed catalogue (Unknown, 2008b).

The document provides meeting agenda and notes from the quarterly team meeting, held 18 December 2008, of the Director Acquisition Career Management (DACM) / Functional Integrated Product Team (FIPT). The team discusses items and issues related to the Facilities Engineering Career Field. The document provides insight to the progress and issues in the career field. Mr. Ted Zagrobelny and Mr. David Juza discussed a wealth of demographic and workforce health available expect for Facilities Engineering resultant of the assimilation process. At the time of the meeting FE301 demand for fiscal year 2010 has exceeded three hundred (Unknown, 2008a).

Through memorandum, dated July 1, 2009, announcement made on the Defense Acquisition University web site by the Commander of the U.S. Army Corps of Engineers that assimilation of Army civilian positions would be occurring into the Facilities Engineering Career Field. The article provides reassurance of the validity of the facilities engineering acquisition career field with recognition by the Corps of Engineers to be a part of the career field (Defense_Acquisition_University, 2009).

This article from the Defense AR Journal COL William R. Fast, USA (Ret.) provides a snapshot of the history of the Defense Acquisition Workforce Improvement Acts, issues with the acquisition program, and efforts by the Department of Defense to attract and retain acquisition talent. He identifies the nearly forty-year struggle within acquisition that led to Defense Acquisition Workforce Improvement Act issuance in 1990. This comprehensive article is candid about the apathy and poor leadership within the acquisition community and the lack of discipline within the acquisition professionals. Congress took action with Defense Acquisition Workforce Improvement Act II in 1993 to once again reform and reshape acquisition (Fast, 2009).

Fast's article questions if acquisition leaders continue to be reactive to the buzz phrase of the day including:

- Pay for performance (acquisition workforce demonstration project)
- Rising star talent development programs
- Human capital management plan (no regard to develop or certify at all talent levels) (Fast, 2009)

Figure 4, taken from a portion of Fast's conclusion, calls on acquisition leaders to get serious about certification standards.

> Acquisition leaders and the acquisition workforce need to get serious about certification standards. Current thinking from the private sector and academia reveals that acquisition leaders must describe the future and motivate the workforce to achieve that future. To motivate acquisition workers to achieve education, training, and experience standards, leaders have to understand motivational differences between the different generations of the workforce.

Figure 4: Portion of Fast's conclusion - acquisition certification standards

This 2009 brochure provides information about the Facilities Engineering Acquisition Career Field. The career track provides a portion of the functional definition that the Tri-Service Engineers wrote when they fought to establish the career field. There is graphic that identifies the requirements for Level I, Level II, and Level III certification in facilities engineering. There are brief descriptions of Facilities Engineering 201 and Facilities Engineering 301 courses. The brochure identifies ACQ-101, which is the only class required for Level I certification, as mandatory for all career fields. The ACQ-101, online course, is expected to be completed within twenty-six (26) hours. The Facilities Engineering Level II class for certification, FE-201, is also an online class with expected completion time in twenty-four (24) hours. The new and just out of pilot Level III certification class is a resident atmosphere with forty (40) hours of duration. The brochure specifically identifies the career field definition as it was originally written and not revised to date (McElhenny, 2009).

Public Law 111-308 discusses the Federal Buildings Personnel Training Act of 2010. Whereas the law is directed at General Services Administration it provides information about core competencies needed for cradle to grave activities associated with facilities (Congress, 2010).

This briefing, dated 4 February 2011 by Mr. Darrell Van Hutton, the then Director of the PMT-401 course, compared the Program Management and Facilities Engineering Acquisition Career Fields. The myth was dispelled that facilities engineering is somehow an inferior career field to the other career fields and especially when compared to program management. The briefing identified that facilities engineering and program management are parallel programs, while having differing lifecycle acquisition paths, both having great complexity and requiring a high degree of integration. Figure 5 provides insight on similarity of the two career fields to deliver capability. Figure 6 shows a summary slide of the Facilities Engineering Lifecycle (Van Hutton, 2011).

Figure 5: PM and FE deliver capability

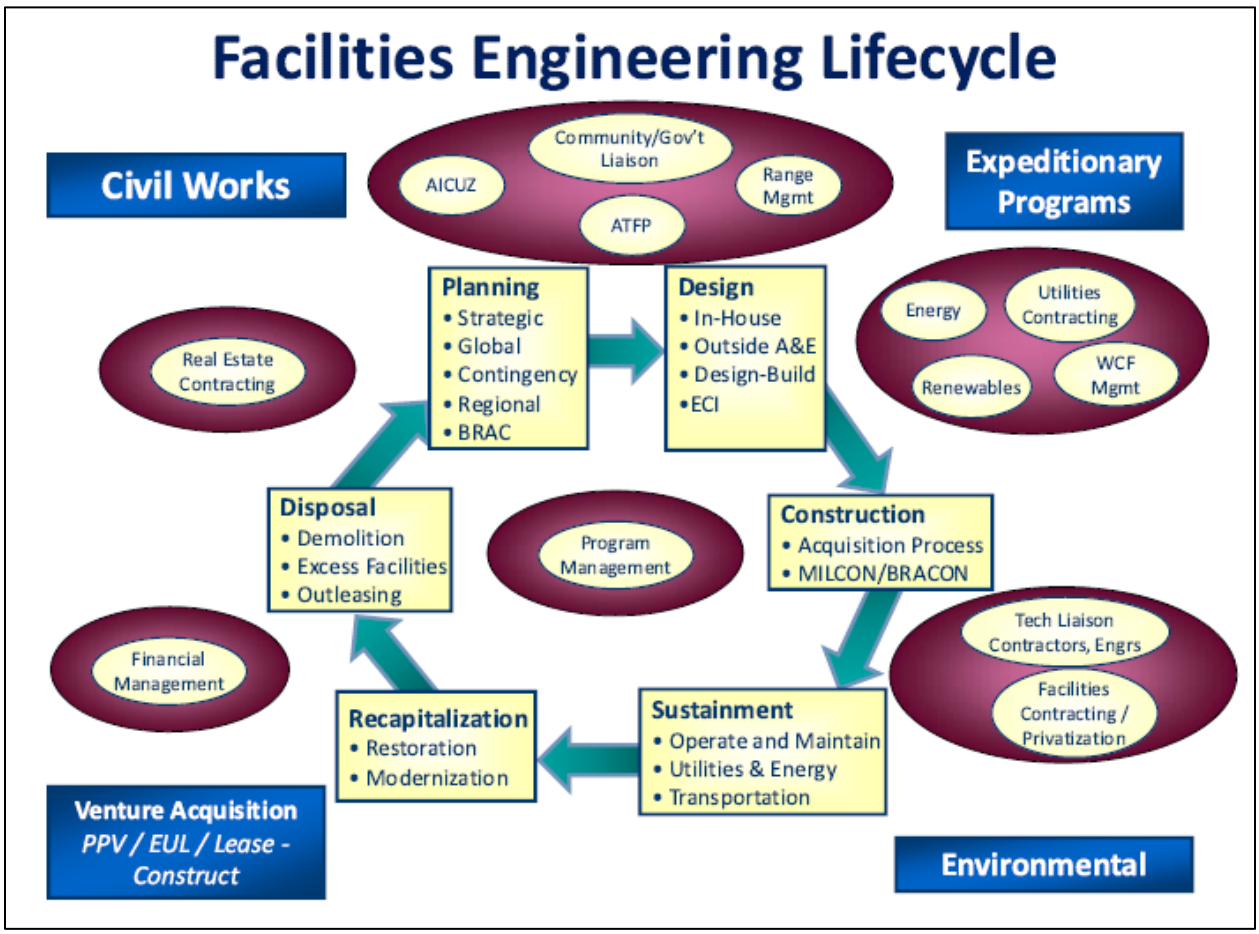


Figure 6: Summary chart - Facilities Engineering Lifecycle

A 2013 Government Accountability Office report discussed how agencies of the federal government obtain training for acquisition workforce however, they have limited insight with respect to cost of benefits derived from the training investment. There is a general discussion of the issues faced within the report (GAO, 2013).

This page on the Defense Acquisition University website houses all of the Position Category Description (PCD) Changes for each of the DoD acquisition programs since 12 Mar 2007. There is a tab specific to the Facilities Engineering Career Field. There have been minimal changes within the career field as documented on this page. The types of revisions included; 'installations' was added in 2009 to provide clarity for locations; occupational series

0340 and 0343 were recognized in 2013; and additional occupational series, 0301, 1150, 1176, and 1601, added in 2016. There have been no documented changes since 2 March 2016. (Defense_Acquisition_University, 2019d).

A 2015 conference briefing identified how multiple federal government agencies have implemented the Federal Buildings Personnel Training Act of 2010. In addition to Government Services Administration presentation included responses from; Office of the Assistant Secretary of Defense, DoD; DoD Defense Health Agency; and Veterans Administration. Presentation introduced the Defense Competency Assessment Toll and compared it to the Federal Buildings Personnel Training Act. Defense Health Agency already has higher standards to meet state and federal accreditation standards. Development and training of facility staff is lacking. Defense Health Agency also presented roadmap to train and educate facility management staff. The roadmap encompasses many different learning environments including Corps of Engineers, Navy, and Defense Acquisition University. Department of Veterans Affairs actually has Facilities Management School with full curriculum provided (B. Gilligan, Mino, George, Hirchak, Roy D., Krasley, Dr. Paul, 2015).

This 2015 article in Contract Management magazine discusses issues associated with getting the acquisition workforce the needed training and experience to be successful. The article also is critical of the Defense Acquisition University and their Core Plus courses. It identified courses were generic in nature and did not address the needs of any specific career field. The article contends that if the acquisition workforce were provided specific skills and experiences required for their job then a major strengthening would occur. The article also touches upon the need for job-focused learning. This would include learning on the job training

in specific skills and attributes needed at that specific time within that career field (Machis, 2015).

This 2017 article in the Defense AR Journal addressed job competencies of engineering leaders in DoD. The article discusses that Defense Acquisition University had developed an Acquisition Workforce Qualification Initiative (AWQI) to assist with identification of experience gaps and gauge proficiency against standards. The article focuses on lead systems engineers however has broad application throughout all of the acquisition career fields (Clardy, 2017).

A 2017 briefing provided by James Dalton, rotational Acquisition Functional Leader for the Facilities Engineering Acquisition Career Field, provided historical information, update on actions related to the Corps of Engineers, and identification that change in career field name is in progress. Back up slides provide information reinforcing the participation in the facilities engineering career field. Figure 7 identified population projections for acquisition professionals in facilities engineering career field (Dalton, 2017).

FE POPULATION

- Navy
  - Approximately 5,500 currently onboard
- Army
  - USACE implementation ongoing; projected numbers outlined in table below
  - Approximately 250 FE positions outside of USACE

Date	FE Level 1	FE Level 2	FE Level 3	Total
2QFY16	71	967	279	1,317
2QFY17*	125	1,360	1,435	2,920
2QFY18*	250	2,075	2,175	4,500
2QFY19*	350	2,850	2,900	6,100

Figure 7: FE Population growth FY16-FY19

Figure 8 is an extension of figure 7 identifying the Air force and 4th Estate facilities engineering acquisition career field population.

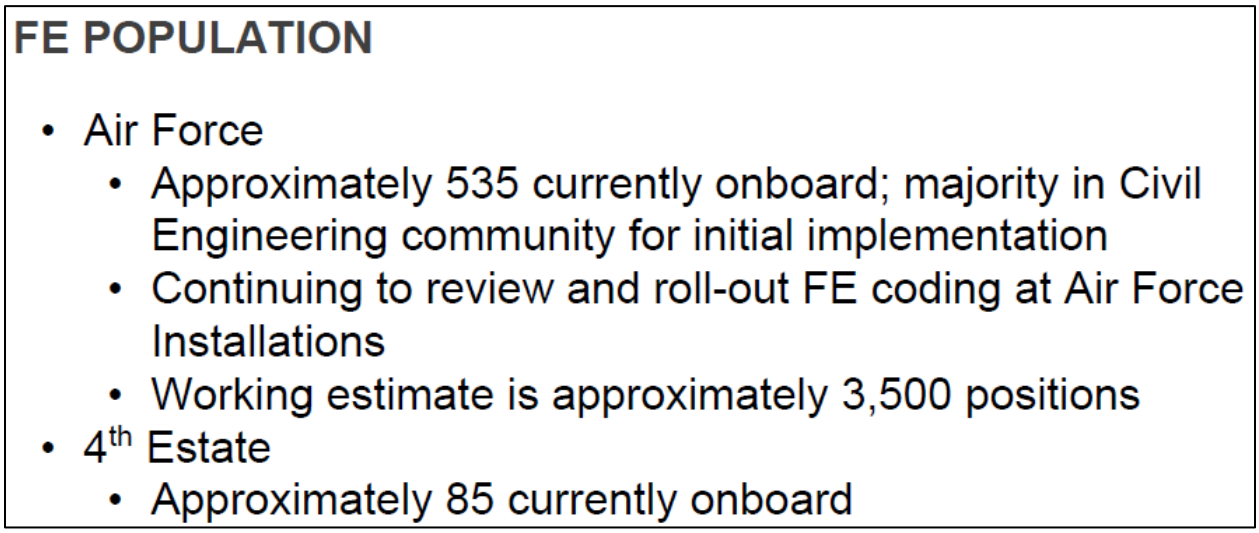


Figure 8: FE Population - Air Force & 4th Estate

This 2017 article in the Training & Sim section of the Defense News Mr. Aaron Mehta discusses how Ellen Lord, Under Secretary of Defense for Acquisition, Technology, and Logistics discusses how she intends to prioritize civilian workforce development. The Defense Innovation Board suggested the Department of Defense create a new career to address needs with high-tech jobs. Defense Security Cooperation Agency was contemplating establishing an educational entity similar to Defense Acquisition University (Mehta, 2017b).

This 2017 article in the Pentagon section of the Defense News Mr. Aaron Mehta discusses how Ellen Lord, Under Secretary of Defense for Acquisition, Technology, and Logistics is preparing to reorganize. The 2017 National Defense Authorization Act required Ms. Lord to split the organization into two pieces; Research and Engineering; and Acquisition and Sustainment. Whereas the new structure created new offices the intention was to par down funding and push activities to the major defense contractors (Mehta, 2017a).

This memorandum, dated March 5, 2018 by Terence G. Emmert, Office of the Assistance Secretary of Defense for Logistics and Materiel Readiness, introduced the DoD Defense Competency Assessment Tool (DCAT). The DCAT was developed to assess civilian employee competency gaps and proficiency levels in the technical and non-technical competencies within their occupational series. The assessment referenced in this document was specific for the Life Cycle Logistics career field. Otherwise the assessment is a helpful tool to determine gaps (Emmert, 2018).

An electronic message received from the Director Army Career Management (DACM) Office identified the establishment of a credentialing program which is being developed by the Defense Acquisition University. At this time the intention of the credentialing program is not to replace the current certification requirements for the acquisition professionals. The credentialing program is intended to provide complementary educational opportunities addressing specialized topics. The first three credentials to be offered by Defense Acquisition University include: Agile, Digital Engineering, and Services Acquisition. A fourth credential, Cyber Security, is scheduled to be available in February 2020. Figure 9 provides insight on the first three (3) credential courses to be offered by Defense Acquisition University. The expectation is that credentialing will either take the place of the current acquisition certification process or revolutionize it. (Army, 2019b).

AGILE: DoD Team Member Credential

- Creating a product vision
- Creating a product roadmap
- Writing a user story
- Participating in an iteration/sprint planning meeting
- Interpreting agile metrics

DIGITAL ENGINEERING: DoD Consumer Credential

- Understanding the role of model-based systems engineering
- The need for digital artifacts-related standards
- How to define a finite set of digital artifacts
- Developing constructs for assembling digital artifacts

SERVICES ACQUISITION TEAM MEMBER: Acquisition Professional Credential

- Developing a highly-qualified, diverse services acquisition workforce
- Increasing the proficiency of DoD personnel
- Leveraging current DoD training, educational resources, and adopting commercial best practices
- Thinking critically and making better defense acquisition decisions

Figure 9: Credentialing - First three courses

The 2019 Army Modernization Strategy identifies the intent for what programs the Army intends to pursue and how they intend to achieve their end state. A critical enabler to the strategy is the modernization of installations and facilities to support new technologies and materiel that enable multi domain operations. Included in the modernization effort is installation and facility support for the eight current cross functional teams. Figure 10 highlights some of the language from the modernization strategy with respect to facilities. Risks are identified if facilities and infrastructure are not modernized in a timely manner to support the development and fielding of these weapon systems and formation. Figure 11 identifies infrastructure as substantial strategic risk in executing the modernization strategy (Army, 2019a).

The Army will also modernize its installations and facilities to support new technologies and materiel that enable MDO, and will develop more efficient, effective, and resilient systems to support how we mobilize, protect, project, and sustain expeditionary forces from home station.

Figure 10: Facilities critical to Army Modernization Strategy

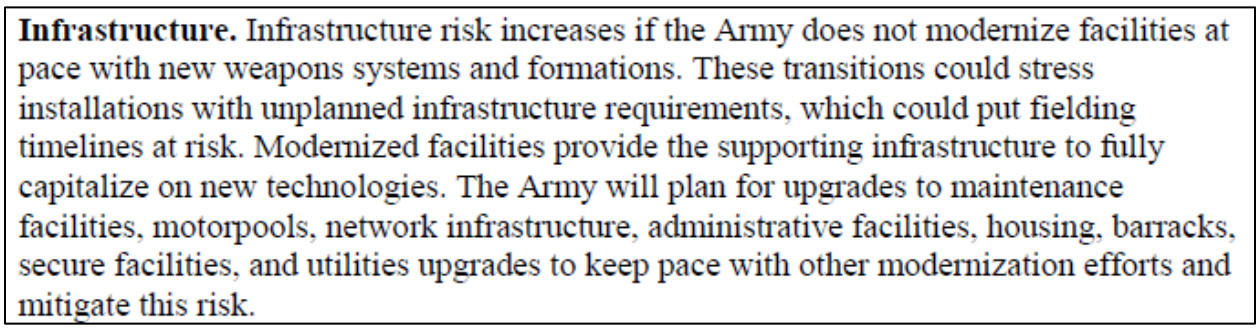


Figure 11: Infrastructure substantial strategic risk to modernization strategy

This Army briefing chart provides the framework for the career development plan of a Department of Defense acquisition professional. Figure 12 pictorially shows the plan identifying; generic Defense Acquisition Workforce Improvement Act Training Level I, Level II, and Level III; Civilian Education System courses; leadership training; and higher education against the backdrop of the general schedule grades 7-15 as well as Senior Executive Service (Army, Unknown).

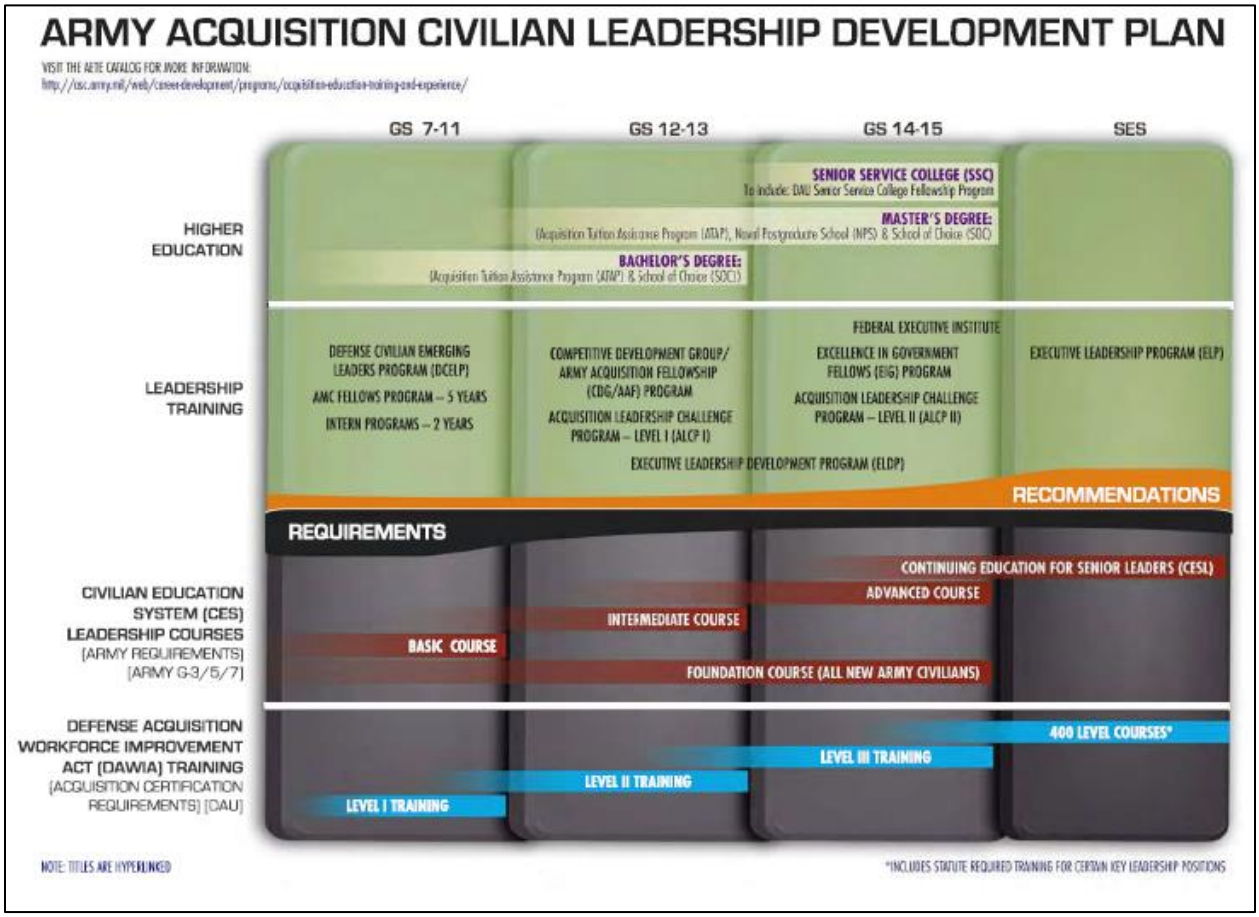
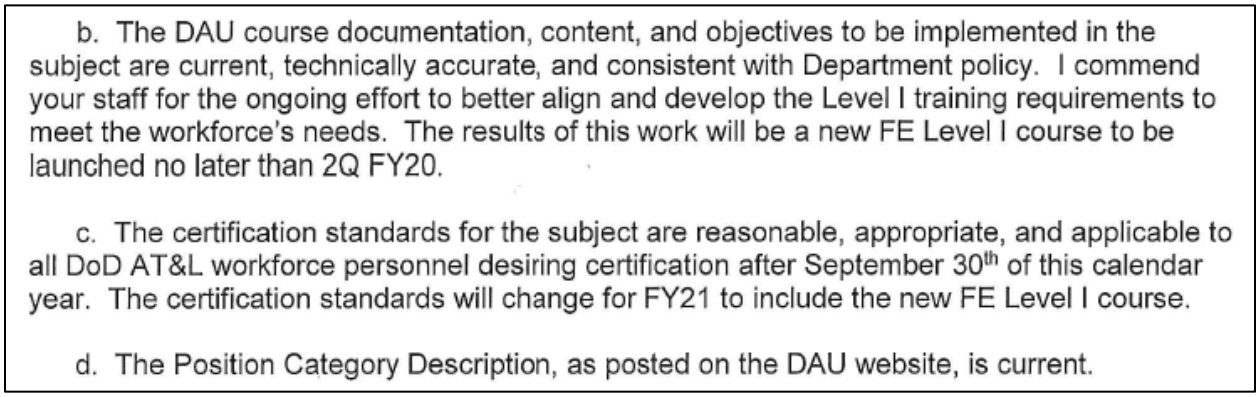


Figure 12: Army acquisition civilian leadership development plan

Memorandum from James Dalton, current Acquisition Functional Leader for the Facilities Engineering Acquisition Career Field, certified that the education established by the Defense Acquisition University is adequate to meet the requirements of professional staff assigned to this career field. Figure 13 reinforces that a new facilities engineering certification course is being deployed with notation made of adjustment happening with respect to Level 1 certification. In addition, confirmation provided that the position category description posted on the Defense Acquisition University website is current (Dalton, 2019).



b. The DAU course documentation, content, and objectives to be implemented in the subject are current, technically accurate, and consistent with Department policy. I commend your staff for the ongoing effort to better align and develop the Level I training requirements to meet the workforce's needs. The results of this work will be a new FE Level I course to be launched no later than 2Q FY20.

c. The certification standards for the subject are reasonable, appropriate, and applicable to all DoD AT&L workforce personnel desiring certification after September 30th of this calendar year. The certification standards will change for FY21 to include the new FE Level I course.

d. The Position Category Description, as posted on the DAU website, is current.

Figure 13: FE Level I Change and Position Category Description

The 2019 version for the Defense Acquisition University I Catalog outlines all that Defense Acquisition provides with respect to education for the DoD acquisition workforce. There is detailed information about each of the fourteen acquisition career fields including facilities engineering. There is also identification of the Acquisition Functional Leader for each of the career fields (Defense_Acquisition_University, 2019b).

Four of the acquisition career fields, in addition to facilities engineering, have been chosen to draw attention to the differences in how each of the career fields are managed by the Functional Leaders. The five career fields include: Program Management, Industrial / Contract Property Management, Engineering, Facilities Management, and Test & Evaluation. Figures 14-18 identify the career field definition of acquisition career field.

ACQUISITION AND PROGRAM MANAGEMENT FUNCTIONAL COMMUNITY

Acquisition professionals in the Program Management career field are concerned with all of the functions of a program management office (PMO) or a program executive office (PEO). Program management professionals serve in a wide range of PMO and PEO positions to accomplish program objectives for the development, production, deployment, and sustainment of systems to meet the user's operational needs. They may also serve in a number of support and management positions throughout the workforce. A program manager (PM) exercises authority and responsibility to accomplish program objectives for planning, organizing, staffing, controlling, and leading the combined efforts of acquisition personnel in the management of a defense acquisition program throughout the system's life cycle. The fundamental responsibilities of the PM are to balance and be accountable for cost, schedule, and performance reporting; to interpret the DoD 5000 Series regulations and tailor procedures consistent with sound business practices and the risks associated with the product being acquired; and to ensure that high-quality, affordable, supportable, and effective defense systems are delivered to satisfy warfighter needs on or ahead of schedule and within budget.

Figure 14: Program Management description

CONTRACTING, PURCHASING, AND INDUSTRIAL/ CONTRACT PROPERTY MANAGEMENT FUNCTIONAL COMMUNITIES

Industrial/Contract Property Management

The Property career field includes the industrial property management specialist, property administrator, industrial plant clearance specialist, plant clearance officer, and contract and industrial specialist (if they are assigned contract property management responsibilities). Individuals in this career field oversee and manage life-cycle processes for government-owned property being utilized by contractors; provide advice and assistance on property-related matters during acquisition planning, contract formation, and contract management; review the contractor's purchasing system as it pertains to property; audit the contractor's property management system; coordinate and process contract property disposal actions; perform investigations of instances of loss, theft, damage, or destruction of government property and grant relief or recommend liability; and develop policies and procedures for government property management.

Figure 15: Industrial / Contract Property Management description

ENGINEERING AND TECHNICAL MANAGEMENT FUNCTIONAL COMMUNITIES

In the Engineering and the Production, Quality, and Manufacturing career fields, our emphasis is on acquisition excellence. Our goal is to position the Defense Acquisition Workforce for success by focusing on technical excellence and providing consistent and integrated policy and guidance. This will help ensure we have the right breadth and depth of skills and capabilities in the workforce.

Engineering

The Engineering career field's workforce has a vital role in fielding high-quality, innovative, affordable, supportable, and effective defense systems. Its role requires developing and implementing an integrated, total life-cycle, balanced set of systems, people, and process solutions that satisfy the customer's needs and meet the DoD's affordability goals. This requires technical competency, critical and strategic thinking, understanding various product domains, and knowledge of other engineering disciplines.

The Engineering career field curriculum is designed to bring breadth and depth of knowledge to this workforce at the appropriate certification level. The curriculum focuses on the technical processes, technical management processes, application of systems engineering throughout the system acquisition life cycle, and the ability to apply critical systems-thinking concepts to complex technical management problems.

Figure 16: Engineering description

FACILITIES ENGINEERING FUNCTIONAL COMMUNITY

The Facilities Engineering career field encompasses a variety of professional individuals with diverse skills focused on the design, construction, and life-cycle maintenance of military installations, facilities, civil works projects, airfields, roadways, and oceanic facilities. It involves all facets of life-cycle management from planning through disposal, including design, construction, environmental protection, base operations and support, housing, real estate, and real property maintenance. Additional duties include advising or assisting commanders and acting as, or advising, program managers and other officials as necessary in executing all aspects of their responsibilities for facility management and the mitigation or elimination of environmental impact in direct support of the defense acquisition process.

Figure 17: Facilities Engineering description

TEST AND EVALUATION FUNCTIONAL COMMUNITY

As the functional leader for the test and evaluation (T&E) workforce, it is my responsibility to identify, define, and maintain current functional and core competencies required for certification within the defense acquisition T&E career field. In this capacity, I serve as the T&E subject matter expert in the DoD and lead workforce planning, training, and development initiatives. This entails setting requirements for education, training, and experience; finalizing competencies and certification standards; maintaining key leadership position functional-specific requirements; and updating, improving, and certifying the DAU T&E course curriculum each year.

T&E is a critical and necessary part of the DoD acquisition process. Members of the T&E workforce are responsible for, or are an integral part of, the conceptualization, initiation, design, development, contracting, testing, and evaluation of defense systems across all commodity areas. T&E professionals develop and optimize test designs, execute testing, and perform evaluations of system performance, interoperability, reliability, maintainability, and cybersecurity posture. They also address the maturity of test planning, deal with T&E infrastructure shortfalls, and offer unbiased information to support design improvements, as well as inform production and fielding decisions. T&E workforce members hold a variety of positions that may include, but are not limited to, chief developmental tester, assistant program executive officer for T&E, lead test engineer, portfolio manager, test officer, and lead evaluator.

Focusing on developmental T&E activities early in the acquisition life cycle ensures that defense acquisition professionals are adequately informed on design maturity, thus setting the conditions for improved production readiness. To achieve this outcome, the T&E curriculum is designed to enable professionals to create developmental evaluation frameworks as well as understand how to conduct T&E activities relating to system performance, interoperability, reliability, maintainability, and cybersecurity. Finally, it should be understood that development of the T&E profession is a task that never ends. The increasing complexity of joint programs, system-of-systems architectures, and emerging commodity areas, such as autonomous systems, will continue to present challenges to the T&E workforce, so we must continue to learn, adapt, and grow our current and future leaders.

Figure 18: Test & Evaluation description

There are three (3) main pieces to the certification process for the Department of Defense acquisition career fields: Education, training, and experience. Table 1 shows a compilation of

the education requirements of the five (5) career fields for all three levels of certification available (Defense_Acquisition_University, 2019b).

EDUCATION					
	Program Management	Industrial/Contract Property Management	Engineering	Facility Engineering	Test & Evaluation
Level 1	Formal education not required for certification	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.	Formal education not required for certification	Associate's degree in any discipline
Level 2	Formal education not required for certification	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.	Formal education not required for certification	Baccalaureat degree or higher (any field of study). A total of 24 semester hours or equivalent in technical or scientific courses such as mathematics (e.g., calculus, probability, statistics), physical sciences (e.g., chemistry, biology, physics), psychology, operations research/systems analysis, engineering, commputer science, and information technology
Level 3	Formal education not required for certification	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.

Table 1: Education requirements for the five career fields

There is no education requirement for Program Management, Industrial / contract Property Management, and Facilities Engineering at any of the three (3) certification level. This is contrasted by Engineering which requires a baccalaureate degree at each of the three (3) levels and Test & Evaluation which requires Associate's degree for Level I and baccalaureate degree at Levels II and III. Table 2 shows a compilation of the training requirements of the five career fields for all three levels of certification available (Defense_Acquisition_University, 2019b).

CERTIFICATION TRAINING										
	Program Management		Industrial/Contract Property Management		Engineering		Facility Engineering		Test & Evaluation	
	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional
Level 1	ACQ 101	CLB 007 CLV 016 ENG 101	None	CON 100 CON 121 CON 124 CON 127 IND 105	ACQ 101	CLE 004 CLM 017 ENG 101	ACQ 101	None	ACQ 101	CLE 023 CLE 074 ENG 101 TST 102
Level 2	ACQ 202 ACQ 203	CON 121 CON 124 CON 127 EVM 101 ISA 101 PMT 252 PMT 257	ACQ 101	CON 200 CON 216 IND 205	ACQ 202 ACQ 203	CLE 003 ENG 201 ENG 202 LOG 103	None	FE 201	ACQ 202 ACQ 203	CLE 003 CLE 029 CLE 030 CLE 035 CLE 301 CLM 016 CLR 101 ENG 201 TST 204
Level 3	None	ACQ 315 BCF 110 ENG 201 EVM 263 LOG 103 PMT 355 PMT 360	ACQ 202	CON 360 HBS 406 or HBS 424	None	CLE 012 CLE 068 CLL 008 ENG 302	None	FE 302	None	CLB 008 CLB 009 CLL 015 CLM 014 CLM 031 CLV 016 TST 303

Table 2: Training requirements for the five career fields

Acquisition 101 (ACQ 101) is the fundamental acquisition course required to be completed by each of the acquisition career fields. For the five (5) career fields shown all but Industrial / Contract Property Management require ACQ 101 to be completed before Level I certification can be achieved. Training is also divided into two (2) categories: Acquisition and Functional (Defense_Acquisition_University, 2019b).

With respect to Level I acquisition training, except of Industrial / Contract Property, each has one class required to complete before certification. However, for Level I functional training there are the following number of classes to be completed; Program Management – three (3); Industrial / Contract Property Management – five (5), Engineering – three (3), Facilities Engineering – zero (0), and Test & Evaluation – four (4). Attention needs to be given to Facilities Engineering that doesn't require any functional training to be completed for Level I

certification. This appears to be disproportionate given the breadth of the career field description.

Level II acquisition and functional training requirements vary as well among the five (5) career fields including: Program Management: Acquisition – two (2) and Functional – seven (7); Industrial / contract Property Management: Acquisition – one (1) and Functional – three (3); Engineering: Acquisition – two (2) and Functional – four (4); Facilities Engineering: Acquisition – zero (0) and Functional – one (1); Test & Evaluation: Acquisition – two (2) and Functional – nine (9) (Defense_Acquisition_University, 2019b).

Level III acquisition and functional training requirements also vary among the five (5) career fields including; Program Management: Acquisition – zero (0) and Functional – seven (7); Industrial / Contract Property Management: Acquisition – one (1) and Functional – three (3); Engineering: Acquisition – zero (0) and Functional – four (4); Facilities Engineering: Acquisition – zero (0) and Functional one (1); Test & Evaluation: Acquisition – zero (0) and Functional – seven (7) (Defense_Acquisition_University, 2019b). Again, Facilities Engineering has only one (1) functional training class to complete for Level III certification.

Table 3 shows a compilation of the experience requirements of the five career fields for all three levels of certification available.

EXPERIENCE					
	Program Management	Industrial/Contract Property Management	Engineering	Facility Engineering	Test & Evaluation
Level 1	1 year of acqusition experience with cost, schedule, and performance responsibilities.	1 year of property management experience	1 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.	1 year of acquisition experience in facilities engineering.	1 year of T&E experience
Level 2	2 years in program management with cost, schedule, and performance responsibilities.	2 years of experience in an industrial property management position.	2 years of technical experience in an acquisition position with at least 1 year in an ENG or an 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 standard.	2 years of acquisition experience in facilities engineering.	2 years of T&E experience
Level 3	4 years in program management with cost, schedule, and performance responsibilities. At least 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding 4-year requirement. OR Level III DAWIA certification in another acquisition functional community. 2 years in program management with cost, schedule, and performance responsibilities. 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding Level III or 2-year requirements.	4 years of experience in industrial property management positions of increasing responsibility and complexity	4 years of technical experience in an ENG or S&TM position. Similar experience gained from other government positions or industry is acceptable as long as it meets the above standard.	4 years of acquisition experience in facilities engineering.	4 years of T&E experience

Table 3: Experience requirements for the five career fields

The five (5) acquisition career fields each have similar requirements for experience at Level I, Level II, and Level III certification. With respect to Level I, three career fields require one (1) year of experience in that specific field whereas Program Management requires the experience having cost, schedule, and performance responsibilities. This is further contrasted with Engineering that will accept the one (1) year of experience from eight (8) of the acquisition career fields. Level II experience requirements become mostly tied to two (2) years in the specific career field. Engineering is the dissenter requiring two (2) years of technical experience with one (1) from Engineering or Science and Technology Management and the second year

from one of the five career fields as in Level I. Level III experience includes four (4) of the career fields requiring four (4) years of experience from within the specific career field. The exception is Program Management that allows a handful of alternate ways to meet experience requirement other than all four (4) years in program management with cost, schedule, and performance requirements (Defense_Acquisition_University, 2019b).

This web page from the Defense Acquisition University provides generic information with respect to the Facilities Engineering Acquisition Community hosted on the Defense Acquisition University website. References are provided to additional areas within the Defense Acquisition University website for additional information (Defense_Acquisition_University, 2019c).

The Defense Acquisition University web page provides general and historical information with respect to the Defense Acquisition Workforce Improvement Act and the certification requirements. References are provided to additional areas within the Defense Acquisition University website for additional information (Defense_Acquisition_University, 2019a).

Army Regulation 420-1, Army Facilities Management, addresses management of Army facilities. It describes management of public works activities; facilities operation and maintenance; military construction development and execution; and master planning (Department_of_the_Army, 2019).

This article in the Defense News by Aaron Mehta, Ellen Lord, Under Secretary of Defense for Acquisition and Sustainment discussed how the review by the Secretary of Defense may adversely affect many of the Army's programs, especially within the fourth estate. Defense Acquisition University is part of the fourth estate where anything that is perceived to not be

directly tied into war-fighting needs may be eliminated by the Department of Defense. Specifically, Ms. Lord stated that it's not a good use of acquisition funds for facility engineers to have program at Defense Acquisition University (Mehta, 2019).

The memorandum, dated October 11, 2019, Craig A. Spisak, Acquisition Career Manager, provides policy update regarding management of the Acquisition Career Field certification for consistency across the Army Acquisition Workforce. Historical references are made to the Defense Acquisition Workforce Improvement Act of 1990, Public Law 101-510. Roles and responsibilities are provided for those associated with Army acquisition professionals (Spisak, 2019).

This briefing, from the U.S. Army Corps of Engineers, provides information relative to the Facilities Engineering Career Field. Whereas the briefing has not date, it is assumed to have been written no earlier than fall of 2001. The briefing provides historical information about the inception and approval of the career field (United_States_Army_Corps_of_Engineers, Unknown-b).

This briefing, from the U.S. Army Corps of Engineers, provides information relative to the Facilities Engineering Career Field as it relates to the Unites States Army Corps of Engineers. Whereas the briefing has not date, it is assumed to have been written no earlier than 2005 though no later than early 2009. The briefing provides historical information about the career field as well as Corps' assimilation confirmation (United_States_Army_Corps_of_Engineers, Unknown-a).

This document provides a description of the Department of Defense's stewardship responsibilities with respect to real property. The document also describes roles and responsibilities of the facility engineering professional and the breadth and depth of disciplines

for which knowledge is required to be successful in the career field. The document confirms the Facilities Engineering acquisition career field established on July 16, 2001. Document confirms that level I certification would be ACQ-101 Fundamentals of Systems Acquisition Management. Level II class, FE-201, scheduled to deploy in October 2003 and Level III class, FE-301, delivered in late 2004 (Unknown, Unknown).

Figures 19-23 show the Level I certification requirements for the five (5) acquisition career fields (Defense_Acquisition_University, 2019b).

Program Management Level I

Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	• **CLB 007** Cost Analysis • **CLV 016** Introduction to Earned Value Management • **ENG 101** Fundamentals of Systems Engineering
• Education	Formal education not required for certification
• Experience	1 year of acquisition experience with cost, schedule, and performance responsibilities

Figure 19: Program Management - Level I Certification

Industrial/Contract Property Management Level I

Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	• **CON 100** Shaping Smart Business Arrangements • **CON 121** Contract Planning • **CON 124** Contract Execution • **CON 127** Contract Management • **IND 105** Contract Property Fundamentals **(R)**
• Education	Formal education not required for certification
• Experience	1 year of property management experience

Figure 20: Industrial / Contract Property Management - Level I Certification

Engineering Level I	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	• **CLE 004** Introduction to Lean Enterprise Concepts • **CLM 017** Risk Management • **ENG 101** Fundamentals of Systems Engineering
• 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 **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 an 08XX Professional Engineering series position must meet the OPM education requirements in lieu of this education standard.
• Experience	• 1 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

Figure 21: Engineering - Level I Certification

Facilities Engineering Level I	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	None required
• Education	Formal education not required for certification
• Experience	1 year of acquisition experience in facilities engineering

Figure 22: Facilities Engineering - Level I Certification

Test and Evaluation Level I	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	• **CLE 023** Modeling and Simulation in Test and Evaluation • **CLE 074** Cybersecurity Throughout DoD Acquisition • **ENG 101** Fundamentals of Systems Engineering • **TST 102** Fundamentals of Test and Evaluation
• Education	Associate's degree in any discipline
• Experience	1 year of T&E experience

Figure 23: Test & Evaluation - Level I Certification

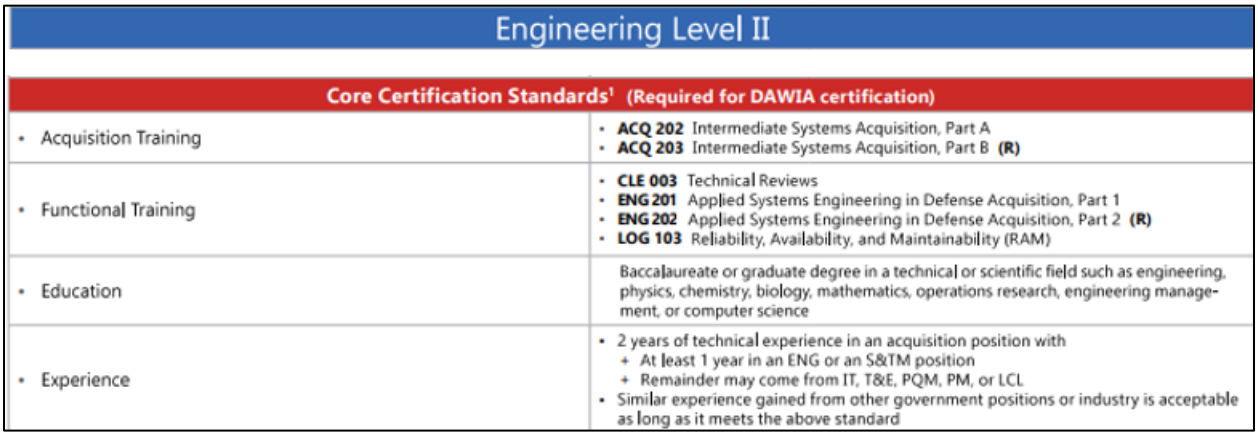
Figures 24-28 show the Level II certification requirements for the five (5) acquisition career fields (Defense_Acquisition_University, 2019b).

Program Management Level II	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	• **ACQ 202** Intermediate Systems Acquisition, Part A • **ACQ 203** Intermediate Systems Acquisition, Part B **(R)**
• Functional Training	• **CON 121** Contract Planning • **CON 124** Contract Execution • **CON 127** Contract Management • **EVM 101** Fundamentals of Earned Value Management • **ISA 101** Basic Information Systems Acquisition • **PMT 252** Program Management Tools Course, Part 1 • **PMT 257** Program Management Tools Course, Part 2
• Education	Formal education not required for certification
• Experience	2 years in program management with cost, schedule, and performance responsibilities

Figure 24: Program Management - Level II Certification

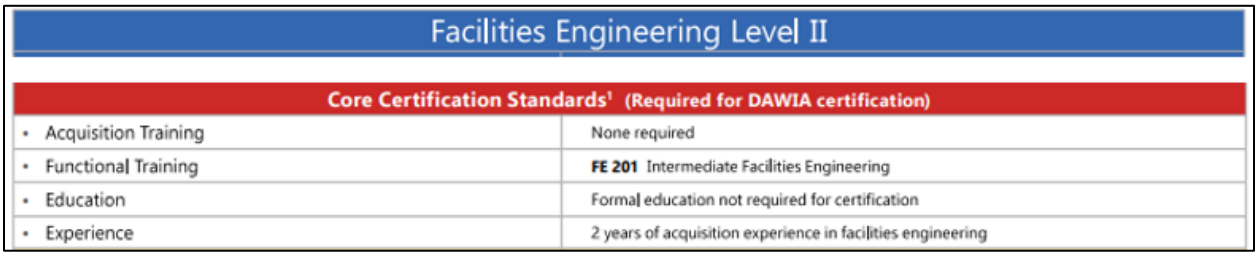
Industrial/Contract Property Management Level II	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	• **CON 200** Business Decisions for Contracting • **CON 216** Legal Considerations in Contracting • **IND 205** Contract Government Property Management Systems and Auditing Concepts **(R)**
• Education	Formal education not required for certification
• Experience	2 years of experience in an industrial property management position

Figure 25: Industrial / Contract Property Management - Level II Certification



Engineering Level II	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	• **ACQ 202** Intermediate Systems Acquisition, Part A • **ACQ 203** Intermediate Systems Acquisition, Part B **(R)**
• Functional Training	• **CLE 003** Technical Reviews • **ENG 201** Applied Systems Engineering in Defense Acquisition, Part 1 • **ENG 202** Applied Systems Engineering in Defense Acquisition, Part 2 **(R)** • **LOG 103** Reliability, Availability, and Maintainability (RAM)
• 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	• 2 years of technical experience in an acquisition position with + At least 1 year in an ENG or an 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 standard

Figure 26: Engineering - Level II Certification



Facilities Engineering Level II	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	**FE 201** Intermediate Facilities Engineering
• Education	Formal education not required for certification
• Experience	2 years of acquisition experience in facilities engineering

Figure 27: Facilities Engineering - Level II Certification

Test and Evaluation Level II	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	• **ACQ 202** Intermediate Systems Acquisition, Part A • **ACQ 203** Intermediate Systems Acquisition, Part B **(R)**
• Functional Training	• **CLE 003** Technical Reviews • **CLE 029** Testing in a Joint Environment • **CLE 030** Integrated Testing • **CLE 035** Introduction to Probability and Statistics • **CLE 301** Reliability and Maintainability • **CLM 016** Cost Estimating • **CLR 101** Introduction to the Joint Capabilities Integration and Development System • **ENG 201** Applied Systems Engineering in Defense Acquisition, Part 1 • **TST 204** Intermediate Test and Evaluation **(R)**
• Education	• Baccalaureate degree or higher (any field of study) • A total of 24 semester hours or equivalent in technical or scientific courses such as mathematics (e.g., calculus, probability, statistics), physical sciences (e.g., chemistry, biology, physics), psychology, operations research/systems analysis, engineering, computer science, and information technology.
• Experience	2 years of T&E experience

Figure 28: Test & Evaluation - Level II Certification

Figures 29-33 show the Level III certification requirements for the five (5) acquisition career fields (Defense_Acquisition_University, 2019b).

Program Management Level III	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	• **ACQ 315** Understanding Industry (Business Acumen) **(R)** • **BCF 110** Fundamentals of Business Financial Management • **ENG 201** Applied Systems Engineering in Defense Acquisition, Part 1 • **EVM 263** Principles of Schedule Management **(R)** • **LOG 103** Reliability, Availability, and Maintainability (RAM) • **PMT 355** Program Management Office Course, Part A • **PMT 360** Program Management Office Course, Part B **(R)**
• Education	Formal education not required for certification
• Experience	• 4 years in program management with cost, schedule, and performance responsibilities • At least 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding 4-year requirement. OR • Level III DAWIA certification in a another acquisition functional community • 2 years in program management with cost, schedule, and performance responsibilities • 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding Level III or 2-year requirements.

Figure 29: Program Management - Level III Certification

Industrial/Contract Property Management Level III	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 202** Intermediate Systems Acquisition, Part A
• Functional Training	• **CON 360** Contracting for Decision Makers **(R)** • 1 additional course from the Harvard Business Management Module identified in the Core Plus Developmental Guide below
• Education	Formal education not required for certification
• Experience	4 years of experience in industrial property management positions of increasing responsibility and complexity

Figure 30: Industrial / Contract Property Management - Level III Certification

Engineering Level III	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None
• Functional Training	• **CLE 012** DoD Open Systems Architecture (OSA) • **CLE 068** Intellectual Property and Data Rights • **CLL 008** Designing for Supportability in DoD Systems • **ENG 302** Advanced Systems Engineering **(R)**
• 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	• 4 years of technical experience in an ENG or S&TM position • Similar experience gained from other government positions or industry is acceptable as long as it meets the above standard

Figure 31: Engineering - Level III Certification

Facilities Engineering Level III	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	**FE 302** Advanced Facilities Engineering **(R)**
• Education	Formal education not required for certification
• Experience	4 years of acquisition experience in facilities engineering

Figure 32: Facilities Engineering - Level III Certification

Test and Evaluation Level III	
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	Acquisition Training identified at Level II must have been completed
• Functional Training	• Functional Training identified at Level II must have been completed • **CLB 008** Program Execution • **CLB 009** Planning, Programming, Budgeting, and Execution and Budget Exhibits • **CLL 015** Product Support Business Case Analysis (BCA) • **CLM 014** Team Management and Leadership • **CLM 031** Improved Statement of Work • **CLV 016** Introduction to Earned Value Management • **TST 303** Advanced Test and Evaluation **(R)**
• 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	4 years of T&E experience

Figure 33: Test & Evaluation - Level III Certification

Clarifying information is also available in the Defense Acquisition University iCatalog with respect to the Director, Acquisition Career Management (DACM). Figure 34 provides goals and responsibilities for the Army DACM, Mr. Craig A. Spisak (Defense_Acquisition_University, 2019b).

Figure 34: Army DACM - Goals and Responsibilities

Analysis

The purpose of this qualitative study is to explore the Department of Defense Facilities Engineering Acquisition Career Field Certification requirements as well as inconsistencies with certification requirements of other Department of Defense acquisition career fields. In addition, there is a problem statement that deliberated the Department of Defense acquisition career field certification standards for facilities engineering lacks depth and breadth in the requirements with respect to career field definition and is inconsistent with requirements of the thirteen other

Defense Acquisition Workforce Improvement Act career fields. There were also research questions derived to assist with framing and delimitations of the study including:

1. How is Department of Defense Facilities Engineering acquisition career field defined for education and training?
2. How are the requirements for Department of Defense Facilities Engineering acquisition career field aligned and meeting expectations of career field definition?
3. How are requirements at each level of certification for Department of Defense Facilities Engineering acquisition career field aligned with other Defense Acquisition Workforce Improvement Act career fields?

The data and information, collected through the historical research, provides the means to analyze the through topics including; program responsibility, education, training, experience, compliance with career field definition, and overall alignment with other Defense Acquisition Workforce Improvement Act career fields.

Program Responsibility and compliance with career field definition. There are a number of offices that claim to have responsibility for the acquisition career fields, either from overall program or more specific to education and training. There are so many places, offices, and people with the Department of Defense command chain identifying levels of responsibility, the focus here will be within Army. The U.S. Army Director, Acquisition Career Management (DACM) has the responsibility to implement the Defense Acquisition Workforce Improvement Act for the Acquisition Workforce professionals. Figure 34 identified the Human Capital Strategic Goals as well as responsibilities for the Army DACM. The Army DACM represents the Assistant Secretary of the Army for Acquisition, Logistics and Technology in matters related to education, training, and career management for the

Army Acquisition Workforce (Defense_Acquisition_University, 2019b). The Army DACM receive information from the Acquisition Functional Leaders with respect to each Army acquisition program.

Each of the Army acquisition career fields has a Functional Leader assigned to monitor, evaluate, and annually provide certification to the Army DACM of the state of the career field. During this certification the Functional Leader comments on whether or not the career filed definition is accurate or requires revision. In addition, during this annual certification the Functional Leader identifies if there are any issues or updates with respect to the certification process of the career field, specifically education, training, and/or experience. Minimally there is an annual responsibility to review each Army acquisition career field and report findings to the Army DACM.

The Defense Acquisition University stood up resultant of the Defense Acquisition Workforce Improvement Act of 1990. The Defense Acquisition University provides support to the Department of Defense acquisition community through the development of training classes and workshops, at the service's request, providing acquisition professionals with requisite training in specific career fields. The Defense Acquisition University works with the Department of Defense providing the training portion of the acquisition certification required for Level I, Level II, and Level III in each career field. Recently the Defense Acquisition University has begun developing courses, known as credentialing, which may either augment or replace current certification requirements. There has been inadequate transparency on this topic from the Department of Defense so it's unknown what the overall strategy or plan is with respect to credentialing (Army, 2019b). Regardless, Defense

Acquisition University is intended to be in a support role to the Department of Defense and create or update training opportunities to maintain or enhance the acquisition career fields.

The Functional Leader for the Facilities Engineering acquisition career field is Mr. James C. Dalton of the U.S. Army Corps of Engineers. On July 11, 2019, Mr. Dalton certified to Mr. James P. Woolsey, President, Defense Acquisition University that for Fiscal Year 2020:

- Position Category Description, as posted on DAU website, is accurate
- New FE Level I course to be launched no later than 2Q FY20
- Level I certification standards would change beginning FY21 (Army, 2019b)

Figures 1 and 17 provide a connection that for the Facilities Engineering Acquisition Career Field that career field description and position category description both speak of the same wording and meaning. The career field description provides the overall skill set that that training needs to cover to best prepare the facilities engineering acquisition professional to be successful including knowledge of:

- Life-cycle management of military installations
- Life-cycle management of facilities including; planning through disposal, design, construction, compliance with National Environmental Protection Act, base operations and support, housing, real estate, and real property management
- Civil Works projects
- Airfields
- Roadways
- Oceanic facilities

- Advise and assist commanders, program managers, and other officials in executing their responsibilities for facilities management including direct support of defense acquisition process (Defense_Acquisition_University, 2019b)

The breadth of responsibility is substantial for acquisition professionals in the facilities engineering career field to competently support the Army and the Department of Defense. Education and training are critical to providing those in the facilities engineering career field with needed knowledge to add to their skill set. The Functional Leader is the person at the lowest level in the command chain with the responsibility to ensure that adequate training is being provided by Defense Acquisition University to the facilities engineering acquisition professionals.

Education. Through the historical research, information was not readily available to identify the decision-making process for there not to be an education requirement for the facilities engineering acquisition career field at either Level I, Level II, or Level III certification (Defense_Acquisition_University, 2019b). Given the breadth of expected knowledge to be successful it's not expected that a person could secure the knowledge without external work experiences. In addition, the Facilities Engineering career field title is misleading in that the word engineering is used. There is a connotation made when the term engineering is identified that there is a college degree involved to earn the title of engineer. The career field title may provide false or misleading expectations to someone interacting with facilities engineering acquisition workforce professionals.

Training. The acquisition community, through its command, tasked Defense Acquisition University to develop training for certification at Level I, Level II, and Level III.

There are two (2) components to training at each certification level: acquisition and functional. Specifically, for facilities engineering the following training requirements were approved at each certification level by the responsible Army and Defense Acquisition staff:

Level I: Acquisition: one (1) course required – ACQ 101; Functional: none required

Level II: Acquisition: none required; Functional: one (1) course required – FE 201

Level III: Acquisition: none required; Functional: one (1) course required – FE 302 (Defense_Acquisition_University, 2019b)

Level I certification requires no functional training to achieve certification from career field inception in 2001 through the end of fiscal year 2020 (Defense_Acquisition_University, 2019b). Allegedly, beginning in fiscal year 2021 there will be an FE functional class added to certification requirements (Dalton, 2019). Given the petition by the Tri-Service Engineering Senior Executive Board to add Facilities Engineering in 2001because of the need and require no functional training for Level I certification is appalling. Each year, through fiscal year 2019, the Facilities Functional Leader, which has rotated bi-annually between the Army, Navy, and Air Force has accepted this obviously deficient training requirement (Aldridge, 2001a).

Level II certification requires no acquisition training and only one (1) functional training course, FE 201. This training course is provided online and is expected to take twenty-six (26) hours to complete (McElhenny, 2009). Given the petition by the Tri-Service Engineering Senior Executive Board to add Facilities Engineering in 2001 because of the need and require only one (1) functional training class for Level II certification is terrible.

Level III certification requires no acquisition training and only one (1) functional training course, FE 302. This training course is the second generation of the Level III functional course replacing FR 301. This resident course is thirty-six (36) hours to complete (McElhenny, 2009) (Defense_Acquisition_University, 2019b). Given the petition by the Tri-Service Engineering Senior Executive Board to add Facilities Engineering in 2001 because of the need and require only one (1) functional training class for Level III certification is dreadful.

There were no historical documents found identifying how the Defense Acquisition University was tasked to develop adequate training for the Level I, Level II, and Level III Facilities Engineering Acquisition career field.

Experience. The experience required for facilities engineering certification include:

- Level I: one (1) year acquisition experience in facilities engineering
- Level II: two (2) year acquisition experience in facilities engineering
- Level III: four (4) year acquisition experience in facilities engineering (Defense_Acquisition_University, 2019b)

There were no historical documents found identifying how the Department of Army or Department of Defense determined adequate experience for the Level I, Level II, and Level III Facilities Engineering Acquisition career field.

Alignment with other Defense Acquisition Workforce Improvement Act career fields. For the purpose of this study four other Department of Defense acquisition career fields were selected for discussion purposes with respect to alignment with one another for

education, training, and experience. The four (4) career fields chosen include: Program Management, Industrial / Contract Property Management, Engineering, and Test & Evaluation. Program Management was selected for the parallel nature of the career field as documented in the briefing from a prior PMT-401 course Director (Van Hutton, 2011). Industrial / Contract Property Management was selected since both career fields deal with real estate and facility management. Engineering was selected because it has engineering in the career field title. Test & Evaluation was selected because of the cradle to grave nature of the career field parallels the facilities engineering cradle to grave for facilities.

Table 1, Table 2, and Table 3 provide snapshot comparison of the five (5) career fields with respect to education, training, and experience.

EDUCATION					
	Program Management	Industrial/Contract Property Management	Engineering	Facility Engineering	Test & Evaluation
Level 1	Formal education not required for certification	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science	Formal education not required for certification	Associate's degree in any discipline
Level 2	Formal education not required for certification	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.	Formal education not required for certification	Baccalaureat degree or higher (any field of study). A total of 24 semester hours or equivalent in technical or scientific courses such as mathematics (e.g., calculus, probability, statistics), physical sciences (e.g., chemistry, biology, physics), psychology, operations research/systems analysis, engineering, commputer science, and information technology
Level 3	Formal education not required for certification	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.	Formal education not required for certification	Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science.

Table 4: Education requirements for the five career fields

There is no education requirement for Program Management, Industrial / contract Property Management, and Facilities Engineering at any of the three (3) certification level. This is contrasted by Engineering which requires a baccalaureate degree at each of the three (3) levels and Test & Evaluation which requires Associate's degree for Level I and baccalaureate degree at Levels II and III. Table 2 shows a compilation of the training requirements of the five career fields for all three levels of certification available (Defense_Acquisition_University, 2019b).

CERTIFICATION TRAINING										
	Program Management		Industrial/Contract Property Management		Engineering		Facility Engineering		Test & Evaluation	
	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional
Level 1	ACQ 101	CLB 007 CLV 016 ENG 101	None	CON 100 CON 121 CON 124 CON 127 IND 105	ACQ 101	CLE 004 CLM 017 ENG 101	ACQ 101	None	ACQ 101	CLE 023 CLE 074 ENG 101 TST 102
Level 2	ACQ 202 ACQ 203	CON 121 CON 124 CON 127 EVM 101 ISA 101 PMT 252 PMT 257	ACQ 101	CON 200 CON 216 IND 205	ACQ 202 ACQ 203	CLE 003 ENG 201 ENG 202 LOG 103	None	FE 201	ACQ 202 ACQ 203	CLE 003 CLE 029 CLE 030 CLE 035 CLE 301 CLM 016 CLR 101 ENG 201 TST 204
Level 3	None	ACQ 315 BCF 110 ENG 201 EVM 263 LOG 103 PMT 355 PMT 360	ACQ 202	CON 360 HBS 406 or HBS 424	None	CLE 012 CLE 068 CLL 008 ENG 302	None	FE 302	None	CLB 008 CLB 009 CLL 015 CLM 014 CLM 031 CLV 016 TST 303

Table 5: Training requirements for the five career fields

Acquisition 101 (ACQ 101) is the fundamental acquisition course required to be completed by each of the acquisition career fields. For the five (5) career fields shown all but Industrial / Contract Property Management require ACQ 101 to be completed before Level I certification can be achieved. Training is also divided into two (2) categories: Acquisition and Functional (Defense_Acquisition_University, 2019b).

With respect to Level I acquisition training, except of Industrial / Contract Property, each has one class required to complete before certification. However, for Level I functional training there are the following number of classes to be completed; Program Management – three (3); Industrial / Contract Property Management – five (5), Engineering – three (3), Facilities Engineering – zero (0), and Test & Evaluation – four (4). Attention needs to be given to Facilities Engineering that doesn't require any functional training to be completed for Level I certification. This appears to be disproportionate given the breadth of the career field description.

Level II acquisition and functional training requirements vary as well among the five (5) career fields including: Program Management: Acquisition – two (2) and Functional – seven (7); Industrial / contract Property Management: Acquisition – one (1) and Functional – three (3); Engineering: Acquisition – two (2) and Functional – four (4); Facilities Engineering: Acquisition – zero (0) and Functional – one (1); Test & Evaluation: Acquisition – two (2) and Functional – nine (9) (Defense_Acquisition_University, 2019b).

Level III acquisition and functional training requirements also vary among the five (5) career fields including; Program Management: Acquisition – zero (0) and Functional – seven (7); Industrial / Contract Property Management: Acquisition – one (1) and Functional – three (3); Engineering: Acquisition – zero (0) and Functional – four (4); Facilities Engineering: Acquisition – zero (0) and Functional one (1); Test & Evaluation: Acquisition – zero (0) and Functional – seven (7) (Defense_Acquisition_University, 2019b). Again, Facilities Engineering has only one (1) functional training class to complete for Level III certification.

Facilities Engineering career field requires only three (3) total training classes to fulfill the training requirements for Level I, Level II, and Level III certification.

Table 3 shows a compilation of the experience requirements of the five career fields for all three levels of certification available.

EXPERIENCE					
	Program Management	Industrial/Contract Property Management	Engineering	Facility Engineering	Test & Evaluation
Level 1	1 year of acqusition experience with cost, schedule, and performance responsibilities.	1 year of property management experience	1 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.	1 year of acquisition experience in facilities engineering.	1 year of T&E experience
Level 2	2 years in program management with cost, schedule, and performance responsibilities.	2 years of experience in an industrial property management position.	2 years of technical experience in an acquisition position with at least 1 year in an ENG or an 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 standard.	2 years of acquisition experience in facilities engineering.	2 years of T&E experience
Level 3	4 years in program management with cost, schedule, and performance responsibilities. At least 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding 4-year requirement. OR Level III DAWIA certification in another acquisition functional community. 2 years in program management with cost, schedule, and performance responsibilities. 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding Level III or 2-year requirements.	4 years of experience in industrial property management positions of increasing responsibility and complexity	4 years of technical experience in an ENG or S&TM position. Similar experience gained from other government positions or industry is acceptable as long as it meets the above standard.	4 years of acquisition experience in facilities engineering.	4 years of T&E experience

Table 6: Experience requirements for the five career fields

The five (5) acquisition career fields each have similar requirements for experience at Level I, Level II, and Level III certification. With respect to Level I, three career fields require one (1) year of experience in that specific field whereas Program Management requires the experience having cost, schedule, and performance responsibilities. This is further contrasted

with Engineering that will accept the one (1) year of experience from eight (8) of the acquisition career fields. Level II experience requirements become mostly tied to two (2) years in the specific career field. Engineering is the dissenter requiring two (2) years of technical experience with one (1) from Engineering or Science and Technology Management and the second year from one of the five career fields as in Level I. Level III experience includes four (4) of the career fields requiring four (4) years of experience from within the specific career field. The exception is Program Management that allows a handful of alternate ways to meet experience requirement other than all four (4) years in program management with cost, schedule, and performance requirements (Defense_Acquisition_University, 2019b). Given the petition by the Tri-Service Engineering Senior Executive Board to add Facilities Engineering in 2001 because of the need and require only one (1) training class for each of the three (3) levels of certification is appalling.

Chapter 5 – Interpretation

Conclusions

There are many entities responsible for the current state of the Facilities Engineering Acquisition career field to include though not limited to; Under Secretary of Defense for Acquisition and Sustainment; Director, Acquisition Career Management; Facilities Engineering Acquisition Functional Leader; Defense Acquisition University, Tri-Service Engineering Senior Executive Service Board, U.S. Army Corps of Engineers for being late to assimilate, and local supervisors of the facilities engineering acquisition workforce professionals.

It is reasonable, given the breadth of the facilities engineering career field definition, that a college education should be required for certification at any of the three (3) levels. This knowledge base would solidify base competency in the disciplines identified within the career field definition. Should this career field continue to require no formal education the career field title should be revised to Facilities Management. This would put it in line with Program Management which also doesn't require any formal education for certification. Training is another area of great concern.

The current training requirement for Level I certification in the facilities engineering career field is successful completion of Acquisition 101 (ACQ 101). ACQ 101 is an online system engineering course that has nearly nothing to do with facilities engineering. ACQ 101 is also the only required course by all fourteen acquisition career fields. Whereas it is admirable to have an acquisition requirement for Level I certification there are no functional facilities engineering specific training requirements for an acquisition professional to attain Level I certification in the Facilities Engineering Acquisition Career Field. On July 11, 2019, Mr. James Dalton, Functional Leader for the facilities engineering career field advised President of Defense

Acquisition University, Mr. James Woolsey, that a new Level I course would be launched by second quarter of fiscal year 2020 and certification standards would change beginning fiscal year 2021 (Dalton, 2019). Pilot class for FE 101 was conducted during the second quarter of fiscal year 2020. Allegedly, beginning in fiscal year 2021 there will be a functional FE class required for Level I certification which may still be inferior to meeting the career field definition.

Each of the four (4) selected acquisition career fields; Program Management; Industrial / contract Property Management; Engineering; and Test & Evaluation compared with Facilities Engineering have requirement for functional training for Level I certification. There are as many as five (5) functional training classes in one career filed and facilities engineering has zero (0) (Defense_Acquisition_University, 2019b). This should have sent up red flags within the Tri-Service Engineering Executive Service board the day Defense Acquisition University proposed this solution. After twenty years in service, the Level I training requirements should be more comprehensive in meeting the career field description or definition.

Level II training in facilities engineering requires completion of no acquisition classes and one (1) online functional class, FE 201. Each of the four (4) selected acquisition career fields; Program Management; Industrial / contract Property Management; Engineering; and Test & Evaluation compared with Facilities Engineering have requirement for more functional training for Level II certification. There are as many as nine (9) and as few as three (3) functional training classes in those four (4) career field (Defense_Acquisition_University, 2019b). This should have sent up red flags within the Tri-Service Engineering Executive Service board the day Defense Acquisition University proposed this solution. After twenty years in service, the Level II training requirements should be more comprehensive in meeting the career field description or definition.

Level III training in facilities engineering requires completion of no acquisition classes and one (1) resident functional class, FE 302. Each of the four (4) selected acquisition career fields; Program Management; Industrial / contract Property Management; Engineering; and Test & Evaluation compared with Facilities Engineering have requirement for more functional training for Level III certification. There are two (2) career fields requiring seven (7) functional courses and none less than two (2) functional courses for Level III certification (Defense_Acquisition_University, 2019b). This should have sent up red flags within the Tri-Service Engineering Executive Service board the day Defense Acquisition University proposed this solution. After twenty years in service, the Level II training requirements should be more comprehensive in meeting the career field description or definition.

Facilities Engineering doesn't align with the other acquisition career fields. It has the widest array of technical disciplines to cover than any of the other acquisition career fields; however, you don't need a college degree for any certification level; and the training requirements are a fraction of the other career fields compared to in this study. Table 2, below, provides the best visual for how far out of reasonable is the Facilities Engineer Acquisition Career Field.

CERTIFICATION TRAINING										
	Program Management		Industrial/Contract Property Management		Engineering		Facility Engineering		Test & Evaluation	
	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional	Acquisition	Functional
Level 1	ACQ 101	CLB 007 CLV 016 ENG 101	None	CON 100 CON 121 CON 124 CON 127 IND 105	ACQ 101	CLE 004 CLM 017 ENG 101	ACQ 101	None	ACQ 101	CLE 023 CLE 074 ENG 101 TST 102
Level 2	ACQ 202 ACQ 203	CON 121 CON 124 CON 127 EVM 101 ISA 101 PMT 252 PMT 257	ACQ 101	CON 200 CON 216 IND 205	ACQ 202 ACQ 203	CLE 003 ENG 201 ENG 202 LOG 103	None	FE 201	ACQ 202 ACQ 203	CLE 003 CLE 029 CLE 030 CLE 035 CLE 301 CLM 016 CLR 101 ENG 201 TST 204
Level 3	None	ACQ 315 BCF 110 ENG 201 EVM 263 LOG 103 PMT 355 PMT 360	ACQ 202	CON 360 HBS 406 or HBS 424	None	CLE 012 CLE 068 CLL 008 ENG 302	None	FE 302	None	CLB 008 CLB 009 CLL 015 CLM 014 CLM 031 CLV 016 TST 303

Table 7: Training requirements for the five career fields

Here are the overall training requirements for the five (5) career fields identified in this study to achieve Level III certification;

- Program Management: 21 training courses
- Industrial / Contract Property Management: 12 training courses
- Engineering: 14 training courses
- Facilities Engineering: 3 training courses
- Test & Evaluation: 23 training courses

The training includes as little as three (3) training courses for Facilities Engineering and as many as twenty-three (23) for Test & Evaluation, each to attain Level III certification in the career field.

Despite annual certifications by the Facilities Engineering Functional Leader, there has been no real review effort from inception of the Facilities Engineering Acquisition Career Field in 2001 until the very recent past, to assess the certification requirements with respect to the career field definition. There is a requirement for the Functional Leader of each acquisition career field to annually certify that the Defense Acquisition University course documentation are current, accurate, and in accord with Department policy (Dalton, 2019). The Functional Leader provided Fiscal Year 2020 annual certification of the Facilities Engineering Acquisition Career Field on July 11, 2019 (Dalton, 2019). The Facilities Engineering Acquisition Career Field Functional Leader concurred that the Position Category Description on the Defense Acquisition website is correct. The Functional Leader also confirmed "the certification standards for the subject are reasonable, appropriate, and applicable to all DoD AT&L workforce personnel desiring certification after September 30th of this calendar year" (Dalton, 2019).

It's unclear why the Facilities Engineering Acquisition Career Field has no education requirement and extremely limited training for certification at any of the three (3) levels. The career field definition requires so much and those in the facilities engineering career field are not provided adequate training which may be contributing factor when competency isn't demonstrated by those in the career field.

Defense Acquisition University is piloting four (4) credentialing courses which may either augment or replace the current training requirements within some of the career fields. There has been no transparency provided to the acquisition workforce community with respect to either strategy or plan for certification reform or addition of credentialing. Credentialing may be a tool to provide specific training, however, given the speed of deployment it may take twenty (20) years or more to complete for all career fields. Facilities Engineering most likely would be

the last career field to be addressed keeping with the consistency of how far the career field lags behind the others.

Recommendations

Resultant of the research, data, findings, analysis, and conclusions, there are numerous recommendations with respect to the Facilities Engineering Acquisition Career Field. The recommendations are not listed any priority order. Each recommendation is an independent suggestion and the potential exists for conflict if all were contemplated for implementation.

Recommendation 1. Do not eliminate the Facilities Engineering Acquisition Career Field. Acquisition professionals in this career field support warfighting through the cradle to grave efforts to plan, design, and build facilities and structures that allow for activities to include, but not limited to support research and development through training before deployment or in theater. The U.S. Army Corps of Engineers, responsible for the execution of Military Construction Army projects, had their Commanding General issue guidance in 2009 confirming their assimilation into the Facilities Engineering Acquisition Career Field (Defense_Acquisition_University, 2009).

Recommendation 2. Suggest revising name of the career field from Facilities Engineering to Facilities Management. Placing the word Engineering in any title provides a certain type of professional connotation to include members in this career field have Bachelor's degree in an engineering discipline. College degree is not required for certification at any of the three levels within the career field. Leaving Engineering in the career field title is misleading, disingenuous, and disrespectful to people who possess engineering degrees. The recommended revision would place the career field in similar connotation to Program Management.

Recommendation 3. Tri-Service Engineering offices perform scrub of the career field and work with Defense Acquisition University, to either associated existing courses or develop new ones, bringing certification requirements in line with the career field definition.

Recommendation 4. Suggest expansion of the curriculum to include additional courses to complete before certification is approved at each of the three levels within the career field. Currently offered courses by Defense Acquisition University catalog than address the requirements of the career field definition could be utilized so that new courses may not need to be established.

Recommendation 5. Expand on the pilot program being developed by Defense Acquisition University and develop credentialing for this acquisition career field. Bi-annually each acquisition professional must complete a minimum of eighty (80) continuing education units (CEU) from October 1 to September 30 of the second year following. Defense Acquisition University has indicated that credentialing courses are being developed to address the two-year continuing education unit cycle requirement for people who have achieved Level III in their career field.

Recommendation 6. Suggest expansion of credentialing courses to include development of specialty or boutique classes addressing areas unique to the facilities engineering career field. A person should not have to wait until they have completed all three levels of certification in the career field before being able to pursue credentialing courses.

Recommendation 7. Suggest a person on the Talent Management Board be responsible as an advocate for each of the acquisition career fields starting with the onboarding of each new intended acquisition professional. Whereas there are career maps available on Army web site,

there should be a local connection to assist supervisors and employees with establishing and revising Individual Development Plans for the acquisition employees. Communication, education, and planning provide opportunity for win-win scenario for the government and the acquisition employees.

Recommendation 8. Consideration should be given to having the Facilities Engineering Acquisition Career Field become the pilot for revising the certification process and introducing credentialing courses to the career field. Whereas facilities engineering has the least number of classes required to achieve Level I, Level II, and Level III certification, there could be a more beneficial time line constructed to revise the certification requirement curriculum, implement credentialing, and positively affect the career field. Suggest an approach similar to a college degree program where there are required courses at each certification level and an abundance or electives, in the form of credentialing courses, allowing the individual to shape their knowledge, skills, and experiences to compliment current or future job duties. Currently there are only three courses to complete for a person to attain level 3 certification in Facilities Engineering; FE 101, FE 201, and FE 302. Suggest that these remain as the base courses in the career field and that specialty topics have credentialing classes established providing the acquisition professional with detailed knowledge and skills on the topics. This could result in a revised certification program to include; Level I: Completion of FE 101 plus one credentialing course; Level II: Completion of FE 201 plus two additional credentialing courses; and Level III: Completion of FE 302 plus three additional credentialing courses. It's suggested that credentialing courses are designed for duration not less than three and one half (3 ½) days though not exceeding five (5) days. Appendix F provides a visual representation of what the recommendations might look like in a future state where credentialing is inclusive in the certification requirements.

Recommendation 9. Suggest and education requirement is established for the career field. The career field definition has tremendous breadth expected that it's unlikely an untrained person would have a reasonable opportunity to excel. Suggest the following minimum education is considered: Level I: Minimum of Associate's degree in any engineering or engineering technology discipline; Level II: Minimum of Bachelor's degree in any engineering or engineering technology discipline; Level III: Minimum of Bachelor's degree in any engineering or engineering technology discipline. The number of years of service within the facilities engineering career field would remain unchanged with one (1) year at Level I, two (2) years at Level II, and four (4) years at Level III.

Limitations of Study

Limitations were identified in the process and restrictions imposed on the development of the study. The literature review was restricted to only be derived from historical documents. A major limiting factor of the paper is the inability to interview persons of interest, influential, or with direct knowledge of the establishment of the facilities engineering acquisition career field and certification requirements. Another limitation are assumptions made when there was not clear intent or explanation identified within the materials of the literature review.

The inexperience of the researcher combined with being a subject matter expert with respect to planning and execution of facilities projects provided opportunity for unintended biases to be present in the paper. There is potential for bias to have occurred in the drafting of the problem statement, how research was conducted, analysis of the data, conclusions, and recommendations. In addition, since there was not either depth or breath of material uncovered during the research there is also the potential that errors exist in the documents.

Suggestions for Further Study

Currently there are no known studies that have been conducted with respect to the Defense Acquisition career fields and either the functional description, education, or training requirements. In light of the discussion of Defense Acquisition University developing credentialing courses and potentially altering or eliminating certification requirements, it appears a study would be warranted to assess the effects of a credentialing program superseding the current certification requirements for Level I, Level II, and Level III in each of the fourteen defense acquisition career fields. Notwithstanding the Acquisition Functional Manager's responsibility to validate the functional description, education, and training requirements, additional study could be contemplated to assess the accuracy of the career field functional description and if the education and training identified by Defense Acquisition University are consistent, valid, and relevant.

Glossary of Acronyms and Terms

AT&L – Acquisition, Technology & Logistics

DACM – Director Army Career Management

DoD – Department of Defense

EBSCO – Elton B. Stephens Company; Research database

FE – Facilities Engineering Acquisition Career Field

PM – Program Management Acquisition Career Field

ProQuest – Research database

List of Figures

Figure **Page No:**

List of Figures

Figure **Page No:**

List of Tables

Table Number **Page No:**

Appendix A – Program Management

Program Management Level I			
Type of Assignment	**Representative Activities**		
• Weapon Systems	• Participates in an IPT delivering a weapon system, Command and Control (C2)/network-centric system, or space system • Performs financial and status reporting and basic logistic activities • Supports pre-award contract activities and workload planning and scheduling		
• Services	Assists in acquisition planning, assessing risk (technical, cost, and schedule), and contract tracking and performance evaluation		
• Business Management Systems/IT	Participates in a business process IPT, fundamentals of enterprise integration, and outcome-based performance measures		
Core Certification Standards[1] (Required for DAWIA certification)			
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management		
• Functional Training	• **CLB 007** Cost Analysis • **CLV 016** Introduction to Earned Value Management • **ENG 101** Fundamentals of Systems Engineering		
• Education	Formal education not required for certification		
• Experience	1 year of acquisition experience with cost, schedule, and performance responsibilities		
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**		
Training	**Weapon Systems**	**Services**	**Business Mgmt/IT**
CLC 011 Contracting for the Rest of Us	✓	✓	✓
CLL 008 Designing for Supportability in DoD Systems	✓	✓	
CLL 011 Performance-Based Logistics (PBL)	✓	✓	
CLM 017 Risk Management	✓	✓	✓
LOG 100 Life Cycle Logistics Fundamentals	✓	✓	
TST 102 Fundamentals of Test and Evaluation	✓		
EDUCATION: Baccalaureate degree, preferably with a major in engineering, systems management, or business administration			
EXPERIENCE: 1 year of acquisition experience (in addition to core certification experience)			

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTE: 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 the CL module was extracted from is identified in the "Notes" section of the CL course description, and the course can be substituted to meet the certification standard.

(Defense_Acquisition_University, 2019b)

Appendix A – Program Management

Program Management Level II			
Type of Assignment	**Representative Activities**		
• Weapon Systems	• Structures and guides systems engineering activities • Establishes a risk/opportunity program; structures and conducts technical reviews • Works with contracting personnel • Maintains configuration control • Leads IPTs in support of developing and delivering a weapon system, Command and Control (C2)/network-centric system, or space system		
• Services	• Structures incentives tied to desired outcomes for service contracts, prepares plans for mitigating risks, provides contract tracking and oversight • Performs most acquisition planning tasks as established in Attachment 1 to AT&L Services Memo of Oct. 2, 2006		
• Business Management Systems/IT	Leads IPTs, identifies and manages enterprise-level business systems and issues, and applies performance measures within the acquisition community and program office context that directly impact systems under development		
Core Certification Standards[1] (Required for DAWIA certification)			
• Acquisition Training	• **ACQ 202** Intermediate Systems Acquisition, Part A • **ACQ 203** Intermediate Systems Acquisition, Part B **(R)**		
• Functional Training	• **CON 121** Contract Planning • **CON 124** Contract Execution • **CON 127** Contract Management • **EVM 101** Fundamentals of Earned Value Management • **ISA 101** Basic Information Systems Acquisition • **PMT 252** Program Management Tools Course, Part 1 • **PMT 257** Program Management Tools Course, Part 2		
• Education	Formal education not required for certification		
• Experience	2 years in program management with cost, schedule, and performance responsibilities		
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**		
Training	**Weapon Systems**	**Services**	**Business Mgmt/IT**
ACQ 315 Understanding Industry (Business Acumen) **(R)**	✓	✓	✓
BCF 216 Applied Operating and Support Cost Analysis **(R)**	✓	✓	✓
CLE 004 Introduction to Lean Enterprise Concepts	✓	✓	✓
CLE 022 Program Manager Introduction to Anti-Tamper	✓		
CLL 002 Defense Logistics Agency Support to the PM	✓	✓	
CLL 006 Public-Private Partnerships	✓	✓	
CLM 025 Commercial-Off-The-Shelf (COTS) Acquisition for Program Managers	✓	✓	✓
CLM 031 Improved Statement of Work	✓	✓	
LOG 102 Fundamentals of System Sustainment Management	✓	✓	
PQM 101 Production, Quality, and Manufacturing Fundamentals	✓	✓	
EDUCATION: Master's degree, preferably with a major in engineering, systems management, business administration, or a related field			
EXPERIENCE: 2 additional years acquisition experience, preferably in a systems program office or similar organization			

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTE: "**(R)**" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

Appendix A – Program Management

Program Management Level III	
Type of Assignment	**Representative Activities**
• Weapon Systems	• Leads and provides oversight of IPTs delivering a weapon system, Command and Control (C2)/network-centric system, or space system • Leads tasks supporting pre-award contracts, financial management, risk management, systems engineering, total ownership cost determination, contract coordination, and communications
• Services	• Organizes and leads DoD professional, administrative, and management support service contracting as relates to developing clearly stated and actionable requirements packages • Coordinates with local contracting officers, and ensures opportunities for socioeconomic business concerns • Performs all acquisition strategy requirements actions noted in Attachment 1 to AT&L Services Memo of Oct. 2, 2006
• Business Management Systems/IT	Oversees transformation integration, planning and performance, and investment management as applies to the acquisition community, program office(s), and system(s) under development
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	• **ACQ 315** Understanding Industry (Business Acumen) **(R)** • **BCF 110** Fundamentals of Business Financial Management • **ENG 201** Applied Systems Engineering in Defense Acquisition, Part 1 • **EVM 263** Principles of Schedule Management **(R)** • **LOG 103** Reliability, Availability, and Maintainability (RAM) • **PMT 355** Program Management Office Course, Part A • **PMT 360** Program Management Office Course, Part B **(R)**
• Education	Formal education not required for certification
• Experience	• 4 years in program management with cost, schedule, and performance responsibilities • At least 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding 4-year requirement. OR • Level III DAWIA certification in a another acquisition functional community • 2 years in program management with cost, schedule, and performance responsibilities • 2 years in a program office for system development and acquisition or similar organization (dedicated matrix support to a PM, PEO, DCMA program integrator, or supervisor of shipbuilding). These 2 years may run concurrent with the preceding Level III or 2-year requirements.
Unique Position Training Standards	
• PEOs; PM/DPM of MDAP/MAIS; PM/DPM of significant non-major programs[2]	• **PMT 401** Program Manager's Course **(R)** • **PMT 402** Executive Program Manager's Course **(R)**

Core Plus Development Guide[3] (Desired training, education, and experience)	**Type of Assignment**		
Training	**Weapon Systems**	**Services**	**Business Mgmt/IT**
ACQ 265 Mission-Focused Services Acquisition **(R)**		✓	✓
ACQ 370 Acquisition Law **(R)**	✓	✓	✓
ACQ 452 Forging Stakeholder Relationships **(R)**	✓	✓	✓
BCF 209 Acquisition Reporting for MDAPs and MAIS **(R)**	✓		✓
CLE 008 Six Sigma: Concepts and Processes	✓	✓	✓
CLE 301 Reliability and Maintainability	✓	✓	
CLL 022 Title 10 Depot Maintenance Statute Overview	✓	✓	✓
CLL 201 Diminishing Manufacturing Sources and Material Shortages (DMSMS) Fundamentals	✓	✓	✓
ENG 202 Applied Systems Engineering in Defense Acquisition, Part 2 **(R)**	✓		
ISA 320 Advanced Program Information Systems Acquisition **(R)**	✓	✓	✓
LOG 200 Product Support Strategy Development, Part A	✓	✓	
LOG 201 Product Support Strategy Development, Part B **(R)**	✓	✓	
LOG 204 Configuration Management	✓		✓
LOG 235 Performance-Based Logistics	✓	✓	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] Workforce members assigned to these positions MUST meet these training standard(s) within 6 months of assignment.
[3] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTE: "**(R)**" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

Appendix B – Industrial / Contract Property Management

Industrial/Contract Property Management Level I	
Type of Assignment	**Representative Activities**
• Industrial and/or Contract Property Management	• Oversees and manages life-cycle processes for government-owned property utilized by contractors (i.e., government property in the possession of contractors and, in some instances, government-owned, contractor-operated plants) • Provides advice and assistance on property-related matters during acquisition planning, contract formation, and contract management • Reviews contractor's purchasing system as it pertains to property management • Performs investigations of instances of lost, stolen, damaged, or destroyed government property—and either grants relief or recommends liability
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	• **CON 100** Shaping Smart Business Arrangements • **CON 121** Contract Planning • **CON 124** Contract Execution • **CON 127** Contract Management • **IND 105** Contract Property Fundamentals **(R)**
• Education	Formal education not required for certification
• Experience	1 year of property management experience
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Industrial and/or Contract Property Management**
None specified	✓
EDUCATION: Baccalaureate degree or at least 24 semester hours in accounting, law, business, finance, contracts, purchasing, economics, industrial management, marketing, quantitative methods, or organization and management	
EXPERIENCE: None specified	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.
NOTE: "(R)" following a course title indicates the course is delivered as resident-based instruction.

Industrial/Contract Property Management Level II	
Type of Assignment	**Representative Activities**
• Industrial and/or Contract Property Management	• Develops policy and procedures for government property management • Oversees and manages life-cycle processes for government-owned property being utilized by contractors (i.e., government property in the possession of contractors and, in some instances, government-owned contractor-operated plants) • Provides advice and assistance on property-related matters during acquisition planning, contract formation, and contract management • Reviews contractor's purchasing system as it pertains to property management • Performs investigations of instances of lost, stolen, damaged, or destroyed government property—and either grants relief or recommends liability
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	• **CON 200** Business Decisions for Contracting • **CON 216** Legal Considerations in Contracting • **IND 205** Contract Government Property Management Systems and Auditing Concepts **(R)**
• Education	Formal education not required for certification
• Experience	2 years of experience in an industrial property management position
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Industrial and/or Contract Property Management**
CLM 040 Proper Financial Accounting Treatments for Military Equipment	✓
CLM 200 Item-Unique Identification	✓
HBS 405 Change Management	✓
HBS 434 Process Improvement	✓
HBS 437 Strategic Thinking	✓
EDUCATION: Baccalaureate degree or at least 24 semester hours in accounting, law, business, finance, contracts, purchasing, economics, industrial management, marketing, quantitative methods, or organization and management	
EXPERIENCE: None specified	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.
NOTE: "(R)" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

Appendix B – Industrial / Contract Property Management

Industrial/Contract Property Management Level III	
Type of Assignment	**Representative Activities**
• Industrial and/or Contract Property Management	• Develops policy and procedures for government property management • Oversees and manages life-cycle processes for government-owned property being utilized by contractors (i.e., government property in the possession of contractors and, in some instances, government-owned contractor-operated plants) • Provides advice and assistance on property-related matters during acquisition planning, contract formation, and contract management • Reviews contractor's purchasing system as it pertains to property management • Performs investigations of instances of lost, stolen, damaged, or destroyed government property—and either grants relief or recommends liability
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 202** Intermediate Systems Acquisition, Part A
• Functional Training	• **CON 360** Contracting for Decision Makers **(R)** • 1 additional course from the Harvard Business Management Module identified in the Core Plus Developmental Guide below
• Education	Formal education not required for certification
• Experience	4 years of experience in industrial property management positions of increasing responsibility and complexity
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Industrial and/or Contract Property Management**
ACQ 203 Intermediate Systems Acquisition, Part B **(R)**	✓
CLE 015 Continuous Process Improvement Familiarization	✓
HBS 406 Coaching	✓
HBS 424 Leading and Motivating	✓
EDUCATION: Baccalaureate degree or at least 24 semester hours in accounting, law, business, finance, contracts, purchasing, economics, industrial management, marketing, quantitative methods, or organization and management	
EXPERIENCE: 4 additional years of experience in industrial property management	
[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment. [2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed. NOTE: "(R)" following a course title indicates the course is delivered as resident-based instruction.	

(Defense_Acquisition_University, 2019b)

Appendix C – Engineering

Engineering Level I

Type of Assignment	Representative Activities
• Functional Engineer	• Plans, organizes, conducts, and/or monitors 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	• Plans, organizes, conducts, and/or monitors 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	• 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 I only)	• 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[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	• **CLE 004** Introduction to Lean Enterprise Concepts • **CLM 017** Risk Management • **ENG 101** Fundamentals of Systems Engineering
• 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 **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 an 08XX Professional Engineering series position must meet the OPM education requirements in lieu of this education standard.
• Experience	• 1 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[2] (Desired training, education, and experience)	Type of Assignment			
Training	**Func Eng**	**General Eng**	**Res Eng/Sci**	**Tech Spt**
BCF 110 Fundamentals of Business Financial Management	✓			
BCF 130 Fundamentals of Cost Analysis	✓	✓		
BCF 131 Applied Cost Analysis **(R)**	✓	✓		
CLB 009 Planning, Programming, Budgeting, and Execution and Budget Exhibits	✓	✓	✓	✓
CLB 026 Forecasting Techniques	✓	✓	✓	
CLB 029 Rates		✓		
CLB 042 Cost Risk and Uncertainty Analysis	✓	✓	✓	
CLC 008 Indirect Costs	✓	✓	✓	
CLC 011 Contracting for the Rest of Us	✓	✓	✓	✓
CLC 056 Analyzing Contract Costs	✓	✓		
CLC 060 Time and Materials Contracts	✓	✓	✓	
CLE 001 Value Engineering	✓	✓	✓	✓
CLE 009 ESOH in Systems Engineering	✓	✓		✓
CLE 015 Continuous Process Improvement Familiarization	✓	✓	✓	✓

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.
NOTE: "(R)" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

Appendix C – Engineering

Engineering Level II

Type of Assignment	Representative Activities
• Functional Engineer	• Organizes, analyzes, conducts, and/or monitors/oversees 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	• Organizes, conducts, and/or monitors engineering design and development activities for systems or systems components • Applies systems engineering technical and technical management processes during systems development
• Research Engineer or Scientist	• 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[1] (Required for DAWIA certification)	
• Acquisition Training	• **ACQ 202** Intermediate Systems Acquisition, Part A • **ACQ 203** Intermediate Systems Acquisition, Part B **(R)**
• Functional Training	• **CLE 003** Technical Reviews • **ENG 201** Applied Systems Engineering in Defense Acquisition, Part 1 • **ENG 202** Applied Systems Engineering in Defense Acquisition, Part 2 **(R)** • **LOG 103** Reliability, Availability, and Maintainability (RAM)
• 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	• 2 years of technical experience in an acquisition position with + At least 1 year in an ENG or an 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 standard

Core Plus Development Guide[2] (Desired training, education, and experience)	Type of Assignment		
Training	**Func Eng**	**General Eng**	**Res Eng/Sci**
ACQ 160 Program Protection Planning Awareness	✓	✓	✓
BCF 110 Fundamentals of Business Financial Management	✓	✓	
BCF 221 Intermediate Financial 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 012 DoD Open Systems Architecture (OSA)	✓	✓	✓
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	✓	✓	✓
CLE 074 Cybersecurity Throughout DoD Acquisition	✓	✓	✓

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTES:
• "(R)" following a course title indicates the course is delivered as resident-based instruction.
• 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 the CL module was extracted from is identified in the "Notes" section of the CL course description, and the course can be substituted to meet the certification standard.

(Defense_Acquisition_University, 2019b)

Appendix C – Engineering

Engineering Level III	
Type of Assignment	**Representative Activities**
• Functional Engineer	• Leads and/or manages 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	• Leads and/or manages design and development activities for systems or systems components • Ensures appropriate systems engineering processes are properly applied during systems development
• Research Engineer or Scientist	• 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[1] (Required for DAWIA certification)	
• Acquisition Training	None
• Functional Training	• **CLE 012** DoD Open Systems Architecture (OSA) • **CLE 068** Intellectual Property and Data Rights • **CLL 008** Designing for Supportability in DoD Systems • **ENG 302** Advanced Systems Engineering **(R)**
• 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	• 4 years of technical experience in an ENG or S&TM position • Similar experience gained from other government positions or industry is acceptable as long as it meets the above standard

Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**		
Training	**Func Eng**	**General Eng**	**Res Eng/Sci**
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 330 Advanced Concepts in Cost Analysis **(R)**	✓	✓	✓
CLC 113 Procedures, Guidance, and Information	✓	✓	✓
CLC 131 Commercial Item Pricing	✓	✓	✓
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	✓	✓	
CLM 005 Industry Proposals and Communication	✓	✓	
CLM 016 Cost Estimating	✓	✓	
CLM 055 Program Leadership	✓	✓	✓

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTES:
• "**(R)**" following a course title indicates the course is delivered as resident-based instruction.
• 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 the CL module was extracted from is identified in the "Notes" section of the CL course description, and the course can be substituted to meet the certification standard.

(Defense_Acquisition_University, 2019b)

Appendix D – Facilities Engineering

Facilities Engineering Level I

Type of Assignment	Representative Activities
• Facilities Engineer	• Conducts actions that support one or more facets of facilities engineering—planning; design; construction; environmental management; base operations, support, and housing; real estate; and real property maintenance • May serve as an IPT member, representing a specific Facilities Engineering functional area
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	None required
• Education	Formal education not required for certification
• Experience	1 year of acquisition experience in facilities engineering
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Facilities Engineer**
CLC 028 Past Performance Information	✓
CLM 017 Risk Management	✓
EDUCATION: Baccalaureate degree in engineering, architecture, physics, chemistry, mathematics, community planning, business, or related fields	
EXPERIENCE: None specified	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

Facilities Engineering Level II

Type of Assignment	Representative Activities
• Facilities Engineer	• Organizes, conducts, and/or monitors one or more facets of facilities engineering—planning; design; construction; environmental management; base operations, support, and housing; real estate; and real property maintenance • May serve as an IPT leader for a specific project, representing a specific FE functional area or supervising multiple disciplines
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	**FE 201** Intermediate Facilities Engineering
• Education	Formal education not required for certification
• Experience	2 years of acquisition experience in facilities engineering
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Facilities Engineer**
CLE 001 Value Engineering	✓
CLM 012 Program Scheduling	✓
CLM 013 Work-Breakdown Structure	✓
CLM 016 Cost Estimating	✓
CLV 016 Introduction to Earned Value Management	✓
EDUCATION: • Baccalaureate degree in engineering, architecture, physics, chemistry, mathematics, community planning, business, or related fields • 9 semester credit hours selected from accounting, business finance, law, economics, industrial management, quantitative methods, or organization and management	
EXPERIENCE: 2 years of experience in acquisition positions of increasing responsibility and complexity (in addition to core certification experience)	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

Facilities Engineering Level III

Type of Assignment	Representative Activities
• Facilities Engineer	• Leads, manages, and/or executes one or more facet of facilities engineering—planning; design; construction; environmental management; base operations, support, and housing; real estate; and real property maintenance • May lead multiple IPTs for specific projects or perform FE program management
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	**FE 302** Advanced Facilities Engineering **(R)**
• Education	Formal education not required for certification
• Experience	4 years of acquisition experience in facilities engineering
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Facilities Engineer**
CLC 108 Strategic Sourcing Overview	✓
CLE 008 Six Sigma: Concepts and Processes	✓
CLM 014 Team Management and Leadership	✓
EDUCATION: • Baccalaureate degree in engineering, architecture, physics, chemistry, mathematics, community planning, business, or related fields • Advanced degree from an accredited institution of higher learning in engineering, physics, chemistry, operations research, community planning, management, business, public administration, or related fields • 12 semester credit hours selected from accounting, business finance, law, economics, industrial management, quantitative methods, or organization and management	
EXPERIENCE: 4 additional years of experience in acquisition positions of increasing responsibility and complexity	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTE: "**(R)**" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

Appendix E – Test and Evaluation

Test and Evaluation Level I			
Type of Assignment	**Representative Activities**		
• Headquarters and Staff (OSD, JS, COCOMs, JITC, SYSCOMs, etc.)	• Supports research and development of T&E policy, practices, metrics, and procedures • Supports development of evaluation methodology and framework • Supports identification of T&E direction and guidance applicable to the Service/agency • Supports program's T&E office representative at T&E meetings and other forums • Supports tracking/auditing of the T&E aspects of products/systems in the acquisition process • Reviews T&E strategies, T&E master plans (TEMPs), test concepts, and test plans • Supports development of the T&E career management plan for recruiting, training, and retaining a professional T&E workforce • Supports development and execution of T&E processes, standards, methods, and techniques		
• Program Management and Matrix Support	• Supports the program's T&E Working-level IPT • Member of Chief Developmental Tester's team • Supports development of program's T&E strategy, approach, process, schedule, and resource requirements • Supports coordination of cybersecurity T&E in accordance with DoDI 5000.02 and the DoD Risk Management Framework • Supports implementation of an evaluation methodology and framework for product/system under test • Supports development of T&E materials/data for technical and progress reviews, including risk assessment • Supports identification and coordination of T&E personnel and financial resource requirements • Proposes and reviews test concepts and test plans		
• Range/Lab/Field Supporting Activities	• Supports identification and scheduling of T&E resources including workforce, infrastructure, and budgets to support testing at the respective facility • Reviews facility T&E tools (IT, video, targets, simulators, stimulators, instrumentation, etc.) and clearly understands their capabilities • Supports facility test plan development • Supports development of T&E plans and mitigation of safety risks for test plans during test execution • Assists in test execution, data collection, analysis, and reporting • Assists in evaluation, analysis, and reporting of test results • Supports implementation of new T&E techniques, lessons learned, and T&E best practices • Supports maintenance of the physical facility and environment and coordinates renovations and repairs as necessary • Assists in execution of Service/agency or DoD cybersecurity and system assurance (SA) testing		
Core Certification Standards[1] (Required for DAWIA certification)			
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management		
• Functional Training	• **CLE 023** Modeling and Simulation in Test and Evaluation • **CLE 074** Cybersecurity Throughout DoD Acquisition • **ENG 101** Fundamentals of Systems Engineering • **TST 102** Fundamentals of Test and Evaluation		
• Education	Associate's degree in any discipline		
• Experience	1 year of T&E experience		
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**		
Training	**HQ & Staff**	**PM/Matrix Spt**	**Rq/Lab/Fld Spt Act**
CLE 004 Introduction to Lean Enterprise Concepts	✓	✓	
ISA 101 Basic Information Systems Acquisition	✓	✓	✓
EDUCATION: None specified			
EXPERIENCE: None specified			

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTES:
• "(IR)" following a course title indicates the course is delivered as resident-based instruction.
• 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 the CL module was extracted from is identified in the "Notes" section of the CL course description, and the course can be substituted to meet the certification standard.

(Defense_Acquisition_University, 2019b)

Appendix E – Test and Evaluation

Test and Evaluation Level II			
Type of Assignment	**Representative Activities**		
• Headquarters and Staff (OSD, JS, COCOMs, JITC, SYSCOMs, etc.)	• Interprets research and development of T&E strategy, policy, practices, metrics, and procedures and implements direction and guidance • Proposes development of evaluation methodology and framework • Proposes identification of T&E direction and guidance applicable to the Service/agency • Serves as or supports the program's T&E office representative at T&E meetings and other forums • Manages tracking/auditing of the T&E aspects of products/systems in the acquisition process and identifies T&E issues • Develops and coordinates T&E strategies, T&E master plans (TEMPs), test concepts, and test plans • Proposes approaches for development of the T&E career management plan for recruiting, training, and retaining a professional T&E workforce • Proposes development and execution of T&E processes, standards, methods, and techniques		
• Program Management and Matrix Support	• Member of the program's T&E Working-level IPT • Drafts and coordinates an evaluation methodology and framework for product/system under test • Member of the Chief Development Tester's team drafting and coordinating the TEMP • Directs coordination of cybersecurity T&E in accordance with DoDI 5000.02 and the DoD Risk Management Framework • Directs development of program's T&E approach, process, schedule, and resource requirements • Develops and coordinates T&E materials/data for technical and progress reviews, including risk assessment • Identifies and coordinates T&E personnel and financial resources requirements • Develops guidance on test concepts and test plans		
• Range/Lab/Field Supporting Activities	• Identifies and schedules T&E resources including workforce, infrastructure, and budgets to support testing at the respective facility • Recommends facility T&E tools (IT, video, targets, simulators, stimulators, instrumentation, etc.) that are capable of supporting T&E • Leads facility test plan development and coordination • Ensures technical adequacy of T&E plans and mitigation of safety risks for test plans and during test execution • Leads test execution, data collection, analysis, and reporting • Proposes needed maintenance of the physical facility and environment and coordinates renovations and repairs as necessary • Manages implementation of Service/agency or DoD cybersecurity and system assurance (SA) policies • Leads evaluation, analysis, and reporting of test results • Identifies new T&E techniques, lessons learned, and T&E best practices		
Core Certification Standards[1] (Required for DAWIA certification)			
• Acquisition Training	• **ACQ 202** Intermediate Systems Acquisition, Part A • **ACQ 203** Intermediate Systems Acquisition, Part B **(R)**		
• Functional Training	• **CLE 003** Technical Reviews • **CLE 029** Testing in a Joint Environment • **CLE 030** Integrated Testing • **CLE 035** Introduction to Probability and Statistics • **CLE 301** Reliability and Maintainability • **CLM 016** Cost Estimating • **CLR 101** Introduction to the Joint Capabilities Integration and Development System • **ENG 201** Applied Systems Engineering in Defense Acquisition, Part 1 • **TST 204** Intermediate Test and Evaluation **(R)**		
• Education	• Baccalaureate degree or higher (any field of study) • A total of 24 semester hours or equivalent in technical or scientific courses such as mathematics (e.g., calculus, probability, statistics), physical sciences (e.g., chemistry, biology, physics), psychology, operations research/systems analysis, engineering, computer science, and information technology.		
• Experience	2 years of T&E experience		
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**		
Training	**HQ & Staff**	**PM/Matrix Spt**	**Rg/Lab/Fld Spt Act**
CLB 007 Cost Analysis	✓	✓	✓
CLE 015 Continuous Process Improvement Familiarization	✓	✓	✓
CLE 017 Technical Planning	✓	✓	✓
CLE 021 Technology Readiness Assessments	✓	✓	✓
CLE 037 Telemetry			✓

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.
NOTE: "**(R)**" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

Appendix E – Test and Evaluation

Test and Evaluation Level III

Type of Assignment	Representative Activities
• Headquarters and Staff (OSD, JS, COCOMs, JITC, SYSCOMs, etc.)	• Manages identification, development, and implementation of T&E strategy, policy, practices, and procedures • Manages development of evaluation methodology and framework • Manages identification of T&E direction and guidance applicable to the Service/agency • Serves as the program's principal T&E office representative at T&E meetings and other forums • Directs/manages tracking/auditing of T&E aspects of products/systems in the acquisition process, identifies T&E issues, and recommends corrective actions as necessary • Manages development of the T&E career management plan for recruiting, training, and retaining a professional T&E workforce • Approves T&E strategies, T&E master plans (TEMPs), test concepts, and test plans, and certifies annual T&E budgets • Manages development and execution of T&E processes, standards, methods, and techniques
• Program Management and Matrix Support	• Includes the Chief Developmental Tester for MDAPs and MAIS programs • Chairs or serves as a key member of the program's T&E Working-level IPT • Manages TEMP development and secures final approvals • Manages development of program's T&E approach, process, schedule, and resource requirements • Manages development of T&E materials/data for technical and progress reviews, including risk assessment • Manages T&E personnel and financial resources requirements • Directs test concepts and test plans and submits annual T&E budgets • Directs coordination of cybersecurity T&E in accordance with DoDI 5000.02 and the DoD Risk Management Framework • Directs/manages development and/or implementation of an evaluation methodology and framework for product/system under test
• Range/Lab/Field Supporting Activities	• Manages identification and scheduling of T&E resources, including workforce, infrastructure, and budgets to support testing at the respective facility • Ensures facility T&E tools (IT, targets, video, simulators, stimulators, instrumentation, etc.) are capable of supporting T&E • Directs/manages facility test plan development, coordination, and approval • Directs/manages technical and safety reviews of test plans • Directs/manages test execution, data collection, data management, and data analysis • Directs/manages evaluation, analysis, and reporting of test results • Directs/manages development of new T&E techniques, capture of lessons learned, and development of T&E best practices • Manages maintenance of the physical facility and environment, and coordinates renovations and repairs as necessary • Oversees implementation of Service/agency or DoD cybersecurity and system assurance (SA) policies applicable to test facility
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	Acquisition Training identified at Level II must have been completed
• Functional Training	• Functional Training identified at Level II must have been completed • **CLB 008** Program Execution • **CLB 009** Planning, Programming, Budgeting, and Execution and Budget Exhibits • **CLL 015** Product Support Business Case Analysis (BCA) • **CLM 014** Team Management and Leadership • **CLM 031** Improved Statement of Work • **CLV 016** Introduction to Earned Value Management • **TST 303** Advanced Test and Evaluation **(R)**
• 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	4 years of T&E experience

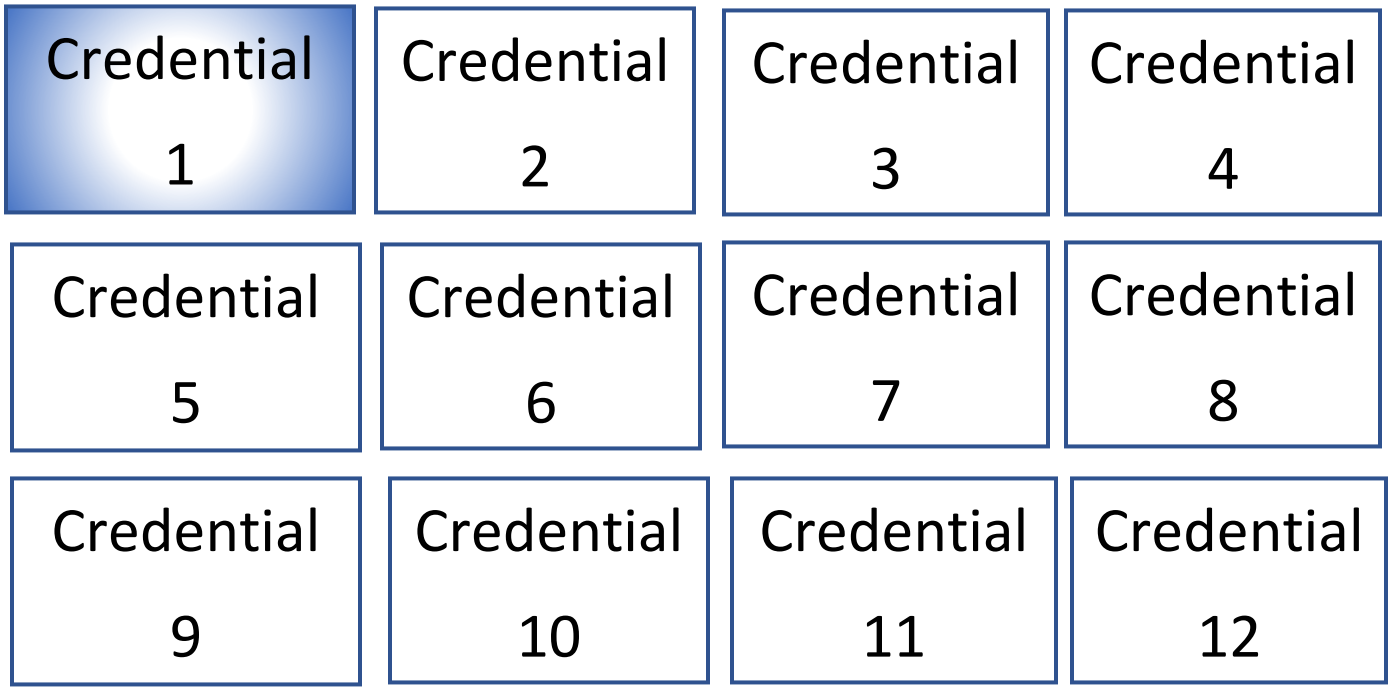
Core Plus Development Guide[2] (Desired training, education, and experience)	Type of Assignment		
Training	**HQ & Staff**	**PM/Matrix Spt**	**Rg/Lab/Fld Spt Act**
CLC 011 Contracting for the Rest of Us	✓	✓	
CLE 009 ESOH in Systems Engineering	✓	✓	✓
CLE 066 Systems Engineering for Systems of Systems	✓	✓	✓
CLL 012 Supportability Analysis	✓	✓	✓

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTE: "**(R)**" following a course title indicates the course is delivered as resident-based instruction.

(Defense_Acquisition_University, 2019b)

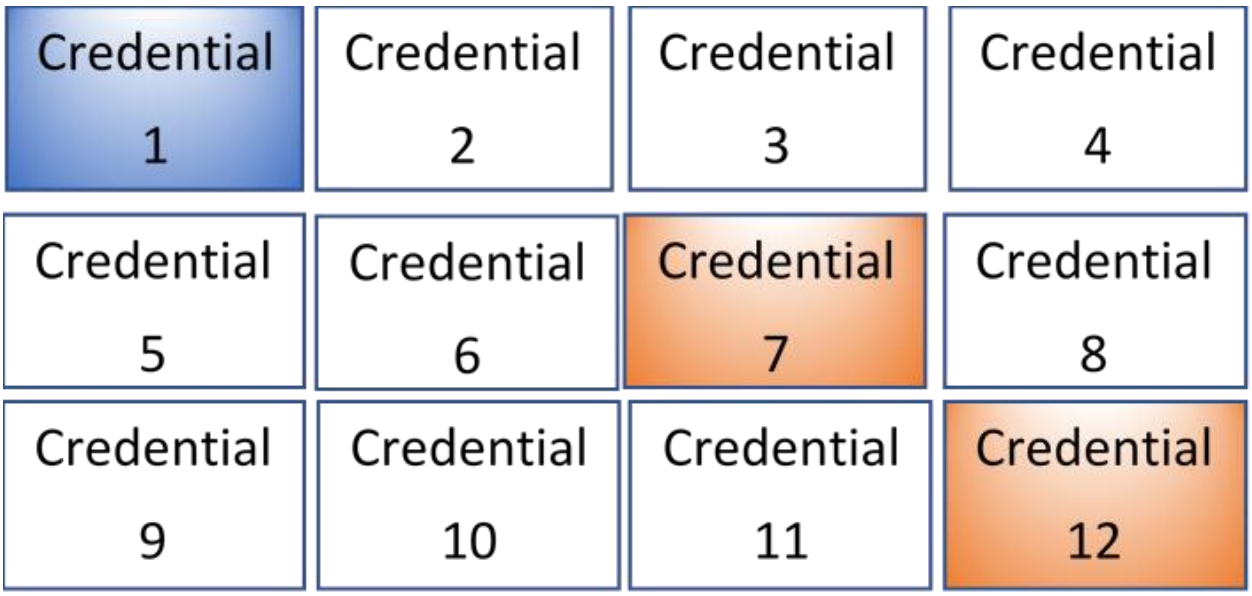
Appendix F – Recommendation 9



Facilities Engineering Level I	
Type of Assignment	**Representative Activities**
• Facilities Engineer	• Conducts actions that support one or more facets of facilities engineering—planning; design; construction; environmental management; base operations, support, and housing; real estate; and real property maintenance • May serve as an IPT member, representing a specific Facilities Engineering functional area
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	**ACQ 101** Fundamentals of Systems Acquisition Management
• Functional Training	None required
• Education	Formal education not required for certification
• Experience	1 year of acquisition experience in facilities engineering

(Defense_Acquisition_University, 2019b)

Appendix F – Recommendation 9



Facilities Engineering Level II	
Type of Assignment	**Representative Activities**
• Facilities Engineer	• Organizes, conducts, and/or monitors one or more facets of facilities engineering—planning; design; construction; environmental management; base operations, support, and housing; real estate; and real property maintenance • May serve as an IPT leader for a specific project, representing a specific FE functional area or supervising multiple disciplines
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	**FE 201** Intermediate Facilities Engineering
• Education	Formal education not required for certification
• Experience	2 years of acquisition experience in facilities engineering
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Facilities Engineer**
CLE 001 Value Engineering	✓
CLM 012 Program Scheduling	✓
CLM 013 Work-Breakdown Structure	✓
CLM 016 Cost Estimating	✓
CLV 016 Introduction to Earned Value Management	✓
EDUCATION: • **Baccalaureate degree in engineering, architecture, physics, chemistry, mathematics, community planning, business, or related fields** • **9 semester credit hours selected from accounting, business finance, law, economics, industrial management, quantitative methods, or organization and management**	
EXPERIENCE: 2 years of experience in acquisition positions of increasing responsibility and complexity (in addition to core certification experience)	
[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment. [2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.	

(Defense_Acquisition_University, 2019b)

Appendix F – Recommendation 9

Credential 1	Credential 2	Credential 3	Credential 4
Credential 5	Credential 6	Credential 7	Credential 8
Credential 9	Credential 10	Credential 11	Credential 12

Facilities Engineering Level III	
Type of Assignment	**Representative Activities**
• Facilities Engineer	• Leads, manages, and/or executes one or more facet of facilities engineering—planning; design; construction; environmental management; base operations, support, and housing; real estate; and real property maintenance • May lead multiple IPTs for specific projects or perform FE program management
Core Certification Standards[1] (Required for DAWIA certification)	
• Acquisition Training	None required
• Functional Training	**FE 302** Advanced Facilities Engineering **(R)**
• Education	Formal education not required for certification
• Experience	4 years of acquisition experience in facilities engineering
Core Plus Development Guide[2] (Desired training, education, and experience)	**Type of Assignment**
Training	**Facilities Engineer**
CLC 108 Strategic Sourcing Overview	✓
CLE 008 Six Sigma: Concepts and Processes	✓
CLM 014 Team Management and Leadership	✓
EDUCATION: • **Baccalaureate degree in engineering, architecture, physics, chemistry, mathematics, community planning, business, or related fields** • **Advanced degree from an accredited institution of higher learning in engineering, physics, chemistry, operations research, community planning, management, business, public administration, or related fields** • **12 semester credit hours selected from accounting, business finance, law, economics, industrial management, quantitative methods, or organization and management**	
EXPERIENCE: 4 additional years of experience in acquisition positions of increasing responsibility and complexity	

[1] The Core Certification Standards section lists the training and/or education and experience REQUIRED for certification at this level for this career field within 24 months of assignment.
[2] When preparing your Individual Development Plan (IDP), you and your supervisor should consider the training, education, and experience listed in this Core Plus Development Guide if not already completed.

NOTE: "**(R)**" following a course title indicates the course is delivered as resident-based instruction.

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