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Cyberspace Operations

CAREER FIELD EDUCATION AND TRAINING PLAN

CYBER OPERATIONS BADGE

HERALDRY

- The lightning bolt wings signify the cyberspace domain while the globe signifies the projection of cyber power world-wide.
- The globe, combined with lightning bolt wings, signifies the Department of the Air Force's common communications heritage.
- The bolted wings, centered on the globe, are a design element from the Department of the Air Force seal signifying the striking power through air, space, and cyberspace.
- The orbits signify the space dimension of the cyberspace domain.

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CYBER OPS

SFSC 5C0X1

CAREER FIELD EDUCATION AND TRAINING PLAN

PREFACE

1. This Career Field Education and Training Plan (CFETP) is a comprehensive core training document that identifies life-cycle education/training requirements, training support resources, and minimum core task requirements for the Cyber Operations specialty. This CFETP provides personnel with a clear career path to success and instills rigor in all aspects of career field training.

NOTE: *Civilians occupying management positions may use Part II to support duty position qualification training.*

2. This CFETP consists of two parts; both parts of this plan are used by supervisors to plan, manage, and control training within the career field.

2.1. Part I provides information necessary for overall management of the specialty. Section A explains how all members will use the plan. Section B identifies career field pathway information, duties and responsibilities, and training strategies. Section C associates each level with specialty qualifications (knowledge, education, experience, training and other). Section D indicates resource constraints; some examples include funds, manpower, equipment, and facilities. Section E currently is not used and is reserved.

2.2. Part II includes the following: Section A identifies the Specialty Training Standard (STS) and includes duties, tasks, technical references to support training, Air Education and Training Command (AETC) and Space Training and Readiness Command (STARCOM) conducted wartime courses, core tasks, and correspondence course requirements. Section B contains the course objective list and training standards supervisors will use to determine if Guardians have satisfied training requirements. Section C identifies available support material. Section D identifies mandatory courses. Section E can be used to identify Field Command unique training requirements.

2.3. Using guidance provided in the CFETP will ensure individuals in this specialty receive effective and efficient training at the appropriate point in their career. This plan enables the Space Force to train today's work force for tomorrow's jobs. At the unit level, supervisors and trainers will use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

ABBREVIATIONS/TERMS EXPLAINED

Advanced Distributive Learning (ADL). Anytime, anyplace learning within DoD consisting of instructional modules comprised of sharable content objectives in an Internet/Intranet environment.

Advanced Training (AT). Formal course which provides individuals who are qualified in one or more positions of their Space Force Specialty (SFS) with additional skills/knowledge to enhance their expertise in the career field. Training is for selected career Guardians at the advanced level of an SFS.

Air Education and Training Command (AETC). Major Command (MAJCOM) responsible for the recruiting, training, and education of Air Force personnel. AETC also provides pre-commissioning, professional military, and continuing education.

AETC Training Manager (TM). An instructional systems specialist who serves as the liaison between the schoolhouse, training pipeline managers, training requirements quota managers, Numbered Air Force, and MAJCOM training functions. Manages training resources and student production.

Department of the Air Force Enlisted Classification Directory (DAFECD). The official directory for all military enlisted classification descriptions, codes, and identifiers.
Establishes the occupational structure of the Space Force enlisted force. The occupational structure is flexible to permit enlisted personnel to specialize and develop their skills and abilities while allowing the Space Force to meet changing mission requirements. Individual enlisted personnel have a joint responsibility with commanders and supervisors at all levels to fully develop their abilities consistent with Space Force needs and within the established patterns of specialization.

Air Force Job Qualification Standard/Workcenter Job Qualification Standard (AFJQS/ WJQS). A comprehensive task list, which describes a particular job type or duty position. They are used by supervisors to document task qualifications. The tasks on AFJQS are common to all persons serving in the described duty position.

Career Field Education and Training Plan (CFETP). A CFETP is a comprehensive, multipurpose document encapsulating the entire spectrum of education and training for a career field. It outlines a logical growth plan that includes training resources and is designed to make career field training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

Certification. A formal indication of an individual's ability to perform a task to required standards.

Certifying Official. A person assigned by the commander to determine an individual's ability to perform a task to required standards.

Continuation Training. Advanced and qualification training that develops in-depth expertise within a specialty, broadens knowledge to new specialties, introduces new technologies and systems, develops analytical skills, or increases understanding of the relationship between cyber specialties.

Core Competency. An integrated bundle of expert knowledge and organizational skills inherent to a particular career field(s) which makes a disproportionate contribution to the success of providing the right skills needed for military operations, anywhere and anytime. It cannot be duplicated by any other organization and is critical for the future.

Core Task. A task Space Force Career Field Managers (CFMs) identify as a minimum qualification requirement within a Space Force specialty or duty position.

Course Objective List (COL). A comprehensive list derived from initial skills course-training standards, identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3/5/7 skill level in a career field. Supervisors use the COL to assist in conducting graduate evaluations in accordance with AFI 36-2651, Air Force Training Program

Directed Duty Assignment (DDA). Guardian specialist trainees, inter-service transfers or personnel disqualified or eliminated from technical training assigned for on-the-job training.

DoD Cyber Workforce Framework (DCWF). The DoD Cyber Workforce Framework establishes the DoD's authoritative lexicon based on the work an individual is performing, not their position titles, occupational series, or designator. The DCWF describes the work performed by the full spectrum of the cyber workforce as defined in DoD Directive (DoDD) 8140.01.

Education and Training Course Announcement (ETCA). ETCA contains specific MAJCOM procedures, fund cite instructions, reporting instructions, and listings for those formal courses the MAJCOMs or FOAs conduct or manage. ETCA also contains courses the Air Force and reserve forces conduct or administer and serves as a reference for the Air Force, DoD, other military services, government agencies, and security assistance programs. Located at https://usaf.dps.mil/teams/app10-etca/SitePages/home.aspx

Education with Industry (EWI). The EWI Program is a highly selective, competitive, career development program designed to improve the technical, professional, and management competencies of participating students by partnering with top tier public and private sector companies.

Enlisted Specialty Training (EST). A mix of formal training (technical school) and informal training (on-the-job) to qualify and upgrade Guardians in each skill level of a specialty.

Exportable Training. Additional training via computer assisted, paper text, interactive video, or other necessary means to supplement training.

Field Technical Training (Type 4). Special or regular on-site training conducted by a field training detachment (FTD) or by a mobile training team.

Functional Authority (FA). Designated General Officers and members of the Senior Executive Service serving as Deputy Chiefs of Staff or Assistant Secretaries appointed by the Secretary of the Air Force to provide oversight and functional advisory services related to functional communities. Provide strategic oversight of force development to include determination and prioritization of functional community requirements to meet mission needs. **(T-1). (**DAFMAN 36-2689)

Foundational Competencies. A set of accepted and valued competencies applicable to all Guardians (officer, enlisted, and civilian) to achieve success across the wide array of Space Force missions, roles, functions, and duties.

Individual Training Plan (ITP). Used in myTraining to document training. The ITP reflects past and current qualifications and is used to determine training requirements. It is intended to be a complete history of past training and current qualifications. Supervisors will ensure all documentation is accurate and comprehensive.

Initial Qualification Training (IQT). IQT is training needed to qualify personnel for basic duties in an assigned position for a specific Mission Defined Service, weapons system, function or activity, with-out regard for a unit's specific mission. Qualification evaluations consist of two structured phases, knowledge and task. The knowledge phase includes a series of examinations and the task phase includes a hands-on evaluation of job performance.

Initial Skills Training. A formal resident course, which results in award of the 3-skill level.

Instructional Systems Design (ISD). A deliberate and orderly, but flexible process for planning, developing, implementing, and managing instructional systems. It ensures personnel are taught in a cost-efficient way the knowledge, skills, and attitudes essential for successful job performance.

Integrated Maintenance Data System (IMDS). Is the standard Air Force system for maintenance information. All maintenance information should be accessible for collection, storage, and dissemination of critical data for repair and improvement of Air Force weapons systems and equipment.

Job Qualification Standard (JQS). A comprehensive task list that describes a particular job type or duty position. Supervisors use the JQS to document task qualification. The tasks on JQSs are common to all persons serving in the described duty position.

Master Task Listing (MTL). A comprehensive list (100%) of all tasks performed within a work center and consisting of the current CFETP or AFJQS and locally developed AF Forms 797 (as a minimum). Should include tasks required for deployment and/or UTC requirements.

Master Training Plan (MTP). Employs a strategy for ensuring the completion of all work center job requirements by using a MTL and provides milestones for tasks and prioritizes deployment/UTC, home station training tasks, upgrade, and qualification tasks.

Mission Qualification Training (MQT). MQT follows IQT and is training needed to qualify personnel to perform their specific unit mission in an assigned position. Completion of Specialty Training Standard task and knowledge training requirements may be accomplished concurrently with MQT.

MyVector. The Department of the Air Force's platform for career development and mentoring. MyVector enables a network of mentoring relationships for individuals to manage career development. The platform also allows users to track career milestones through career field-specific experience codes. The coding structure allows users to build career plans based on real opportunities and to share career plans with development teams and mentors. Site: https://myvector.us.af.mil/. NOTE: MyVector is the CFM's official platform for communications to the field.

Occupational Analysis Report (OAR). A detailed report showing the results of an occupational survey of tasks performed within a particular SFS.

Occupational Competencies. Competencies required by an individual to successfully execute a mission, role, function, job, task, or duty within a designated or specified workforce category or group of functions requiring similar work (e.g., Aircraft Maintenance, Civil Engineering, and Nursing).

On-the-Job Training (OJT). Hands-on, over-the-shoulder training conducted to certify personnel in both upgrade (skill level award) and job qualification (duty position certification) training.

Optimal Training. The ideal combination of training settings results in the highest levels of proficiency on specified performance requirements within the minimum time possible.

Quality Assurance (QA). The Quality Assurance program ensures programs, functions, process, equipment, systems, end item or service are of the type and quality to meet/or exceed mission requirements. The QA program enhances mission accomplishment within the confines of public law, DoD/AF policy and guidance or technical orders. QA empowers commanders to actively manage mission risk at the appropriate level.

Quality Assurance Representative (QAR). A QAR is a member of the unit, not permanently assigned to a QA program. QARs should be highly qualified persons identified by skill and experience, motivation, and knowledge of evaluation, analysis, and support duties. QARs are often used in small units or detachments where a full QA program does not exist, or when mission needs dictate a smaller permanent QA presence and still needs to complete inspections. When a military member is assigned as a QAR they must possess a minimum 5-skill level Primary Air Force Specialty Code (PAFSC).

Qualification Training (QT). Actual hands-on task performance-based training designed to qualify a Guardian in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skills training required to do the job.

Qualification Training Package (QTP). An instructional course designed for use at the unit to qualify, or aid qualification, in a duty position or program, or on a piece of equipment. It may be printed, computer-based, or in other audiovisual media.

Representative Sites. Typical organizational units having similar missions, weapon systems or equipment, or a set of jobs, used as a basis for estimating average training capacities and costs within the Training Impact Decision System (TIDES).

Resource Constraints. Resource deficiencies, such as money, facilities, time, manpower, and equipment that preclude desired training from being delivered.

Special Experience Identifier (SEIs). Identify authorizations for enlisted Guardians assigned to and performing an actual group of tasks on a semi-permanent or permanent duty basis unrelated or related to any specific career field.

Skills Training. A formal course, which results in the award of a skill level.

Space Force Career Field Manager (CFM). An individual, usually a Senior Master Sergeant, on the Space Staff charged with the responsibility for overseeing all training and career field management aspects of a Space Force specialty or group of specialties.

Space Training and Readiness Command (STARCOM). Prepares the Space Force to prevail in competition and conflict through education, training, doctrine, and test. To prepare Guardians through training, STARCOM organizes and focuses Space Force military training on space warfighting and develop Guardians as military space forces. AETC equivalent.

Specialty Training Standard (STS). A Space Force publication that describes a Space Force specialty in terms of tasks and knowledge that a Guardian in that specialty may be expected to perform or to know on-the-job. The STS identifies the training provided to achieve a 3, 5, and 7 skill level (or appropriate competency level) within an enlisted SFS. It further serves as a contract between AETC, STARCOM and the functional user to show which of the overall training requirements for a Space Force specialty Code (SFSC) are taught in formal schools and correspondence courses.

Standard. A fixed quantity, quality, or level of performance an individual is expected to demonstrate.

Talent Marketplace. Talent Marketplace, available through MyVector, is a technological platform supporting the enlisted assignment system that aims to increase flexibility and transparency for members, supervisors, billet owners, and commanders.

Task Module. A group of tasks performed within a Space Force specialty that are performed together and that require common knowledge, skills, and abilities. TMs are identified by an identification code and a statement.

Total Force. All collective components (active, reserve, guard and civilian elements) of the Department of the Air Force.

Training Capacity. The capability of a training setting to provide training on specified requirements, based on the availability of resources.

Training Planning Team (TPT). Comprised of the same personnel as a Utilization and Training Workshop (U&TW), however TPTs are more intimately involved in training development and the range of issues are greater than is normal in the U&TW forum.

Training Requirements Analysis. A detailed analysis of tasks for a particular SFS to be included in the training decision process.

Training Setting. The type of forum in which training is provided (formal resident school, on-the-job, field training, mobile training team, self-study etc.).

Unit Type Code (UTC). A five-character alphanumeric code identifying a specific force package of personnel and/or equipment. The UTC is the means for linking logistics and manpower details within a unit type and is used to communicate for data. The UTC represents a wartime capability designed to fill a valid contingency requirement.

Upgrade Training (UGT). A mixture of mandatory courses, task qualification, and QTPs required for award of the 3, 5, or 7 skill levels.

Utilization and Training Pattern. A depiction of the training provided to, and the jobs performed by personnel throughout their tenure within a career field or Space Force specialty. There are two types of patterns: 1) Current pattern, which is based on the training provided to incumbents and the jobs to which they have been and are assigned; and 2) Alternate pattern, which considers proposed changes in manpower, personnel, and training policies.

Utilization and Training Workshop (U&TW). A forum of the CFM, Field Command functional managers (FLDCOM FM), Subject Matter Experts (SMEs), STARCOM, and AETC training personnel that determines career ladder training requirements.

PART I
SECTION A - GENERAL INFORMATION

1. **Purpose.** This CFETP provides information necessary for the Space Force Career Field Manager (CFM), Field Command functional managers, commanders, training managers, supervisors, trainers, and applicable STARCOM and AETC training wings to plan, develop, manage, and conduct an effective career field education and training program. This plan outlines training Guardians must receive to develop and progress throughout their career. This plan identifies initial skills, upgrade, qualification, and continuing education and training. Initial skills training is the Space Force Specialty (SFS) specific training an individual receives upon entry and/or retraining in this specialty. For our career field, this training is typically provided by AETC, STARCOM, 533 TRS, 333 TRS, 336 TRS, and 338 TRS. Upgrade training (UGT) identifies the mandatory courses, task qualification requirements, and correspondence course completion required for award of the 3, 5, and 7 skill levels. Qualification training (QT) and or Combat Training (CT) is actual hands-on task performance training designed to qualify a Guardian in a specific duty position. This training program occurs both during and after the UGT process. It is designed to provide the performance skills/knowledge required to do the job. The CFETP also serves the following purposes:

1.1. Serves as a management tool to plan, manage, conduct, and evaluate a career field education and training program. In addition, it is used to help supervisors identify baseline training at the appropriate point in an individual's career.

1.2. Identifies task training requirements for each skill level in this specialty and recommends education/training throughout each phase of an individual’s career.

1.3. Lists training and education courses available in the specialty, identifies sources of training, and the training delivery method.

1.4. Identifies major resource constraints that impact full implementation of the desired career field training process.

2. **Usage.** The CFETP will be used by the CFM, FLDCOM FM, and supervisors, at all levels to ensure comprehensive and cohesive training programs are available for each Guardian in the cyber operations field.

2.1. STARCOM and AETC training personnel will develop/revise formal resident and non-resident training based on requirements established by users and documented in Part II of the CFETP. They will also work with the CFM to develop acquisition strategies for obtaining resources needed to provide the identified training.

2.2. The FLDCOM FM ensure their training programs complement the CFETP mandatory initial, upgrade, and proficiency requirements. Identified requirements can be satisfied by OJT, resident, contract, or exportable courseware/courses.

2.3. Unit Education and Training Managers and supervisors must ensure each Guardian completes the mandatory training requirements (including Delta supplemental requirements) for the upgrade training specified in this plan.

2.4. Each guardian will complete the mandatory training requirements specified in this plan. The lists of courses in Part II will be used as a reference to support training.

3. **Coordination and Approval.** The CFM is the approval authority. Also, the CFM will initiate an annual review of this document to ensure currency and accuracy. Delta representatives, STARCOM and AETC training personnel will identify and coordinate on the career field training requirements. Using the list of courses/line items in Part II, they will eliminate duplicate training.

SECTION B - CAREER PROGRESSION AND INFORMATION

4. **Specialty Description.** Specialty Summary. Manages and performs Cyber Warfare (CW) and Mission-Information Technology (MSN-IT) functions in-garrison and at deployed locations for the United States Space Force (USSF). This Space Force Specialty Code description incorporates the utilization of the DoD Cyberspace Workforce Framework (DCWF) Codes to tie this specialty description to the specific work roles within the framework. The DCWF was developed by the National Institute of Standards and Technology (NIST) and the DoD to establish a common lexicon and model for all cyber work, and will ultimately universalize training and education between academia, industry, and military. The contents of this Specialty Code are only applicable to Guardians in the USSF.

4.1. **Cyber Warfare Operations activities (D suffix).** Responds to disruptions within the pertinent domain to mitigate immediate and potential threats. Uses mitigation, preparedness, and response and recovery approaches to maximize survival of life, preservation of property, and information security. Investigates and analyzes relevant response activities and evaluates the effectiveness of and improvements to existing practices. Using DCO-S tools (Kraken, Manticore, and Red Dragon) and cyber defense tools (IDS, firewalls, packet captures) personnel are able to analyze threats and indicators within their environment for mitigation efforts. Conducts threat and vulnerability assessments and determines deviations from acceptable configurations or policies. Assesses the level of risk and develops and/or recommends appropriate mitigation countermeasures. Measures effectiveness of defense-in-depth architecture against known vulnerabilities. Utilizes defensive measures and information collected from a variety of sources to identify, analyze, report and mitigate events that occur or might occur within the network or RF Spectrum in order to protect information, information systems, networks, and RF systems. Performs and supports cyber mission Planning, Briefing, Execution, and Debriefing (PBED). Identifies, validates, and synchronizes resources to enable integration during the execution of defensive cyber operations. Collects, processes, preserves, analyzes, and presents computer-related artifacts in support of network vulnerability mitigation.

4.2. **Satellite Communications (SATCOM) & Radio Frequency (RF) operational activities: (R Suffix).** Understands and employs the concepts of Electromagnetic Spectrum (EMS) theory. Understands Radio Frequency (RF) spectrum distribution and utilization including radio frequency wireless, line-of-sight, beyond line-of-sight, wideband, narrowband, and ground-based satellite communications. Understands Orbital theory to include but not limited to concepts of Low, Medium, and Geostationary Earth orbits. Understands RF transmission theory to include but not limited to concepts of modulation, multiplexing, frequency conversion and translation, polarization, and timing. Understands concepts critical to the employment of Communications Security (COMSEC) and the management and security of cryptologic materials. Understands a basic level of Information Technology (IT) fundamentals to include network interconnection and topologies, and cybersecurity fundamentals. Understands electronics principles necessary to facilitate maintenance on communications and power systems. Deploys, installs, sustains, monitors, troubleshoots, and repairs standard radio frequency wireless, line-of-sight, beyond line-of-sight, wideband, narrowband, ground-based satellite, ground and space-based missile defense, and encryption transmission devices in support of operational warfighters. Installs, maintains, reconstitutes, removes, and modifies RF communications equipment to include modulation, multiplexing, coaxial cabling, timing, wave guide, and antenna systems. Resolves installation, repair, overhaul, and modification problems associated with communications equipment. Conducts tests to restore and maintain systems. Uses layout drawings, schematics, and pictorial diagrams to solve maintenance problems. Analyzes construction and operating characteristics of equipment to determine source(s) of malfunction. Determines repair or employs replacement procedures necessary to correct defective equipment. Performs intricate alignment and calibration procedures of RF systems to ensure maximum operating efficiency. Manages satellite and telemetry communications equipment and programs. Performs/supervises wireless radio and satellite systems and equipment maintenance activities. Oversees work in progress and reviews completed repairs for sound maintenance practices. Establishes requirements for maintenance equipment, support equipment, tools, and spare parts. Requisitions, accounts for, and turns in supplies and material. When necessary, employs various Mission Design Series (MDS) including but not limited to Orbital Warfare, Electromagnetic Warfare, Command and Control, and Nuclear Command, Control, and Communications and preforms cybersecurity functions on said MDS.

4.3. **Cyber Systems operational utilization activities: (S Suffix).** Installs, configures, troubleshoots, and maintains servers, system configurations (hardware and software), and related cyber systems to ensure their confidentiality, integrity, and availability. Administers server-based systems, security devices, distributed applications, network storage, messaging, and performs systems monitoring. Consults on network, application, RF links and customer service issues to support systems' security and sustainability. Conducts threat and vulnerability assessments and determines deviations from acceptable configurations or policies. Assesses the level of risk and develops and/or recommends appropriate mitigation countermeasures in operational and non-operational situations. Performs within the environment or enclave and identifies deviations from acceptable configurations, enclave policy, or local policy. Measures effectiveness of defense-in-depth architecture against known vulnerabilities.

4.4. **Networking/transport infrastructure aspects of Cyber Systems related activities: (N Suffix).** Deploys, upgrades, configures, installs, and maintains voice/video systems as well as long-haul comm systems that provide a backbone to military, federal and commercial networks and mission systems. Installs, configures, tests, operates, maintains, and manages networks and their firewalls, including all hardware (e.g., hubs, bridges, switches, multiplexers, routers, cables, and equipment, proxy servers, and protective distributor systems) and software that permit the sharing and transmission of all spectrum transmissions of information to support the security of information and information systems. Tests, implements, deploys, maintains, reviews, and administers the infrastructure hardware, software, and documentation that are required to effectively manage network defense resources.

4.5. The Duties and Responsibilities are also included within the Department of the Air Force Enlisted Classification Directory (DAFECD). The DAFECD can be found on myFSS by searching for DAFECD.

5. **Skill and Career Progression**. Adequate training and timely progression from apprentice (3-skill level) to the craftsman (7-skill level) levels play an important role in the Space Force's ability to accomplish its mission. It is essential that everyone involved in training do their part to plan, manage, and conduct an effective training program. The guidance provided in this part of the CFETP will ensure each guardian receives viable training at appropriate points in their career. Supervisors should use feedback sessions to clarify expectations and develop career goals. Inability to advance in skill level or competency level after objective evaluation will require retraining to another career field or separation from military service. DAFMAN 36-2689, *Training Program*, provides the upgrade training procedures. Additional considerations are listed below.

5.1. **Apprentice (3) Level.** Initial skills training in this specialty consists of the tasks and knowledge training provided in the 3-skill level resident courses or by completing the tasks in the 3-skill level course column. Upon completion of initial skills training, a trainee will work with a trainer to enhance their knowledge and skills. They will use Task Qualification Training. Once task/mission certified (Certified Mission Ready) via means of QT, CT, or having conducted a personnel evaluation by QA or a QAR, a trainee may perform the task unsupervised. It is imperative that 3-level Guardians receive training in defensive cyber operations, RF and SATCOM operations, system operations and network operations. Three-levels may be assigned job positions aligning to these competencies. Completion of the Cyber Warfare Operator (CWO) course, the Cyber Combat Course (C3), or Sister Service equivalent is mandatory for being assigned the D Shred. The CFM can also waive the training requirements and award the 3- level.

5.2. **Journeyman (5) Level.** Journeymen are expected to build upon the basic skills and competencies learned as an apprentice by additional OJT and certification of core tasks. 5-levels may be assigned job positions aligning to the following: defensive cyber operations, RF and SATCOM Operations, system operations, network operations, intel operations, and/or space operations. They must complete all 5-level core tasks. Trainees will complete all available training courses, or Mission Delta specific training before upgrade training is complete. 5-level personnel should have supported SPAFORGEN cycles by either being a part of a space mission crew or serving a position to support the execution of space crew operations. Highly recommend the completion of a CCAF or associate degree in a cyber-related discipline.

5.3. **Craftsman (7) Level**. A craftsman may fill various supervisory and management positions aligning to the following: defensive cyber operations, RF and SATCOM operations, system operations, network operations, intel operations, space operations. They must complete all the 7-level core tasks. Continued academic education through CCAF or associate degree program is encouraged. Highly recommend completion of a CCAF or associate degree in a cyber related discipline.

6. **Training Decisions.** A task is a unit of work activity or operation which forms a significant part of a duty. They are singular in nature and are usually accomplished in one continuous action, which also can occur independently of other tasks. Conversely, outcomes are learning goals that typically consist of a multitude of tasks. These outcomes are actions and performances that embody and reflect the learner's competence in using content, information, ideas, and tools successfully. Focusing on learning outcomes allows organizations, leaders, supervisors, and trainers to incorporate foundational competencies and underlying characteristics (values, traits, attitudes) into learning, which is necessary for developing Guardians with the competencies needed for future challenges. The following decisions were made as a result of close coordination between Force Development Command (AETC), STARCOM, 2AF Technical Training, schoolhouse instructors and staff, field SMEs, functional managers and the CFM. The final training requirements are then approved by the CFM.

6.1. The CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Cyber career field. The spectrum includes a strategy for when, where, and how to meet the training requirements. The strategy must be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training.

6.2. **Proficiency/Continuation Training.** Any additional knowledge and skill requirements that were not taught through initial skills or upgrade training are assigned as continuation training. Purpose of continuation training is to provide training exceeding minimum upgrade training requirements with emphasis on present and future duty positions. Mission Deltas must develop a continuation training program that ensures personnel in the 5C0X1 career field receive the necessary training at the appropriate point in their careers. The training program will identify both mandatory and optional training requirements

7. **Community College of the Air Force (CCAF) and additional Education Opportunities.** Automatic enrollment in CCAF occurs upon completion of basic military training. CCAF provides the opportunity to obtain an Associates in Information Systems Technology, Cybersecurity, and Electronic Systems Technology Degrees.

7.1. In addition to its associate degree program, CCAF offers the following:

- Credentialing Opportunities On-Line (COOL). COOL replaced the CCAF Credentialing and Education Research Tool (CERT). The COOL Program is managed by CCAF and provides a research tool designed to increase a Guardian's awareness of national professional credentialing and funding opportunities available for all DAF occupational specialties. COOL also provides information on specific occupational specialties, civilian occupational equivalencies, SFSC-related national professional credentials, credentialing agencies, and professional organizations. COOL contains a variety of information about credentialing and licensing and can be used to get background information about civilian licensure and certification in general and specific information on individual credentials including eligibility requirements and resources to prepare for an exam.
- Identify licenses and certifications relevant to SFSC
- Learn how to fill gaps between DAF training and experience and civilian credentialing requirements
- Get information on funding opportunities to pay for credentialing exams and associated fees
- Learn about resources available to Guardians that can help them gain civilian job credentials
- To learn more about AF COOL and funding processes, visit https://afvec.us.af.mil/afvec/Public/COOL/

7.2. CCAF Degree Requirements. Can be found at the following location: https://www.airuniversity.af.edu/Barnes/CCAF/

7.3. **Air Force Institute of Technology (AFIT).** AFIT is the sole provider of more than 100 professional continuing education courses in acquisition management, logistics management, contracting, systems management, software engineering, and financial management delivered to war fighters around the globe via customer focused delivery modes including resident, on-site, and online courses. More information on course availability can be found at https://www.afit.edu/LS/ .

7.4. **Continuous Process Improvement (CPI).** CPI increases operational capabilities while reducing associated costs by applying proven techniques to all processes associated with fulfilling the Space Force mission. The goal of Department of the Air Force CPI is to eliminate waste while maximizing customer value. Education, training and certification opportunities include: Practical Problem Solving Method, Green Belt, Black Belt and Master Black Belt training. More information can be found in AFI 38- 401, Continuous Process Improvement.

7.5. Individuals desiring to become an Air Education and Training Command (AETC) or STARCOM Instructor must possess as a minimum an associate degree or should be actively pursuing an associate degree. Instructor Special Duty Assignment (SDA) requires an

AETC/STARCOM instructor candidate to have a CCAF degree or be within one year of completion (45 semester hours [SH]). A degree faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

7.6. Guardians are highly encouraged to pursue a four-year degree through the Air University Associate to Baccalaureate Cooperative Program (AUABC). AU-ABC is an initiative between the Air Force, Space Force, and civilian higher education institutions to offer baccalaureate degree opportunities to every Air Force and Space Force enlisted member. The program directs Airmen and Guardians with an associate in information systems technology, electronics systems technology and cybersecurity degrees to a collection of accredited "military friendly" colleges and universities to consider when completing a four-year degree. The AF Virtual Education Center (AFVEC) serves as the gateway to AU-ABC degree program and associated student services such as on-line enrollment, tuition assistance processing, support services, and access to distance learning instructions. In short, students are able to participate in courses anywhere, anytime to earn career-relevant bachelor's degrees.

8. **Human Capital Strategic Path.** The Human Capital Strategic Path identifies within what competencies Cyber Operation Guardians may be assigned during their career and at the grade they should expect to be eligible for those functional competency areas, education and training opportunities, and special experiences. Breadth of experience and education will determine the assignment placement in some cases. The pathway document is not a checklist to promotion, nor does it show preferred paths to destinations. It exists to show Guardians what experiences are currently available within their given tier as well as identifying experiences at the next tiers. The 5C0X1 Enlisted Career Path Requirements Table identifies these pathways.

8.1. **Produce Capabilities to Accomplish the Mission.** This goal substantiates our need for a strong upgrade and on-the-job training program in order to equip our Guardians with the knowledge and skills needed to be successful in their job.

8.2. **Meet the Joint and Combatant Commander's (CCMD) Needs.** This goal ensures we maintain our warfighting capability at the forefront of our training and development. We need to have Guardians postured in the right positions with the right experience and education to meet the Joint and Combatant Commander's requirements.

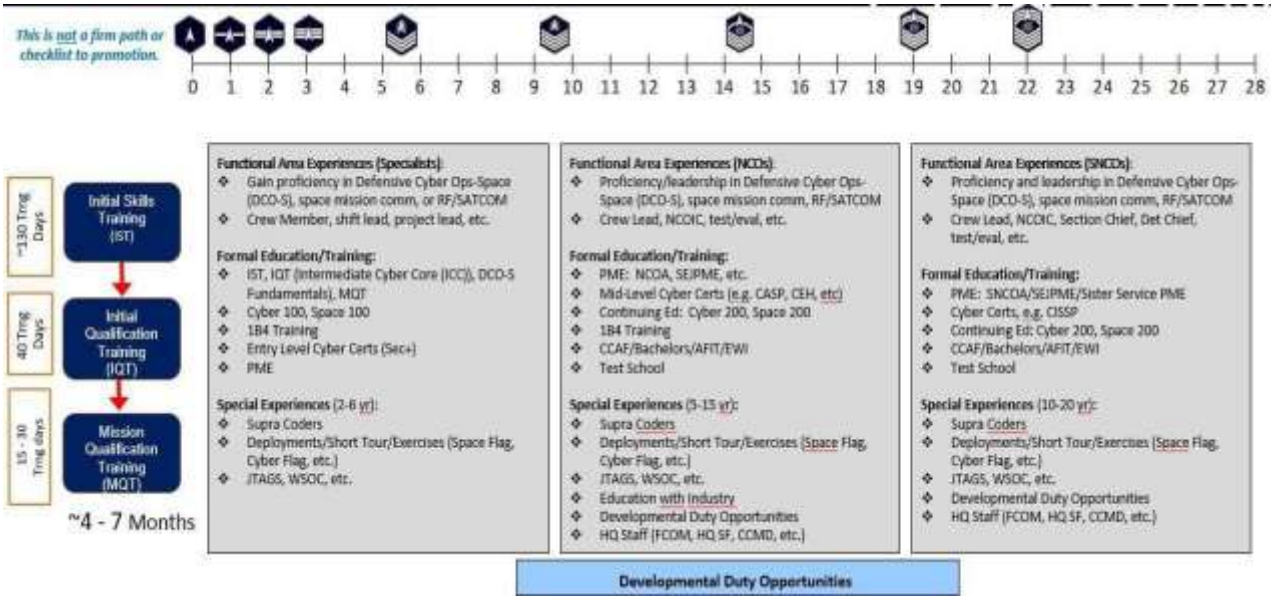
8.3. **Deliberately Develop Guardians.** This goal leverages specific training and experience in order to prepare our Guardians for future assignments. It recognizes previous duties and responsibilities and allows leaders to provide further opportunities for developing Guardians using education, duties, and assignments.

8.4. **Maximize Return on Investment.** Recognizing that every dollar counts, this goal requires the balanced consideration of financial investment with capability when identifying individuals for professional education. This is also an important indicator when placing individuals into key D-Shred positions, allowing them to exploit their talent and experience, thereby maximizing the time and investment expended to provide the capability.

8.5. **Forecast Force Development Requirements.** Education and training is a costly endeavor and to ensure courses are available to meet the needs of our community, we must forecast and budget for the right courses. This provides a sustainable approach to Cyber Operations force development.

8.6. **Provide Tools to Navigate Career.** Developing tools to provide a Guardian roadmap for the career fields ensures our Guardians have the ability to make informed decisions at specific points in their career. Taking advantage of the various automated capabilities will ensure these tools are available when and where they are needed the most.

Enlisted Cyber Operations (5C) Career Pathways



5C0X1/X CYBER OPERATIONS CAREER PATH	
Education and Training Requirements	***Rank***
Basic Military Training	
Apprentice Technical School (3-Skill Level)	E1 – E4
Upgrade To Journeyman (5-Skill Level) **MANDATORY** - Minimum Rank of E-3 - No minimum required time-in-training for AD, trainees, & retrainees. Maximum time-in training is defined in DAFMAN 36-2689. - Completion of 5C0X1/X and shred-specific CFETP requirements for 5-Skill Level. - Completion of applicable core AFJQSs/AFQTPs as identified in Part II, Section C - Support Materials Supplement for specific duty position, equipment, and systems at assigned location. **OPTIONAL** - AETC/STARCOM Supplemental training courses as determined by Mission Deltas.	E1 – E4
Upgrade To Craftsman (7-Skill Level) **MANDATORY** - Minimum rank of Sgt. - No minimum required time-in-training for AD, trainees, & retrainees. Maximum time-in training is defined in DAFMAN 36-2689. - Completion of 5CXXX and Shred-specific CFETP requirements for 7-Skill Level. - Completion of applicable core AFJQSs/AFQTPs as identified in Part II, Section C - Support Materials Supplement for specific duty position, equipment, and systems at assigned location. **OPTIONAL** AETC/STARCOM Supplemental training courses as determined by Mission Deltas.	E-5 See https://myfss.us.af.mil/ statistics for average promotion sew-on and DAFI 36-2502 for enlisted Airman Promotion /Demotion Programs.

Note 1: See Part II, Sections A and B for a list of AFJQSs/AFQTPs and AETC & STARCOM supplemental training.

Note 2: All core position tasks must be completed prior to upgrade. This includes all tasks outlined in CFETP 5CXXX and requirements outlined in the trainee's shred-specific STS.

Section C - Skill Level Training Requirements

9. **Purpose.** Skill level training requirements in this specialty are defined in terms of tasks and knowledge requirements. This section outlines the specialty qualification requirements for each skill level in broad, general terms and establishes the mandatory requirements for entry, award, and retention of each skill level. The specific task and knowledge training requirements are identified in the Specialty Training Standard at Part 2, Section A and B of this CFETP.

10. **Specialty Qualification:** Skill levels in this career field are defined in terms of tasks and knowledge requirements. This section outlines the specialty qualification requirements for each skill level in broad, general terms and establishes the mandatory requirements for entry, award and retention of each skill level. The specific task and knowledge training requirements are identified in the STS at Part II, Sections A and B of this CFETP.

10.1. **Apprentice (3- Level) Training**. The shred-specific Apprentice Course serves as the initial skills course and must be completed to be awarded a 5CXXX/X SFSC.

KNOWLEDGE	None required.
EDUCATION	Completion of high school is mandatory.
TRAINING	Completion of the career field-specific Apprentice course. See Part II, Section A for Course Objective List.
EXPERIENCE	None required.
OTHER	- For award and retention of this SFSC, individual must attain and maintain a minimum Information Assurance Technical Level II certification IAW AFMAN 17-1303, *Cybersecurity Workforce Improvement Program* and DoD 8570.01-M, *Information Assurance Workforce Improvement Program*. • Commanders may waive this requirement on a case-by-case basis if elevated network access is not required to perform duties. - Must maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security*. - Specialties requires routine access to Top Secret material and/or environment. Hence, completion of a current Tier 5 (T5) background investigation according to DoDMAN 5200.02_DAFMAN 16-1405, *Department of Air Force Personnel Security Program*, is mandatory. - Award of the 3-skill level without a completed Tier 5 Investigation is authorized provided an interim Top-Secret clearance has been granted according to DAFMAN 16-1405.
IMPLEMENTATION	Attendance at the career field-specific Apprentice course is mandatory for award of the 3-skill level unless waived by the CFM.

10.2. **Journeyman (5- Level) Training.**

KNOWLEDGE	Completion of the 5CXXX/X and shred-specific 5-Level OJT.
TRAINING	No mandatory AETC/STARCOM training courses are required for upgrade.
EXPERIENCE	Qualification in and possession of SFSC 5C0X1/X. Experience performing 5C0X1/X functions specific to your career shred. Completion of all STS core tasks. Completion of all local tasks assigned for the duty position.
OTHER	- For award and retention of this SFSC, individual must maintain a minimum Information Assurance Technical Level II certification IAW AFMAN 17-1303, *Cybersecurity Workforce Improvement Program* and DoD 8570.01-M, *Information Assurance Workforce Improvement Program*. • Commanders may waive this requirement on a case-by-case basis if elevated network access is not required to perform duties. - Must maintain local network access IAW AFI 17-130, Cybersecurity Program Management and AFMAN 17-1301, *Computer Security*. - Specialties requires routine access to Top Secret material and/or environment. Hence, completion of a current Tier 5 (T5) background investigation according to AFMAN 16-1405, Personnel Security Program Management, is mandatory.
IMPLEMENTATION	Entry into formal journeyman upgrade training is accomplished once individuals are assigned to their first duty station. Qualification training is initiated any time guardians are assigned duties for which they are not qualified.

10.3. **Craftsman (7-Level) Training.**

KNOWLEDGE	Completion of the 5C0X1X and shred-specific 7-Level OJT.
TRAINING	No mandatory AETC/STARCOM training courses are required for upgrade.
EXPERIENCE	Qualification in and possession of SFSC 5C0X1/X. Experience performing 5C0X1/X functions specific to your career shred. Completion of all STS core tasks. Completion of all local tasks assigned for the duty position.
OTHER	- For award and retention of this SFSC, individual must maintain a minimum Information Assurance Technical Level II certification IAW AFMAN 17-1303, *Cybersecurity Workforce Improvement Program* and DoD 8570.01-M, *Information Assurance Workforce Improvement Program*. • Commanders may waive this requirement on a case-by-case basis if elevated network access is not required to perform duties. - Must maintain local network access IAW AFI 17-130, Cybersecurity Program Management and AFMAN 17-1301, *Computer Security*. - Specialties requires routine access to Top Secret material and/or environment. Hence, completion of a current Tier 5 (T5) background investigation according to AFMAN 16-1405, Personnel Security Program Management, is mandatory.
IMPLEMENTATION	Entry into OJT is initiated when individuals obtain the necessary rank and skill level. Qualification training is initiated any time an individual is assigned duties for which they are not qualified. Use the Learning Program and AFJQSs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.

11. **Training Sources.**

11.1. Career field-specific and 1D7XX/X Learning Programs are available via Percipio.

A complete description and listing of LPs offered by AFCDA is available via Air University.

12. **Occupational Badges**. Below is the criterial for the awarding of the Cyber Operations Badge. Disciplined and phased skill progression enables commanders to assess the operational experience of the enlisted force and helps identify conditions that prohibit or limit readiness through the Defense Readiness Reporting System.

12.1. If a member is not identified as requiring Initial Skills Training, then Skill-Level and badge wear is determined by the CFM. However, if the member is determined as needing IST, then the 3-Skill/Experience Level and Basic Cyber Operations Badge wear will be awarded upon IST completion.

12.2. The Cyber Operations badge is the awarded and authorized badge for all 5C0X1's. The wear of the Cyber Operations badge is authorized for all 5C0X1's as listed in the table below or upon completion of the 3-Skill/Experience Level awarding course (IST). Reference SPFGM2022-3602 with regards to the wear of badges earned or awarded from a Sister Service.

Cyber Operations Badge

MASTER CYBER OPERATIONS BADGE

SENIOR CYBER OPERATIONS BADGE

BASIC CYBER OPERATIONS BADGE

BADGE CRITERIA

Category	Basic Cyber Badge	Senior Cyber Badge	Master Cyber Badge
Enlisted Cyber Operations Badge	Award to enlisted in the grade of E4 and below that have been granted the 5C031 specialty and completed Initial Skills Training (IST) or been credited IST completion by the Career Field Manager.	Award to E5-E7 that have been granted the 5C071 specialty. Award to enlisted 5Z8s or 5Z9s with 4 years previous Cyber Operations experience, as determined by the Career Field Manager.	Award to E7 that have been granted the 5C071 specialty and with 5 or more cumulative years in a Cyber Operations career field. Award to enlisted 5Z8s or 5Z9s with 5 years previous Cyber Operations experience, as determined by the Career Field Manager.

Section D - Resource Constraints

13. **Purpose.** This section identifies known resource constraints that preclude optimal and desired training from being developed or conducted, including information such as cost and manpower. Resource constraints will be, as a minimum, reviewed and updated annually.

14. **Apprentice Level Training:** The current Cyber Warfare Operator (CWO) or D shred awarding 3-level course is a constrained course. Alternatively, the Cyber Combat Course (C3) is the USSF's D shred awarding 3-level course.

***Section E - Transitional Training Guide*:**

There are currently no transitional training requirements. This area is reserved.

PART II
Section A - Specialty Training Standards

1. Implementation. SFSC-Specific STSs are located in the below attachment of this CFETP. See SFSC-specific STS for 3-Level course start date.

2. Purpose. As prescribed in DAFMAN 36-2689, this CFETP:

2.1. Lists in column 1 (Task, Knowledge, and Technical Reference) the most common tasks, knowledge, and technical references (TR) necessary for Guardians to perform duties in the 3-, 5-, and 7-skill level or Basic, Intermediate, Advanced, and Expert competencies. Column 2 (Core Tasks) identifies, by 5, 7, or E specialty-wide training requirements. **Note:** Core tasks are minimum task training requirements for upgrade to the 5- skill level.

2.2. Provides certification for OJT. Column 3 is used to record completion of tasks and knowledge training requirements. Use automated training management systems to document technician qualifications, if available. For initial certification or transcribing documentation complete the columns in accordance with DAFMAN 36-2689.

2.3. Shows, in column 4, formal training and correspondence course requirements by listing the proficiency to be demonstrated on the job by the graduate as a result of training on the task and the career knowledge provided by the corresponding course. Learning Programs are available via Percipio.

2.4. Qualitative Requirements. Attachment 1 contains the tasks, knowledge and proficiency levels referenced in paragraph 2. Columns are marked with a proficiency code to indicate subjects taught. An X in the proficiency code column indicates a lack of student man-years and instructor resources. Trainees without prerequisites specified in Education and Training Course Announcement (ETCA) cannot be expected to meet proficiency levels indicated.

2.5. Becomes a job qualification standard (JQS) for on-the-job training when placed in AF Form 623, *Individual Training Record* folder, and used according to DAFMAN 36-2689.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

DEANNA M. BURT, Lt Gen, USSF
Chief Operations Officer (S3/4/6/10)

Attachments:
1. Qualitative Requirements
2. Specialty Training Standard (STS) 5C0X1D
3. Specialty Training Standard (STS) 5C0X1N/S
4. Specialty Training Standard (STS) 5C0X1R

Qualitative Requirements

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION**: The individual**
Task Performancelevels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
***Task Knowledgelevels**	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
****Subject Knowled**	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Explanations

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Example: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task,or for a subject common to several tasks. This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or Learning Program.

(-) This mark is used alone in the Proficiency Codes Course columns to show no proficiency training is provided in the applicable course. Training is satisfied through OJT, CBTs, Learning Programs, or a combination.

(X) This mark is used alone in the Proficiency Codes Course columns to show training is required but not given due to limitations in resources or is a future requirement. Training is satisfied through OJT, CBTs, Learning Programs, or a combination.

NOTE: All tasks and knowledge items shown with a proficiency code are trained during wartime.

(X) When this code is used in the Core & Wartime Tasks Column it indicates the CFM has mandated this task as a core requirement to the level identified in the Task Knowledge Levels Column. The training to satisfy this requirement is either provided through OJT, CBTs, Learning Programs, or a combination.

(*) When this code is used in the Core & Wartime Tasks Column it indicates the CFM has mandated this task as a wartime/deployment requirement.

(^) When this code is used in the Core & Wartime Tasks Column it indicates the CFM has mandated this task require(s) third person certification.

CFETP versus AFJQS task coding. AFJQSs/AFQTPs annotated in the CFETP with a skill level denotes the AFJQS is mandatory.

Attachment 1

1. Implementation. This STS will be used for technical training provided by AETC for the 3-level course.

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
1. Organizational Foundation										
1.1. USSF Organization/Administration										
1.1.1. ADCON							-	A	B	-
1.1.2. OPCON							-	A	B	-
1.1.3. TACON							-	A	B	-
1.2. USSF Cyber Organizations										
1.2.1. Integrated Mission Deltas							-	A	-	-
1.2.2. SOC	3						A	-	-	-
1.2.3. Cyber Squadrons	3						A	-	-	-
1.2.4. SFELM							-	A	-	-
1.3 USSF DCO Environment										
1.3.1 Defensive Cyber Operations										
1.3.1.1 Organization	5						A	B	-	-
1.3.1.2 Crew Structure	3						B	-	-	-
1.3.1.3 Purpose	5						A	B	-	-
1.3.1.4 Mission Support Element	5						A	B	-	-
1.3.1.5 Mission Planning Cell	5						A	B	-	-
1.3.2 External Elements (Non-USSF)										
1.3.2.1 Cyber Operations Force	7						A	B	C	-
2. Governing Authoritative and Administrative Guidance Block 6 - Introduction to Cyber Warfare Operations, CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918, 1B CFETP (Ch. 5)										
2.1 Law and Ethics										
2.1.1 US Codes (Titles 10, 15, 17, 18, 32, 50)	5						B	C	-	-
2.2 Rules of Engagement (ROE)										
2.2.1 Policy	3						A	B	C	-
2.2.2 Cyber Management Ethics	3						B	-	-	-
2.2.3 Data Monitoring	3						B	-	-	-
2.2.4 Special Data Protection (i.e., Sensitive Personnel Information)	3						B	-	-	-
2.3 Policy and Law										
2.3.1 Executive Orders	3						A	-	-	-
2.3.2 International Laws Affection Electronic Communications	3						A	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL COURSE	5 SKILL LEVEL COURSE	7 SKILL LEVEL COURSE	COURSE
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS				
2.4 U.S. Law										
2.4.1 Military Law	3						A	-	-	-
2.4.2 Intellectual Property Laws	3						A	-	-	-
2.4.3 U.S. Law Specific to Electronic Crimes	3						A	-	-	-
2.5 Military Policies										
2.5.1 Operational Risk Management							-	A	B	-
2.5.2 JP 3-12, Cyberspace Operations	3						B	-	-	-
2.5.3 AFI 17-201 v1-3	5						-	A	B	-
2.5.4 AFI 17-2 v1-3	5						-	A	B	-
2.5.5 DCO-S SCG							-	A	B	-
2.5.6 SOC Incident Response Plan	5						-	A	B	-
2.5.7 DCO CONOPS							-	B	-	-
2.5.8 DCO Pre-Approved Actions	5						-	B	-	-
2.5.9 Special Instructions (SPINS)	3						A	B	-	-
2.5.10 Cyber Space Tasking Order (CSTO)	3						B	-	-	-
2.5.11 Chairman of the Joint Chief of Staff Manual (CJCSM) 6510.01b	7						-	A	B	-
2.5.12 Ready Cybercrew Program (RCP) Tasking Memorandum (RTM)	5						-	B	-	-
3. Defensive Cyber Operations Concepts and Fundamentals(CWO Block 6, Introduction to Cyber Warfare Operations), CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918, 1B CFETP (Ch 4, 6, 8, 9)										
3.1 Fundamentals										
3.1.1 Doctrine, Policy, TTPs and Guidance	3						A	-	-	-
3.1.2 National Strategy	3						A	-	-	-
3.1.2 USSF Cyber Strategy (Cyber-Enabled Space Operations Strategy)	3						B	-	-	-
3.1.3 Command and Control	3						A	-	-	-
3.1.4 Department of Defense Information Network (DoDIN)	3						A	-	-	-
3.1.5 Cyber Organizations and Missions	3						B	-	-	-
3.2 Threat Types										
3.2.1 Internal	3						B	-	-	-
3.2.2 External	3						B	-	-	-
3.2.3 State Sponsored	3						B	-	-	-
3.2.4 Non-State Sponsored	3						B	-	-	-
3.3 Cyber Operations										
3.3.1 DoD Information Global Network Operations (DoDIN Ops)	3						B	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
3.4 Defensive Cyber Operations (DCO)										
3.4.1 Defensive Cyber Operations-Response Actions (DCO-RA)	5						A	B	-	-
3.4.2 Defensive Cyber Operations-Internal Defense Measures (DCO-IDM)	5						A	B	-	-
3.4.3 Offensive Cyberspace Operations (OCO)	5						A	B	-	-
3.4.4 Legality and Authority	5						-	A	-	-
3.4.5 Military and intelligence (Title 10 and Title 50)	7						A	B	C	-
3.5 OCO/DCO Theory and Methodology										
3.5.1 Offensive and Defensive Theory	3						B	-	-	-
3.5.2 Offensive and Defensive Methodology	3						B	-	-	-
3.5.3 Red Threats, APTs, TTPs	3						B	-	-	-
3.5.4 OCO/DCO Frameworks	3						B	-	-	-
3.6 Offensive Methods (MITRE ATT&CK Framework)										
3.6.1 Reconnaissance	3						B	-	-	-
3.6.2 Resource Development	3						B	-	-	-
3.6.3 Initial Access	3						B	-	-	-
3.6.4 Execution	3						B	-	-	-
3.6.5 Persistence	3						B	-	-	-
3.6.6 Privileged Escalation	3						B	-	-	-
3.6.7 Defense Evasion	3						B	-	-	-
3.6.8 Credential Access	3						B	-	-	-
3.6.9 Discovery	3						B	-	-	-
3.6.10 Lateral Movement	3						B	-	-	-
3.6.11 Collection	3						B	-	-	-
3.8.12 Command and Control	3						B	-	-	-
3.6.13 Exfiltration	3						B	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
3.6.14 Impact	3						B	-	-	-
3.7 Defensive Methods (MITRE D3FEND Framework)										
3.7.1 Model	3						B	-	-	-
3.7.2 Harden	3						B	-	-	-
3.7.3 Detect	3						B	-	-	-
3.7.4 Isolate	3						B	-	-	-
3.7.5 Deceive	3						B	-	-	-
3.7.6 Evict	3						B	-	-	-
3.7.7 Restore	3						B	-	-	-
3.8 Basic Concepts of Cyber Systems (Understanding the Concept of Unique Design, Capabilities, Components, Security and Vulnerabilities)										
3.8.1 Networks										
3.8.1.1 Data in Motion	3						B	-	-	-
3.8.1.2 Voice (VoIP, PSTN)	3						B	-	-	-
3.8.1.3 Wireless	3						B	-	-	-
3.8.1.4 Space Networks	3						B	-	-	-
3.8.1.5 Industrial Control Systems (ICS)/Supervisory Control and Data Acquisition (SCADA)	3						B	-	-	-
3.8.1.6 Network Encryption	3						B	-	-	-
3.8.2 Host Systems										
3.8.2.1 Data at Rest	3						B	-	-	-
3.8.2.2 Workstations	3						B	-	-	-
3.8.2.3 Servers	3						B	-	-	-
3.8.3 Web Based										
3.8.3.1 Recognize Indicators of Compromise (IOC)	5						-	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
3.8.4 Incident Response										
3.8.4.1 Concepts and Methodology	5						A	B	-	-
3.8.4.2 Incident Response	5						A	B	-	-
3.8.4.3 Forensics	5						A	B	-	-
3.8.4.4 Investigation	5						A	B	-	-
3.8.4.5 Evidence Gathering	5						A	B	-	-
3.8.4.6 Incident Categories	5						A	B	-	-
3.8.4.7 Reporting	5						A	B	-	-
3.9 Information Assurance										
3.9.1 Roles and Responsibilities	3						A	-	-	-
3.9.2 Emissions Security	3						A	-	-	-
3.9.3 Communications Security	3						A	-	-	-
3.9.4 Computer Security	3						A	-	-	-
3.9.5 Operations Security	3						A	-	-	-
3.9.6 Physical Security	3						A	-	-	-
3.9.7 Information Security	3						A	-	-	-
3.9.8 Applicable Classification Guidelines (SCG, SAP, etc.)	3						A	-	-	-
3.9.9 Understand the Risk Management Framework	3						A	-	-	-
3.10 Crew Operations										
3.10.1 Operations Training	7						-	A	B	-
3.10.2 Standardization and Evaluation	7						-	A	B	-
3.10.3 Weapons and Tactics	7						-	A	B	-
3.10.4 Operational Procedures	7						-	A	B	-
3.10.5 Crew Resource Management	7						-	A	B	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
3.10.6 Master Station Log (MSL)	7						-	A	B	-
3.10.7 Maintaining Records of Events	7						-	A	B	-
3.10.8 Reviewing Log for Changeover	7						-	A	B	-
3.11 Mission Relevant Terrain-Cyber (MRT-C)										
3.11.1 Concept/Overview	7						A	B	C	-
3.11.2 Baselining	7						A	B	C	-
3.11.3 Key Terrain-Cyber (KT-C)	7						A	B	C	-
3.12 Security Information and Event Management (SIEM)										
3.12.1 Concept/Overview	3						B	-	-	-
3.12.2 Dashboard	3						B	-	-	-
3.12.3 Logs	3						B	-	-	-
3.12.4 Visualization	3						B	-	-	-
3.12.5 Visualization	3						B	-	-	-
3.12.6 Alerting	3						B	-	-	-
3.12.7 Scheduling platform (Ex: Project IKE, PEX, etc.)	5						-	**B**	-	-
3.13 Active Defense of Cyber Systems										
3.13.1 Networks										
3.13.1.1 Data in Motion	3						B	-	-	-
3.13.1.2 Voice (VoIP, PSTN)	3						B	-	-	-
3.13.1.3 Wireless	3						B	-	-	-
3.13.1.4 Space Networks	3						B	-	-	-
3.13.1.5 Industrial Control Systems (ICS)/Supervisory Control and Data Acquisition (SCADA)	3						B	-	-	-
3.13.2 Host Systems										
3.13.2.1 Data at Rest	3						B	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
3.13.2.2 Workstations	3						B	-	-	-
3.13.2.3 Servers	3						B	-	-	-
3.13.3 Web Based										
3.13.3.1 Websites	3						B	-	-	-
3.13.3.2 Databases	3						B	-	-	-
4. Conduct OCO/DCO Block 8, Offensive Cyber Operations, Block 9 (Defensive Cyber Operations) Block 11 (Capstone) Block 10 (Ops Planning), CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918, 1B CFETP (Ch 8										
4.1 Planning and Briefing										
4.1.1 Execution and Planning										
4.1.1.1 Pre-Operation Research and Preparation	3						2b	-	-	-
4.1.1.2 Conduct Pre-Mission Actions	3						2b	-	-	-
4.1.1.3 Conduct Post-Mission Actions	3						2b	-	-	-
4.1.1.4 Provide Input to Post Mission Planning	3						2b	-	-	-
4.1.1.5 Measures of Performance/Measures of Effectiveness (MoP/MoE)	3						2b	-	-	-
4.1.1.6 Constraints and Restraints	3						2b	-	-	-
4.1.2 Prepare Mission Briefs/Debriefs										
4.1.2.1 Provide Input to Pre-Mission Planning	3						2b	-	-	-
4.1.2.2 Provide Input to Mission Debriefs	3						2b	-	-	-
4.1.2.3 Prepare Action Reports	3						2b	-	-	-
4.2 Intelligence										
4.2.1 Conduct Open-Source Data Collection	3						2b	-	-	-
4.2.2 Process Exfiltration Data for Analysis	5						-	2b	-	-
4.2.3 Assessing Intelligence and Technical Gain/Loss	5						B	C	-	-
4.2.4 Conducting Targeting	5						2b	2c	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.3 OCO										
4.3.1 Reconnaissance										
4.3.1.1 Network Enumeration										
4.3.1.1.1 Run an Enumeration	3						2c	-	-	-
4.3.1.1.2 Minimize/Obfuscate Network Mapping and Foot Printing	3						2c	-	-	-
4.3.1.1.3 Utilize Established SSH Tunnel (Proxychains)	3						2c	-	-	-
4.3.1.2 Host Enumeration										
4.3.1.2.1 Vulnerability Assessment	3						2c	-	-	-
4.3.1.2.2 OS (Version, Patch, etc.)	3						2c	-	-	-
4.3.1.2.3 Ports (Applications and Running Services)	3						2c	-	-	-
4.3.1.2.4 Identify OS's Unique TTL for Packets	3						2c	-	-	-
4.3.2 Exploitation										
4.3.2.1 Determine Payload	3						2c	-	-	-
4.3.2.2 Configure Payload	3						2c	-	-	-
4.3.2.3 Gain Access	3						2c	-	-	-
4.3.3 Post-Exploitation										
4.3.3.1 Establish Persistence	3						2c	-	-	-
4.3.3.2 Privilege Escalation	3						2c	-	-	-
4.3.3.3 Obtain System Information (Collection of Running Processes, Connected Hosts, Services, etc.)	3						2c	-	-	-
4.3.3.4 Obtain Accounts and Passwords	3						2c	-	-	-
4.3.3.5 Defense Evasion	3						2c	-	-	-
4.3.4 Pivoting										
4.3.4.1 Lateral Movement	3						2c	-	-	-
4.3.4.2 Tunneling	3						2c	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.3.4.3 Exfiltration	3						2c	-	-	-
4.3.4.4 Password Cracking	3						2c	-	-	-
4.3.5 Wireless										
4.3.5.1 Identify Nearby Wireless Networks	3						2c	-	-	-
4.3.5.2 Crack Session	3						2b	-	-	-
4.3.5.3 Establish Connection to Network	3						2b	-	-	-
4.3.5.4 RF Carrier Wave / Carrier Injection	3						B	-	-	-
4.3.6 TTPs										
4.3.6.1 Create TTPs										
4.3.6.1.1 Enumeration (Discovery)	5						-	2b	-	-
4.3.6.1.2 Exploitation (Execution)	5						-	2b	-	-
4.3.6.1.3 System Access (Initial Access)	5						-	2b	-	-
4.3.6.1.4 Privilege Escalation	5						-	2b	-	-
4.3.6.1.5 Establish Persistence	5						-	2b	-	-
4.3.6.1.6 Credential Access	5						-	2b	-	-
4.3.6.1.7 Defense Evasion	5						-	2b	-	-
4.3.6.1.8 Gathering System Information/Files to Exfiltrate (Collection and Staging)	5						-	2b	-	-
4.3.6.1.9 Lateral Movement	5						-	2b	-	-
4.3.6.1.10 Exfiltration	5						-	2b	-	-
4.3.6.1.11 System Impact	5						-	B	-	-
4.3.6.1.12 Evaluate TTPs	7						-	-	D	-
4.3.6.1.13 Provide guidance in absence of established guidance for real-time operations	7						-	-	2b	-
4.3.7 Generate Effects (MITRE ATT&CK Framework)										
4.3.7.1 Generate Denial or Manipulation Effects										

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.3.7.1.1 Networks										
4.3.7.1.1.1 Data in Motion	3						2c	-	-	-
4.3.7.1.1.2 Voice (VoIP, PSTN, etc)	3						2c	-	-	-
4.3.7.1.1.3 Wireless	3						2c	-	-	-
4.3.7.1.1.4 Space Networks	3						2c	-	-	-
4.3.7.1.1.5 Industrial Control Systems (ICS)/Supervisory Control and Data Acquisition (SCADA)	3						2c	-	-	-
4.3.7.1.2 Host Systems										
4.3.7.1.2.1 Data in Motion	3						2c	-	-	-
4.3.7.1.2.1 Workstations	3						2c	-	-	-
4.3.7.1.2.2 Servers	3						2c	-	-	-
4.3.7.1.3 Web Based										
4.3.1.3.1 Websites	3						2c	-	-	-
4.3.1.3.2 Databases	3						2c	-	-	-
4.4 DCO										
4.4.1 Weapon System Knowledge										
4.4.1.1 General Weapon System Information										
4.4.1.1.1 Weapon System (Ex: CVA/H, Manticore, etc.)	5						B	C	-	-
4.4.1.1.2 Applications	5						-	B	-	-
4.4.1.1.3 Kit Management System [Ex. tfPlenum (VM)]	3						B	-	-	-
4.4.2. Dashboard Management/Navigation (Ex: Kibana)										
4.4.2.1 Edit/Customize Dashboard	5						-	2b	-	-
4.4.2.2 Create a New Alert	5						-	2b	-	-
4.4.2.3 Create Incident Case (Ex: TheHive)	5						-	2b	-	-
4.4.2.4 Analyze Existing Network Rule (Ex: Snort, Suricata)	5						C	2b	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.4.3 Scheduling Platforms (Ex: Project IKE, PEX, etc.)										
4.4.3.1 Dashboard Management/Navigation										
4.4.3.1.1 Edit/Customize Dashboard	5						-	2b	-	-
4.4.3.1.2 Change View/Spaces	5						-	2b	-	-
4.4.3.2 Update Personnel Records										
4.4.3.2.1 Add/Remove Members from unit	7						-	-	2b	-
4.4.3.2.2 Update Training Records	7						-	-	2b	-
4.4.3.3 Updating Terrain	7						-	-	2b	-
4.4.4 Active Monitoring										
4.4.4.1 Alert Triage	3						B	-	-	-
4.4.4.2 Log/Alert Enrichment	3						B	-	-	-
4.4.4.3 Case Management	3						B	-	-	-
4.4.4.4 Signature Management	3						C	-	-	-
4.4.4.5 Rule Logic Types	3						B	-	-	-
4.4.4.6 Malicious Use of Common Protocols	3						B	-	-	-
4.4.4.7 Analysis Bias	3						B	-	-	-
4.4.4.8 Baselining	3						B	-	-	-
4.4.5 Incident Response										
4.4.5.1 Methodology	5						-	B	-	-
4.4.5.2 Event/Incident Categorization	5						-	B	-	-
4.4.5.3 Remote Evidence Collection	5						-	B	-	-
4.4.5.4 Reporting	5						A	B	-	-
4.4.5.5 Forensics	5						A	B	-	-
4.4.5.6 Log Files	3						B	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.4.5.7 Understand Investigation Conduction	3						B	-	-	-
4.4.5.8 Incident Recovery	5						-	B	-	-
4.4.5.9 Understand Containment Techniques	3						B	-	-	-
4.4.6 Eradication Techniques										
4.4.6.1 Block Domains	3						2b	-	-	-
4.4.6.2 Block IP Addresses	3						2b	-	-	-
4.4.6.3 Block Accounts	3						2b	-	-	-
4.4.6.4 File Removal	3						2b	-	-	-
4.4.6.5 Kill Processes	3						2b	-	-	-
4.4.6.6 Common Attack Methods vs Mitigations	3						2b	-	-	-
4.4.6.7 Analysis Techniques	5						2b	2c	-	-
4.4.6.8 Assess and Recommend Remediation Actions	5						2b	2c	-	-
4.4.7 Forensics										
4.4.7.1 Network										
4.4.7.1.1 Source Data Types										
4.4.7.1.1.1 Full-Packet Capture	3						B	-	-	-
4.4.7.1.1.2 NetFlow & Related Flow-Based Collections	3						B	-	-	-
4.4.7.1.1.3 Log Files	3						B	-	-	-
4.4.7.1.1.4 Network Traffic Anomalies	3						B	-	-	-
4.4.7.1.1.5 Network Log Analysis (Ex: Zeek)	5						B	-	-	-
4.4.7.2 Host										
4.4.7.2.1 Event Log Analysis	5						-	2c	-	-
4.4.7.2.2 Host Memory Analysis	5						-	2c	-	-
4.4.7.2.3 File System Analysis	5						-	2c	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.4.7.2.4 Timeline Analysis	5						-	2c	-	-
4.4.7.2.5 Disk Forensics							A	B	-	-
4.4.7.3 Logs										
4.4.7.3.1 Windows										
4.4.7.3.1.1 Windows Event Viewer	3						B	-	-	-
4.4.7.3.1.2 Windows Log Location (C:\Windows\system32\config\) (							A	-	-	-
4.4.7.3.2 *NIX										
4.4.7.3.2.1 Binary	3						B	-	-	-
4.4.7.3.2.2 System	3						B	-	-	-
4.4.7.3.2.3 Common Location (/var/log)	3						B	-	-	-
4.4.7.3.3 Key Logs										
4.4.7.3.3.1 Last Login (/var/log/lastlog)	3						B	-	-	-
4.4.7.3.3.2 Failed Login (/var/log/btmp)	3						B	-	-	-
4.4.7.3.3.3 Historic Logins (/var/log/wtmp)	3						B	-	-	-
4.4.7.3.3.4 Sudo History (/etc/sudoers)	3						B	-	-	-
4.4.7.3.4 Autoruns										
4.4.7.3.4.1 Windows										
4.4.7.3.4.1.1 Registry	3						B	-	-	-
4.4.7.3.4.1.2 Scheduled Tasks	3						B	-	-	-
4.4.7.3.4.2 *NIX										
4.4.7.3.4.2.1 Crontab	3						B	-	-	-
4.4.7.3.5 Hidden Files										
4.4.7.3.5.1 Windows Alternate Data Stream (ADS)	3						B	-	-	-

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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
4.4.7.3.6 Reporting										
4.4.7.3.6.1 Cyber 9-Line	5						-	B	-	-
4.4.7.3.6.2 Reporting Times	5						-	B	-	-
4.4.7.3.6.3 MISREP	5						-	B	-	-
4.4.7.3.6.4 Impact Assessment Matrix	5						-	B	-	-
5 Networking Concepts Block 4 (Network Fundamentals) Block 5 (Network Configuration) 1B CFETP (Ch 2), CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918										
5.1 Digital Numbering Systems (Internal Data Representation)										
5.1.1 Binary	3						3c	-	-	-
5.1.2 Hexadecimal	3						3c	-	-	-
5.2 Standards and Framework										
5.2.1 Structure										
5.2.1.1 OSI Model	3						C	-	-	-
5.2.1.2 TCP/IP Suite	3						C	-	-	-
5.2.2 Protocol Data Unit										
5.2.2.1 Transmission Control Protocol (TCP)	3						C	-	-	-
5.2.2.2 User Datagram Protocol (UDP)	3						C	-	-	-
5.2.2.3 Encapsulation/Decapsulation	3						C	-	-	-
5.3 Networking Addressing										
5.3.1 Data-Link Layer										
5.3.1.1 Media Access Control (MAC)										
5.3.1.1.1 Address Structure	3						C	-	-	-
5.3.1.1.2 Ethernet Frame Structure	3						C	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
5.3.2 Network Layer										
5.3.2.1 Internet Protocol (v4 & v6)										
5.3.2.1.1 Address Structure	3						C	-	-	-
5.3.2.1.2 Packet Structure	3						C	-	-	-
5.3.2.2 Address Types										
5.3.2.2.1 Classful	3						C	-	-	-
5.3.2.2.2 Classless	3						C	-	-	-
5.3.2.2.3 Private/Public	3						C	-	-	-
5.3.2.2.4 Reserved	3						C	-	-	-
5.3.2.2.5 IPv4 Subnetting	3						C	-	-	-
5.4 Routing Protocols										
5.4.1 Interior	3						C	-	-	-
5.4.2 Exterior	3						C	-	-	-
5.4.3 Link-State	3						C	-	-	-
5.5 Networks										
5.5.1 Network Topologies										
5.5.1.1 Network Topology Types (Star, Ring, Bus, Hybrid, etc.)	3						C	-	-	-
5.5.2 Virtual Private Network (VPN)										
5.5.2.1 Protocols	3						C	-	-	-
5.5.2.2 Components	3						C	-	-	-
5.5.3 Segmentation & Compartmentalization										
5.5.3.1 Virtual Local Area Network (VLAN)	3						C	-	-	-
5.5.3.1.1 Concepts	3						C	-	-	-
5.5.3.1.2 Private VLANs	3						C	-	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
5.5.4 Wireless										
5.5.4.1 Topology	3						C	-	-	-
5.5.4.2 Components	3						C	-	-	-
5.5.4.3 Security	3						C	-	-	-
5.5.5 Network Address Translation/Port Address Translation (NAT/PAT)										
5.5.5.1 Concepts/Fundamentals	3						C	-	-	-
5.6 Protocols										
5.6.1 Concepts	3						C	-	-	-
5.6.2 Commonly Used Protocols (DHCP, STMP, DNS)	3						C	-	-	-
5.7 Ports										
5.7.1 Concepts	3						C	-	-	-
5.7.2 Commonly Used Ports	3						C	-	-	-
5.8 Network Traffic Analysis										
5.8.1 Network Traffic Analysis Fundamentals										
5.8.1.1 Fundamentals	5						-	B	-	-
5.8.2 Analysis Process										
5.8.2.1 Capture Traffic	3						2c	-	-	-
5.8.3 Analyze Traffic										
5.8.3.1 Identify Encoded Traffic	3						2c	-	-	-
5.8.3.2 Identify Malicious Traffic	3						2c	-	-	-
5.8.3.3 Identify the OS version from Network Traffic	3						2c	-	-	-
5.8.3.4 Identify the patch release of OS software from Network Traffic	3						2c	-	-	-
5.8.3.5 Identify Services and Applications on a Network	3						2c	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
6 Network Configuration Block 5 (Network Configuration), 1B CFETP (Ch 2), CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918										
6.1 Device Configuration										
6.1.1 General Device Configuration										
6.1.1.1 Navigate Cisco IOS CLI	3						2b	-	-	-
6.1.1.2 Manage Start-up Configuration	3						2b	-	-	-
6.1.1.3 Manage Running Configuration	3						2b	-	-	-
6.1.1.4 Save Configuration	3						2b	-	-	-
6.1.1.5 Erase Configuration	3						2b	-	-	-
6.1.2 Routers										
6.1.2.1 Ports										
6.1.2.1.1 Port Configuration	3						2b	-	-	-
6.1.2.2 Configure Routing Protocol										
6.1.2.2.1 Internal Routing Protocol (IRP)	3						2b	-	-	-
6.1.2.2.2 External Routing Protocol (ERP)	3						2b	-	-	-
6.1.2.3 Apply Access Control List										
6.1.2.3.1 Standard	3						2b	-	-	-
6.1.2.3.2 Extended	3						2b	-	-	-
6.1.3 Switch										
6.1.3.1 Switchports										
6.1.3.1.1 Configure Access Port	3						2b	-	-	-
6.1.3.2 Trunk										
6.1.3.2.1 Native VLAN	3						2b	-	-	-
6.1.3.2.2 Portfast	3						2b	-	-	-
6.1.3.2.3 No Switchport	3						2b	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
6.1.3.2.4 IP Configuration	3						2b	-	-	-
6.1.3.3 Security										
6.1.3.3.1 MAC-Address	3						2b	-	-	-
6.1.3.3.2 SPAN Port	3						2b	-	-	-
6.1.3.4 Apply Access Control List										
6.1.3.4.1 Standard	3						2b	-	-	-
6.1.3.4.2 Extended	3						2b	-	-	-
6.1.3.4.3 Switched Virtual Interface (SVI)	3						2b	-	-	-
6.1.3.5 VLAN										
6.1.3.5.1 Database Configuration	3						2b	-	-	-
6.1.3.5.2 Interface Configuration	3						2b	-	-	-
6.1.3.5.3 IP Routing	3						2b	-	-	-
7 Operating Concepts Block 1 (Windows), Block 2 (Linux), 1B CFETP (Ch. 3), CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Work roles (CMT, CST, NMT, NST) 20200918										
7.1 Concepts										
7.1.1 Boot Process										
7.1.1.1 BIOS	3						B	-	-	-
7.1.2 OS Specific										
7.1.2.1 Windows Boot Manager	3						B	-	-	-
7.1.2.2 GRUB (Stage 1 and 2)	3						B	-	-	-
7.1.2.3 Init	3						B	-	-	-
7.1.2.4 Kernel	3						B	-	-	-
7.1.2.5 Drivers	3						B	-	-	-
7.1.2.6 Group Policy	3						B	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
7.2 Format										
7.2.1 System Formats										
7.2.1.1 FAT	3						B	-	-	-
7.2.1.2 exFAT	3						B	-	-	-
7.2.1.3 NTFS	3						B	-	-	-
7.2.1.3.1 Security Benefits	3						B	-	-	-
7.2.2 Differences	3						B	-	-	-
7.2.3 File Formats (e.g., EXE, PDF, PCAP)	3						B	-	-	-
7.2.4 Compression (e.g., ZIP, TAR, 7z)	3						B	-	-	-
7.3 Windows										
7.3.1 Components										
7.3.1.1 Registry	3						B	-	-	-
7.3.2 File Structure	3						B	-	-	-
7.3.3 Utilize CLI	3						B	-	-	-
7.3.3 Utilize GUI	3						B	-	-	-
7.3.2 Manipulate System										
7.3.2.1 User Accounts	3						2b	-	-	-
7.3.2.2 File Systems	3						2b	-	-	-
7.3.2.3 Network Shares	3						2b	-	-	-
7.3.2.4 Network Settings	3						2b	-	-	-
7.3.2.5 Services	3						2c	-	-	-
7.3.2.6 Firewall	3						2b	-	-	-
7.3.2.7 Logs	3						2c	-	-	-
7.3.2.8 Registry	3						2c	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
7.4 *NIX										
7.4.1 Shell										
7.4.1.1 Types (Shell, Bash, zShell, etc.)	3						B	-	-	-
7.4.1.2 Understand Certain Limitations and Differences	3						B	-	-	-
7.4.1.3 File Structure	3						B	-	-	-
7.4.1.4 Utilize CLI	3						B	-	-	-
7.4.1.5 Utilize GUI	3						B	-	-	-
7.4.1.6 Linux-Based Distros	3						B	-	-	-
7.4.2 Manipulate System										
7.4.2.1 Users and Groups (Permissions)	3						2b	-	-	-
7.4.2.2 File Structure	3						2c	-	-	-
7.4.2.3 Network Shares	3						2b	-	-	-
7.4.2.4 Network Settings	3						2b	-	-	-
7.4.2.5 Services	3						2c	-	-	-
7.4.2.6 Packages	3						2b	-	-	-
7.4.2.7 Logs	3						2c	-	-	-
7.4.2.8 Credentials	3						2b	-	-	-
7.4.2.9 System Hardening	3						2b	-	-	-
7.5 Scripting and Programming Concepts										
7.5.1 Fundamentals, Ability to Create or Edit:										
7.5.1.1 Batch	3						2b	-	-	-
7.5.1.2 PowerShell	3						2b	-	-	-
7.5.1.3 Bash	3						2b	-	-	-
7.5.1.4 Python	3						2b	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
7.6 Virtualization										
7.6.1 Concepts	3						A	-	-	-
7.6.2 Types	3						A	-	-	-
7.7 Containerization										
7.7.1 Concepts	3						A	-	-	-
7.7.2 Types	3						A	-	-	-
7.8 Artificial Intelligence and Machine Learning										
7.8.1 Introduction to Artificial Intelligence and Machine Learning	3						A	-	-	-
8 Planning Block 10 (Ops Planning), 1B CFETP (Ch 7, 11, 12), 65 CYS MDT MQT Training Task List, CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918										
8.1 Joint										
8.1.1 Joint Command and Planning Process										
8.1.1.1 Concepts	3						B	-	-	-
8.1.1.2 Structure and Organization	3						B	-	-	-
8.1.1.3 Levels of War	5						-	A	-	-
8.1.1.4 Roles and Responsibilities	5						-	A	-	-
8.1.2 Command and Control (C2)	5						-	B	-	-
8.1.3 Authorities	5						-	B	-	-
8.1.4 Orders	5						-	B	-	-
8.1.2 Planning Process Defined (JPP)										
8.1.2.1 Concepts	3						B	-	-	-
8.1.2.2 Deliberate Planning	7						-	-	B	-
8.1.2.3 Crisis Action Planning	7						-	-	B	-
8.2 Lines of Operations										
8.2.1 DoDIN	3						B	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
8.2.2 DCO	3						B	-	-	-
8.2.3 OCO	3						B	-	-	-
8.3 Cyberspace Operational Planning										
8.3.1 Cyber C2	5						-	B	-	-
8.3.2 Synchronization	5						-	B	-	-
8.3.4 Weaponeering	5						-	B	-	-
8.3.5 Asset/Target Analysis	5						-	B	-	-
8.3.6 Intelligence Gain/Loss	5						-	B	-	-
8.3.7 Technical Gain/Loss	5						-	B	-	-
8.3.8 Deconfliction	5						-	B	-	-
8.3.9 Conduct OCO and DCO Mission Planning	5						-	2b	-	-
8.3.9.1 Produce strategy to inform commander's decision-making process	7						-	B	-	-
8.4 Cyber Operations Assessments										
8.4.1 Measures of Performance/Measures of Effectiveness (MoP/MoE)	3						-	B	-	-
8.4.1.1 Create Measures	3						2b	-	-	-
8.4.1.2 Evaluate how the operation was successful or ineffective to objectives	3						B	-	-	-
8.4.2 Conducting Ops Assessment	5						-	2b	-	-
8.4.3 Battle Damage Assessment	7						-	-	2b	-
8.5 Mission Planning (PBED)										
8.5.1 Concepts	3						A	-	-	-
8.5.2 Plan										
8.5.2.1 ME3C-(PC)^2	3						2b	-	-	-
8.5.2.2 Mission Planning Cell	3						2b	-	-	-
8.5.2.3 Build Mission Plan	3						2b	-	-	-
8.5.2.4 Mission Types	3						2b	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
8.5.3 Brief										
8.5.3.1 Mission Approval Brief	3						2b	-	-	-
8.5.3.2 Pre-Sortie Brief	3						2b	-	-	-
8.5.4 Execute										
8.5.4.1 Pre-Mission Tasks	3						2b	-	-	-
8.5.4.2 Post-Mission Tasks	3						2b	-	-	-
8.5.4.3 Crew Changeover	3						2b	-	-	-
8.5.4.4 Operators Notes/Accountability	3						2b	-	-	-
8.5.5 Debrief										
8.5.5.1 Debrief Process	3						2b	-	-	-
8.5.5.2 Instructional Fix/Lessons Learned Implementation Process	3						2b	-	-	-
8.5.5.3 Participate in debrief	3						2b	-	-	-
9 Intelligence CTM 7-0.1 Joint Cyberspace Trng and Cert Standards (JCT_CS) v4.0 ANNEX B Workroles (CMT, CST, NMT, NST) 20200918, 1B CFETP (Ch. 11, 12, 13)										
9.1 Fundamentals										
9.1.1 Data, Information, and Intelligence (Differences and Relationships)	5						A	B	-	-
9.1.2 Identify the Intelligence Process	5						A	B	-	-
9.1.3 Identify the Targeting Cycle	5						-	B	-	-
9.1.4 Intelligence Sources/Disciplines (e.g., OSINT)	5						-	B	-	-
9.1.5 Intelligence Reports (e.g., IIR)	5						-	B	-	-
9.1.6 Request for Information (RFI)	5						A	B	-	-
9.1.7 Tactics from Intel Sources	7						-	-	B	-
9.2 Sources										
9.2.1 Open-Source	5						A	B	-	-
9.2.2 Closed-Source	5						A	B	-	-
9.2.3 Intel Integration (Squadron)	3						B	-	-	-
9.2.4 Cyber Intelligence Models	5						-	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
9.3 Collection Management										
9.3.1 Complete RFI and FFIR Forms	5						-	2b	-	-
9.3.2 Intelligence Limitations/Problems	5						-	B	-	-
9.3.3 Collection Requirements	5						-	B	-	-
9.3.4 Commander's Critical Information Requirement (CCIR)	7						-	-	B	-
9.3.5 Priority Intelligence Requirements (PIR)	7						-	-	B	-
9.3.6 Essential Elements of Information (EEI)	7						-	-	B	-
9.4 Informed Operations										
9.4.1 Applied to cyberspace operations, identify how intelligence informs:										
9.4.1.1 Mission Analysis activities	7						-	-	B	-
9.4.1.2 Operational Risk Assessment	7						-	-	B	-
9.4.1.3 Drives the tactical planning and/or operations cycle	7						-	-	B	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
1. MAINTENANCE PRACTICES TR: 1D7X1Q Learning Program (Percipio), TO 33K-1-100, and Applicable Test Equipment TOs										
1.1. Test Equipment Theory										
1.1.1. Multimeter	5						A	B	-	-
1.1.2. Time Domain Reflectometry	3						A	-	-	-
1.1.3. Optical Time Domain Reflectometry	5						A	B	-	-
1.1.4. Fiber Power Loss Meter	3						A	-	-	-
1.1.5. Spectrum Analyzer	5						-	B	-	-
1.1.6. Local Area Network (LAN) Test Set	3						B	-	-	-
1.1.7. Network / Protocol Analyzer (Sniffer)	3						B	-	-	-
1.1.8. Fiber Optic Test Set (Light Source)	3						A	-	-	-
1.2. Perform Maintenance Using Test Equipment										
1.2.1. Multimeter	5						-	B	-	-
1.2.2. Fiber Optic Test Set (Light Source)	5						-	B	-	-
1.3. Standard Maintenance Concepts										
1.3.1. Inventory / Accountability Fundamentals (ITEC)	3						A	-	-	-
1.3.2. Maintenance Documentation (MSLs, IMDS, IKE, CA/CRL, STIGs)	5						A	B	-	-
1.3.3. Installation Standards	5						A	A	-	-
1.3.4. Inspections (PMI)	5						A	2b	-	-
1.4. Troubleshooting										
1.4.1. Troubleshoot Network Equipment Methodology (e.g. IP Data, Voice, Video)	5						A	B	-	-
1.4.2. Bit Error Rate	5						A	B	-	-
1.4.3. Authorized Service Interruptions (ASIs)	7						B	-	C	-
1.5. Grounding										
1.5.1. Fundamentals	3						B	-	-	-
1.5.2. Verify Proper Grounding (i.e. Equipment / Rack)	5						-	B	-	-
1.5.3. Bonding	3						A	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
1.5.4. Shielding	3						A	B	-	-
1.5.5. Lightning Protection	3						A	B	-	-
1.6. Cable										
1.6.1. Cable Installation Standards	3						B	-	-	-
1.6.2. Ethernet Cable Termination	3						B	-	-	-
1.6.3. Fiber Cable Termination	3						B	-	-	-
1.7. Electrostatic Discharge (ESD)										
1.7.1. Fundamentals & Concepts	5						A	B	-	-
1.7.3. Handling, Packaging, and Storing	5						-	B	-	-
2. IP NETWORKING TR: 1D7X1Q Learning Program (Percipio), AFI 36-2101, 1D7XX CFETP, AFECD										
2.1. Enterprise Networking										
2.1.1. Network Virtualization	3						B	-	-	-
2.1.2. Software Defined Networking	3						B	-	-	-
2.1.2. VLANs	3						B	-	-	-
2.2. Layer 2 (Switching)										
2.2.1. Switching Application	3						B	-	-	-
2.2.2. Switching Standards	3						B	-	-	-
2.2.3. Link Aggregation	3						B	-	-	-
2.2.4. Switch Configuration	3						2b	-	-	-
2.3. Layer 3 (Routing)										
2.3.1. Protocol Application	3						B	-	-	-
2.3.2. Protocols / Standards	3						B	-	-	-
2.3.3. Router Configuration	3						2b	-	-	-
2.4. Spanning Tree (STP)										
2.4.1. Fundamentals	5						A	B	-	-
2.4.2. Application	3						B	-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
2.4.3. Configure	3						2b	-	-	-
2.4.4. IEEE 802 Standards (802.1X, 802.1Q, 802.11, etc.)	5						B	C	-	-
2.5. Wireless Networking (WLAN)										
2.5.1. Enterprise Wireless Network Application	3						B	-	-	-
2.5.2. Enterprise Wireless Protocols / Standards	3						B	-	-	-
2.5.3. Wireless Access Points Application	5						B	C	-	-
2.6. Quality of Service (QoS)										
2.6.1. Fundamentals	5						A	B	-	-
2.6.2. DSCP Fundamentals	5						A	B	-	-
2.6.3. Configure	3						2b	-	-	-
2.6.4. Redundancy Fundamentals	3						B	-	-	-
2.7. IP Network Monitoring										
2.7.1. Network Management Software	3						B	-	-	-
2.7.2. SNMP	5						B	C	-	-
2.7.3. Network Traffic Analysis (sFlow, Netflow, jFlow)	5						B	C	-	-
2.7.4. Implement IP Network Monitoring (i.e. Solar Winds)	3						2b	-	-	-
2.7.5. Mobile Device Management	3						A	B	-	-
3. ENTERPRISE ADMINISTRATIVE FUNCTIONS TR: 1D7X1Q Learning Program (Percipio)										
3.1. Fundamentals of IT										
3.1.1. Fundamentals of IT Documentation	3						B	-	-	-
3.1.2. Service Level Agreements (SLAs)	5						A	B	-	-
3.1.3. Project Support Agreement (PSA)	7						-	A	B	-
3.1.4. Analyze Network Maps/Topologies (MRT-C)	7						2b	B	C	-
3.2. Communications Network Trend Analysis										
3.2.1. Identify	5						-	B	-	-
3.2.2. Analyze	5						-	B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
3.3. Communications Security (COMSEC) Management										
3.3.1. Purpose	3						A	-	-	-
3.3.2. Management Teams	3						A	-	-	-
3.3.3. Physical Security Handling Requirements	5						A	B	-	-
3.3.4. COMSEC Forms	3						A	-	-	-
3.3.5. COMSEC Access List	7						A	B	2b	-
3.3.6. Disposition	7						A	B	2b	-
3.3.7. Destruction	7						B	C	2b	-
3.3.8. Safeguard and Accountability	3						B	-	-	-
3.3.9. COMSEC Inventory Procedures	3						2b	-	-	-
3.3.10. Transportation / Shipping	7						B	C	2b	-
3.3.11. Two Person Integrity (TPI) Handling Procedures	5						A	B	-	-
3.3.12. COMSEC Nuclear Surety	3						A	-	-	-
3.3.13. COMSEC Keying Material Transportation Requirements	5						A	B	-	-
3.3.14. Perform Key Transfer Using Common Fill Device	3						2b	-	-	-
3.3.15. Emergency Action Plans (EAPs)	7						A	B	C	-
4. ENCRYPTION / DECRYPTION TR: Applicable Commerial Manuals										
4.1. Crypto Devices										
4.1.1. Fundamentals	5						A	B	-	-
4.1.2. Configure / Use IP Crypto Equipment	3						2b	-	-	-
4.2. Crypto Keys										
4.2.1. Symmetric and Asymmetric Keys	3						A	-	-	-
5. CRITICAL COMMUNICATIONS FACILITIES POWER SYSTEMS TR: 1D7X1Q Learning Program (Percipio), Applicable Commercial Manuals										
5.1. Power Systems										
5.1.1. Uninterrupted Power Supplies (UPS)	5						A	B	-	-
5.1.2. Facility Battery Backups	5						A	B	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
5.1.3. Generators	5						A	B	-	-
6. INFORMATION PROTECTION OPERATIONS TR: 1D7X1Q Learning Program (Percipio)										
6.1. Security										
6.1.1. Information Protection Principles	5						-	A	-	-
6.1.2. Rules of Engagement	3						A	-	-	-
6.1.3. Assessment and Authorization	3						A	-	-	-
6.1.4. Event Response	3						A	-	-	-
6.1.5. Security Patch Implementation	3						A	-	-	-
6.1.6. Malicious Logic Protection	3						A	-	-	-
6.2. Defense in Depth										
6.2.1. Concept	5						A	B	-	-
6.2.2. Steps	3						A	-	-	-
6.3. Boundary Protection										
6.3.1. Principles	5						A	B	-	-
7. INFORMATION TECHNOLOGY SYSTEMS FUNDAMENTALS TR: 1D7X1Q Learning Program (Percipio)										
7.1. Programming Languages	5						A	B	-	-
7.2. Graphical User Interfaces (GUI)	5						A	B	-	-
7.3. Cross Domain Data Solutions	5						A	A	-	-
7.4. Memory Structure	5						A	B	-	-
7.5. Interrupt Requests (IRQ)	5						A	B	-	-
7.6. Drivers	5						A	B	-	-
7.7. Basic Input / Output System (BIOS)	5						A	B	-	-
7.8. Memory	5						A	B	-	-
7.9. Complementary Metal Oxide Semiconductor (CMOS)	5						A	B	-	-
8. SERVERS TR: 1D7X1Q Learning Program (Percipio)										
8.1. Hardware										

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
8.1.1. Storage Types (RAID, Tape, SSD, SCSI)	5						A	B	-	-
8.1.2. System Storage Configuration	5						A	B	-	-
8.1.3. I / O Technologies	5						A	B	-	-
8.1.4. Blade / Backplane Technologies	5						A	B	-	-
8.2. Virtualization Overview										
8.2.1. Concepts	3						B	-	-	-
8.2.2. Server Virtualization	3						B	-	-	-
8.2.3. Virtualization Environment	3						B	-	-	-
8.2.4. Client Virtualization	3						B	-	-	-
8.2.5. Implement Virtualization	3						2b	-	-	-
8.2.6. Storage Area Network (SAN)	3						B	-	-	-
8.2.7. Operating Systems										
8.2.7.1. Types and Characteristics	3						B	-	-	-
8.2.7.2. PMO Systems	3						A	-	-	-
8.2.7.3. Configure Common Server Roles	3						2b	-	-	-
8.2.7.4. Perform basic Shell configurations	3						2b	-	-	-
8.2.7.5. Configure Basic Cmd Line Programs	3						2b	-	-	-
8.2.7.6. Configure Basic Account Management functions	3						2b	-	-	-
8.2.7.7. Perform Basic Hardening procedures	3						2b	-	-	-
8.2.7.8. Perform Basic Process Management functions	3						2b	-	-	-
8.2.8. Applications										
8.2.8.1. Remote Access	3						A	B	-	-
8.2.9. Database										
8.2.9.1. Flat File	5						A	B	-	-
8.2.9.2. Relational	5						A	B	-	-
8.2.9.3. NoSQL	5						A	B	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVE	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
8.2.9.4. Schema	5						A	B	-	-
8.2.9.5. Compile Basic SQL Query and Reports	3						2b	-	-	-
8.2.10. Web Fundamentals										
8.2.10.1. Language Types	5						A	B	-	-
8.2.10.2. Web Services	5						A	B	-	-
8.2.10.3. Web Security	5						A	B	-	-
8.2.11. Account Management										
8.2.11.1. Account Management Systems	3						B	-	-	-
8.2.11.2. Manage Computer Accounts	3						2b	-	-	-
8.2.11.3. Account Types	3						A	-	-	-
8.2.12. Access Management										
8.2.12.1. Add to Domain	3						2b	-	-	-
8.2.12.2. Manage Security Groups	3						2b	-	-	-
8.2.12.3. Manage Limited Access Accounts	3						2b	-	-	-
8.2.13. Group Policy										
8.2.13.1. Principles	3						B	-	-	-
8.2.13.2. Query Group Policies	3						2b	-	-	-
8.2.13.3. Apply Group Policy	3						2b	-	-	-
8.3. Disaster / Contingency / Operational / Crisis										
8.3.1. Backup / Restore Process	5						A	B	-	-
8.3.2. Offsite Storage	5						A	B	-	-
8.3.3. Continuity of Operations (COOP)	5						A	B	-	-
8.3.4. Priority Restoration Plan	5						A	B	-	-
8.3.5. Alternate Power	5						A	B	-	-
8.3.6. Startup and Shutdown Procedures	3						2b	-	-	-
9. NETWORKED SYSTEMS TR: 1D7X1Q Learning Program (Percipio)										

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
9.1. Network Authentication										
9.1.1. Components of Public Key Infrastructure (PKI)	5						A	B	-	-
9.1.2. Biometrics	5						A	B	-	-
9.2. Systems Management (Monitoring Management)	5						A	B	-	-
9.3. Event Response										
9.3.1. Incident / Event Reporting	5						A	B	-	-
9.3.2. Perform Incident Response	3						B	-	-	-
9.4. Network Operations (NetOps) Monitoring										
9.4.1. Monitor System Resources (Wireshark, tcpdump, etc.)	5						2b	B	-	-
9.4.2. Identify Event Logging Tools (IDS, NIDS & HIDS, IPS/IDS, SIEMs)	5						A	B	-	-
10. ENTERPRISE BOUNDARY CONCEPTS TR: 1D7X1Q Learning Program (Percipio)										
10.1. Types and Characteristics	5						A	B	-	-
10.2. Boundary Interaction Tools	5						A	B	-	-
11. INTRUSION CONTROLS TR: 1D7X1Q Learning Program (Percipio)										
11.1. Types and Characteristics	5						A	B	-	-
11.2. Intrusion Detection Methods	5						A	B	-	-
11.3. Intrusion Detection Tools	5						A	B	-	-
11.4. Respond to an Incident	7						-	2b	C	-
11.5. End Point Protection										
11.5.1. Functions	5						A	B	-	-
11.5.2. Configure End Point Client	5						-	2b	-	-
11.6. Network Based Intrusion Detection System Functions	5						A	B	-	-
11.7. Troubleshooting										
11.8. Hardware	5						-	2b	-	-
11.9. Troubleshoot basic OS and Applications issues	5						-	2b	-	-
11.10. Troubleshoot basic OS and Startup Problems	5						-	2b	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
11.11. Troubleshoot Network issues	5						-	2b	-	-
12. CYBER COLLABORATION, PUBLICATIONS, AND DIRECTIVES TR: 1D7X1Q Learning Program (Percipio), AFI 33-360										
12.1. Cyber Taskings (MPTOs, CTOs, etc.)	5						B	C	-	-
12.2. Collaborative Environments	5						A	B	-	-
13. IDENTITY CREDENTIALING AND ACCESS MANAGEMENT (ICAM) TR: 1D7X1Q Learning Program (Percipio), AFMAN 17-1304										
13.1. Roles and Responsibilities	5						-	B	-	-
13.2. Essential Components and Factors of ICAM Program	5						-	A	-	-
14. COMPUTER SECURITY (COMPUSEC) TR: 1D7X1Q Learning Program (Percipio), AFI 17-130, AFMAN 171301, MPTO 00-33B-5006										
14.1. Training and Resources	5						A	B	-	-
14.2. End Point Security	5						A	B	-	-
15. RISK MANAGEMENT FRAMEWORK (RMF) TR: 1D7X1Q Learning Program (Percipio); RMF Knowledge Service; AFI 17-101; DoD 8510.01; FIPS 199, 200; SPs 800-53, 800-37, 800-53A, 800-60, 800-64; CNSSI 1253										
15.1. Introduction to RMF										
15.1.1. Program Overview	7						A	B	C	-
15.1.2. Air Force IT Category (AFI driven) / DoD IT Types (DoD driven)	7						-	B	C	-
15.1.3. Security Objectives	7						A	B	C	-
15.1.4. Roles and Responsibilities	7						A	B	C	-
15.1.5. System Development Lifecycle	7						A	B	C	-
15.1.6. DISA Approved Product List	5						A	B	-	-
15.2. Vulnerability Management										
15.2.1. Program Overview	5						A	B	-	-
15.2.2. Review a Vulnerability Scan	3						2b	-	-	-
15.2.3. STIG Compliance Requirements										
15.2.3.1. STIG Viewer	5						A	B	-	-
15.2.3.2. STIG Employment Fundamentals	5						A	B	-	-
15.2.3.3. Best Practice for VA Tools	5						A	B	-	-
15.3. Patch Management										

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
15.3.1. Purpose	3						A	-	-	-
15.3.2. Client Install and Uninstall	5						2b	B	-	-
15.3.3. Install Security Patches	5						2b	B	-	-
15.3.4. Utilize Dashboard for Reporting	5						2b	B	-	-
16. TEMPEST PROGRAM MANAGEMENT TR: 1D7X1Q Learning Program (Percipio); AFMANs 17-1305 Vol 1 (Unclass) & Vol 2 (Classified) (in development), 33-214 (Classified) (IACE: http://intelshare.intelink.sgov.gov/sites/af_cybersecurity/SitePages/Home.aspx); Emission Security handbook; DISA Wireless STIG; MPTOs 00-33B-2861, 00-33B-2862, 00- 33B-2863; AFSSIs 7700, 7702, 7703; TEMPEST Wiki: https://cs2.eis.af.mil/sites/10060/Wiki/TEMPEST.aspx										
16.1. Roles and Responsibilities	5						A	B	-	-
16.2. TEMPEST Information Messages	5						-	A	-	-
17. OPERATIONAL PROCEDURES TR: 1D7X1Q Learning Program (Percipio); AFI 32-1065; American Public Works Association Policy and ANSI; MIL-STD 2000A; TOs 00-25-234; 31-1-141-1, 31-10-7; 31-10- 11; 31-10-13, 31-10-24, and 31W3-10-20										
17.1. Standard Maintenance Practices										
17.1.1. End User Support	5						A	B	-	-
17.1.2. Wire Color Coding Standards	7						A	B	C	-
17.1.3. Construct Copper Ethernet Cable	5						3c	-	-	-
17.2. Specialized Tools TR: Applicable Technical Manuals										
17.2.1. Crimp Tool	3						3c	-	-	-
17.2.2. Use Crimp Tool	3						3c	-	-	-
18. SOFTWARE TR: 1D7X1Q Learning Program (Percipio), MAJCOM / Local Procedures, Applicable Technical Publications, AFI 17-130, TO 00-33A-1202, AFNET Procedures, AFJQS 1D7XX- 200DR										
18.1. Cyber Sustainment										
18.1.1. Install and Configure General Client Applications	5						-	2b	-	-
18.1.2. Software Updates	5						-	B	-	-
18.2. Cyber Hygiene										
18.2.1. Install and Configure Anti- virus Software and Virus Definitions	5						-	2b	-	-
18.2.2. Harden Device	5						-	2b	-	-
18.3. Specialized Software										
18.3.1. Install Specialized Client Applications	5						-	2b	-	-
18.3.2. Configure Specialized Client Applications	5						-	2b	-	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
18.3.3. Software Management Policies	7						-	A	B	-
18.4. System Recovery Troubleshooting										
18.4.1. Use Control Panel Functions	5						-	2b	-	-
18.4.2. Use Computer Management Tools	5						-	2b	-	-
19. LOCAL AND NETWORKED SOLUTIONS TR: 1D7X1Q Learning Program (Percipio); MAJCOM / Local Procedures; Applicable Technical Publications; AF e-Learning: Networking Fundamentals: Configuring Wired and Wireless Networks and Firewalls, CompTIA A+ 220-1001: Configuring a Wired / Wireless Network, CompTIA A+ 220-1001: Networking, CompTIA A+ 220- 1001: Network Types										
19.1. Network Connected Devices										
19.1.1. Add Device to Network	5						2b	B	-	-
19.1.2. Configure Multifunction Devices	3						2b	-	-	-
19.1.3. Map Client System to Network Device	5						2b	B	-	-
19.2. Methods of Interfacing RF Devices with IP Networks	7						-	A	B	-

1. Implementation. This STS will be used for technical training provided by AETC for the 3-level course**.**

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
1. EXPEDITIONARY COMMUNICATIONS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
1.1. Duties of SFSC	5						A	B	B	-
2. SAFETY / RISK MANAGEMENT (RM) TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/); AFIs 32-1065, 90-802, 91-202; AFMAN 91-203; AFPAM 90-803; AFPD 91-2; MIL-STD 188-124B										
2.1. Climbing and Working Aloft	5						-	B	-	-
2.2. Radio Frequency Radiation	5						A	B	C	-
2.3. DoD Electromagnetic Environmental Effects (E3) Program	5						-	A	B	-
2.4. Lightning Protection and Grounding	5						A	B	-	-
3. BASIC ELECTRONICS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
3.1. Metric Notation	5						A	B	-	-
3.2. Decibel Math (Logarithmic Power Calculation)	5						A	B	-	-
3.3. Prefixes	5						A	B	-	-
3.4. Fundamentals of Electricity	5						B	C	-	-
3.5. Component and Device Theory	5						A	B	C	-
3.6. Wave Generating Circuits	5						A	B	-	-
3.7. Digital Circuits	5						A	B	-	-
4. CABLE FUNDAMENTALS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
4.1. Wire Color Coding Standards	5						A	B	C	-
4.2. Fiber Optic Cable	5						A	B	-	-
4.3. Twisted Pair	5						A	B	-	-
4.4. Coaxial Cable	5						A	B	-	-
4.5. Shielding	5						A	B	-	-
4.6. Labeling	5						A	B	C	-
4.7. Build Ethernet Cable	5						2b	B	C	-
4.8. Build Coax Cable	5						2b	B	C	-
4.9. Coax Testing	5						A	B	-	-
4.10. Perform Cable Testing	5						2b	B	-	-
5. LONG HAUL COMMUNICATIONS CONCEPTS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
5.1. Global Circuit and Transport Concepts										
5.1.1. Terrestrial Transport Methods										
5.1.1.1. Enterprise Networks	7						-	B	C	-
5.1.1.2. DISA Circuits	7						A	B	C	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
5.1.1.3. Commercial ISPs	7						A	B	C	-
5.1.2. Wireless Long Haul Fundamentals										
5.1.2.1. Line of Sight	5						A	B	-	-
5.1.2.2. SATCOM	5						A	B	C	-
5.1.2.3. Troposcatter	5						-	A	B	-
6. ENCRYPTION / DECRYPTION TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
6.1. Crypto Keys										
6.1.1. Pre Placed Key (PPK)	5						A	B	-	-
6.1.2. Firefly Vector Set	5						A	B	-	-
6.2. Key Roles										
6.2.1. Traffic Encryption Keys (TEK)	5						A	B	-	-
6.2.2. Key Encryption Keys (KEK)	5						A	B	-	-
6.2.3. TrKEK	5						A	B	-	-
7. RF TRANSMISSION FUNDAMENTALS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/), AFI 36-2101, 1D7XX CFETP, AFECD										
7.1. Radio Theory										
7.1.1. Transmitters	5						A	B	-	-
7.1.2. Receivers	5						A	B	-	-
7.1.3. Transceivers	5						A	B	-	-
7.1.4. RF Transmission Mediums	5						A	B	C	-
7.2. Modulation Techniques										
7.2.1. Understand Modulation	5						A	B	C	-
7.2.2. Amplitude Modulation	5						B	C	-	-
7.2.3. Frequency Modulation	5						B	C	-	-
7.2.4. Digital Modulation	5						B	C	-	-
7.3. RF Spectrum										
7.3.1. Frequency Bands and Characteristics	7						A	B	C	-
7.4. Electromagnetic Wave Propagation Theory										
7.4.1. Radio Wave Propagation Principles	7						A	B	C	-
7.4.2. Refraction	7						A	B	C	-
7.4.3. Reflection	7						A	B	C	-
7.4.4. Diffraction	7						A	B	C	-
7.4.5. Skywave Fundamentals	7						A	B	C	-
7.5. Signal Loss										
7.5.1. Path Loss	5						A	B	-	-
7.5.2. Atmospheric Attenuation	7						A	B	C	-
7.5.3. Multipathing	5						A	B	C	-

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		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
7.5.4. Free Space Loss	5						A	B	C	-
7.5.5. Anomalous Propagation	7						A	B	C	-
7.5.6. Solar Emissions and Effects	7						A	B	C	-
8. TEST EQUIPMENT TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
8.1. Multimeter	5						2b	B	-	-
8.2. Built-in Test Equipment	5						A	2b	-	-
8.3. Communication Systems Analyzer	5						2b	A	-	-
8.4. Dummy Load	5						A	B	-	-
8.5. VSWR Tester	5						A	B	-	-
8.6. Compass / Inclinometer	5						2b	B	-	-
9. ANTENNA FUNDAMENTALS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
9.1. Antenna RF Propagation Theory										
9.1.1. Fundamentals of Antenna Propagation	5						B	C	-	-
9.1.2. Antenna Gain	5						A	B	C	-
9.1.3. Polarization	5						A	B	C	-
9.1.4. Mutual Interference	5						A	B	-	-
9.1.5. Impedance Matching	5						A	B	-	-
9.1.6. Deployable Antenna Types	5						A	B	-	-
9.1.7. Beamwidth	5						A	B	-	-
9.1.8. Calculate Electrical and Physical Length	7						2b	A	B	-
9.1.9. Relationship of Antenna Height and Takeoff Angle	5						B	C	-	-
9.2. Antenna Types and Applications										
9.2.1. Omnidirectional and Directional Antennas	5						A	B	-	-
9.2.2. Common Antenna Types	5						A	B	-	-
9.2.3. Airborne Antenna Applications	7						-	A	B	-
9.2.4. Basic Antenna Tests	5						A	B	-	-
10. SATCOM FUNDAMENTALS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
10.1. Satellite System Segments Principles, Capabilities, and Limitations										
10.1.1. Space Segment	5						A	B	-	-
10.1.2. Command and Control Segment	5						A	B	-	-
10.1.3. Terminal (Ground) Segment	5						A	B	-	-
10.2. Satellite Bands, Purpose, Capabilities, and Limitations										

1. TASKS, KNOWLEDGEAND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
10.2.1. IEEE and ITU Radio Frequency Band Standards	7						A	B	C	-
10.2.2. L, C, X, Ku, K, and Ka Band applications and considerations	7						A	B	C	-
10.3. Satellite Access Principles										
10.3.1. FDMA	7						B	B	B	-
10.3.2. TMDA	7						B	B	B	-
10.3.3. CDMA	7						B	B	B	-
10.4. Current Satellite Constellations										
10.4.1. SATCOM Terminal Characteristics										
10.4.1.1. Introduction to UHF, SHF, EHF Terminals	5						A	B	-	-
10.4.1.2. Multiband Satellite Terminals	7						A	B	C	-
10.4.2. Phase Modulation										
10.4.2.1. Understand Phase Modulation	7						A	B	C	-
10.4.2.2. Types of Modulation	5						B	B	B	-
10.4.2.3. Modulation Considerations	7						A	B	C	-
10.4.2.4. Forward Error Correction (FEC)	7						A	B	C	-
10.4.3. Transmit Systems										
10.4.3.1. Modems	5						A	B	-	-
10.4.3.2. Transmitters	5						A	B	-	-
10.4.3.3. Upconverters										
10.4.3.3.1. Upconverter	5						A	B	-	-
10.4.3.3.2. Block Upconverter	5						A	B	-	-
10.4.3.4. Power Amplifier	5						A	B	-	-
10.4.4. Receive Systems										
10.4.4.1. Receiver	5						A	B	-	-
10.4.4.2. Low Noise Amplifier	5						A	B	-	-
10.4.4.3. Low Noise Block	5						A	B	-	-
10.4.4.4. Downconverters										
10.4.4.4.1. Downconverter	5						A	B	-	-
10.4.4.4.2. Block Downconverter TR: subtask of 11.4.4.4	5						A	B	-	-
10.4.4.5. Demodulator	5						A	B	-	-
10.4.5. Antenna Systems										
10.4.5.1. Antenna Systems	5						A	B	-	-
10.4.5.2. Waveguides	5						A	B	-	-
10.4.5.3. Feed Horns / Feed Assemblies	5						A	B	-	-

1. TASKS, KNOWLEDGEAND TECHNICAL REFERENCES	2. CORE & WARTIME TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED - COMPETENCY LEVELS			
		A	B	C	D	E	3 SKILL LEVEL	5 SKILL LEVEL	7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	COURSE	COURSE	COURSE	COURSE
10.4.5.4. Acquisition and Tracking Principles	5						A	B	-	-
10.4.5.5. Calculate Satellite Look Angles	5						2b	B	-	-
10.4.5.6. Acquire and Track Satellites	5						2b	B	-	-
10.4.6. Global Positioning System Receivers										
10.4.6.1. Principles, Capabilities, and Limitations	5						A	B	C	-
10.5. SATCOM Link Operations										
10.5.1. Communication Link Establishment and Maintenance										
10.5.1.1. Principles	7						A	B	B	-
10.5.1.2. Establish a Communications Link	7						2b	B	C	-
10.5.1.3. Counter Counter Measure Principles	7						A	B	C	-
10.5.1.4. Maintain Master Station Logs	7						2b	B	C	-
10.5.1.5. Develop After Action Reports	7						2b	B	C	-
11. ELECTRICAL POWER SYSTEMS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
11.1. Uninterruptable Power Supplies	7						A	B	C	-
11.2. Batteries	7						A	A	B	-
11.3. Inverters	7						A	B	C	-
11.4. Filters	7						A	B	C	-
11.5. Generators	7						A	B	B	-
11.6. Considerations for Field Application	7						A	B	C	-
12. NETWORK AUTHENTICATION FUNDAMENTALS TR: 1D7X1W Expeditionary Communications (Percipio - https://usaf.percipio.com/)										
12.1. 802.1X	7						-	-	B	-
12.2. Port Security	7						-	A	B	-
12.3. PKI	7						-	B	B	-
13. ELECTROMAGNETIC SPECTRUM OPERATIONS										
13.1. Localized Interference Resolution	7						A	B	C	-
13.2. ELECTROMAGNETIC WARFARE (EW)										
13.2.1. Electromagnetic Attack (EA)	5						A	B	C	
13.2.2. Electromagnetic Protection (EP)	5						A	B	C	
13.2.3. Electromagnetic Support (ES)	5						A	B	C	
13.3. Spectrum Sensing	7						-	A	B	-
13.4. Unit / AOR Comm Plans (ANNEX K) PACE	7						A	B	C	-

Section B - Course Objective List

3. There is currently no advanced course. This area is reserved.

Section C - Support Materials

4. The following list of support materials is not all-inclusive; however, it covers the most frequently referenced areas. The most current products can be found at the 81 TRSS/TSQ web page, and are available for download from the web site at https://usaf.dps.mil/teams/10445/default.aspx, https://lms-jets.cce.af.mil/moodle/, and https://www.youtube.com/channel/UCp7lrge1aHDA6wnEaXrdm5Q. Procedures for requesting product development are found in AFMAN 17-204.

5. Generic AFJQSs/AFQTPs applicable to AFSC 1D7XX/X family is available at https://usaf.dps.mil/teams/10445/default.aspx?RootFolder=%2Fteams%2F10445%2FDocuments%2FCFETP%2F1D7XX%20%2D%20CYBER%20DEFENSE%20OPERATIONS&FolderCTID=0x010100A06BF221F643144E807354644DE7FCF3&View=%7B215A7876%2D5A74%2D4A5C%2DA4F0%2D1FCE911765 A1%7D

Section D - Training Course Index

6. Purpose. This section of the CFETP identifies training courses available for continuation/ supplemental training. For information on all formal courses, refer to the Air Force Education and Training Course Announcements (ETCA) database, at https://usaf.dps.mil/teams/app10-etca/sitepages/home.aspx

7. ***Air University Courses.***

For a current listing of Air University courses go to https://www.airuniversity.af.mil/Barnes/

Section E - FLDCOM Unique Requirements

8. Each FLDCOM is responsible for their own unique training requirements.