

AFSC 3C0X2

COMMUNICATIONS-COMPUTER SYSTEMS PROGRAMMING



Basic



Senior



Master

CAREER FIELD EDUCATION AND TRAINING PLAN

**COMMUNICATIONS-COMPUTER SYSTEMS PROGRAMMING
AFSC 3C0X2
CAREER FIELD EDUCATION AND TRAINING PLAN**

TABLE OF CONTENTS

PART I

[Preface](#) 1

[Abbreviations/Terms Explained](#).....2

[Section A - General Information](#)5

Purpose of the CFETP

Use of the CFETP

Coordination and Approval of the CFETP

[Section B - Career Field Progression and Information](#).....7

Specialty Description

Communications-Computer Systems Programming Apprentice/Journeyman/Craftsman
(3C032/3C052/3C072)

Communications-Computer Systems Superintendent/Chief Enlisted Manager (CEM)
(3C090/3C000)

Skill/Career Progression

Apprentice (3-Level) Training

Journeyman (5-Level) Training

Craftsman (7-Level) Training

Superintendent (9-Level) Training

Chief Enlisted Manager (CEM) Training

Training Decisions

Community College of the Air Force Academic Programs

Career Field Path

Education and Training Path Table

[Section C - Skill Level Training Requirements](#)..... 15

Purpose

Specialty Qualification Requirements

Apprentice (3-Level) Training

Journeyman (5-Level) Training

Craftsman (7-Level) Training

Superintendent (9-Level) Training

[Section D - Resource Constraints](#) 18

Purpose

Apprentice (3-Level) Training

Journeyman (5-Level) Training

Craftsman (7-Level) Training

[Section E - Transition Training Guide](#) 18

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Part II

Section A - Specialty Training Standard	19
Section B - Course Objective List	35
Section C - Support Materials	35
Air Force Job Qualification Standards and Air Force Qualification Training Packages	
Section D - Training Course Index	36
Purpose	
Air Force In-Residence Courses	
Air Force Institute for Advanced Distributed Learning (AFIADL) Courses	
Exportable Courses	
Section E - MAJCOM Unique Requirements	36

**COMMUNICATIONS-COMPUTER SYSTEMS PROGRAMMING
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PART I

Preface

1. The changing Command, Control, Communications, Computer, and Intelligence (C4I) and Expeditionary Aerospace Forces (EAF) environments require vision, preparation, and attention to ensure people have the right skills and tools to deliver the C4I capabilities and the support required by the war fighter in meeting the Air Force mission of today and the vision of the future. Declining resources, expanding diversity of mission, and ever-changing technologies in the Air Force are impacting the availability of our most valuable resource--people. These factors will continue to exist in the future, making it essential for the work force to be effectively and efficiently trained to perform duties within each skill level of an Air Force Specialty (AFS). To meet the challenges of tomorrow, the Air Force must place a greater emphasis on career field training. This Communications-Computer Systems Programming Career Field Education and Training Plan (CFETP) is a comprehensive core training document that identifies life-cycle training/education requirements, support resources, and minimum core task requirements for the 3C0X2 specialty. The plan is a "training road map" for the career field. It provides personnel a clear career path to success and makes career field training identifiable, measurable, and budget defensible.

2. The CFETP documents the career field training program and consists of two parts. Management uses both parts to plan, manage, and control training within the career field.

2.1. Part I, Section A provides the information necessary for overall management of training in the career field. It contains administrative details and explains the purpose and use of the CFETP. Section B provides a description of the specialty, suggests career field progression, provides career field information, documents training decisions, defines each skill level, and identifies MAJCOM continuation training options. Section C specifies qualification requirements for upgrade/progression in each subsequent skill level in the career field. It also identifies sources of training other than those provided by Air Education and Training Command (AETC). Section D identifies known resource constraints. Section E identifies transition training requirements.

2.2. Part II, Section A identifies the Specialty Training Standard (STS) and includes duties, tasks, technical references, Air Education and Training Command (AETC) conducted training, core tasks, and correspondence course requirements. Section B contains the course objective list/training standard supervisors use to determine if airmen satisfied training requirements. Section C contains support material relevant across the specialty including Air Force Job Qualification Standards/Air Force Qualification Training Packages (AFJQS/AFQTP). Section D lists all mandatory Air Force in-residence, field, Air Force Institute for Advanced Distributed Learning (AFIADL), and exportable courses used to support training for this specialty. Section E is used to identify MAJCOM unique requirements. Supervisors and trainers at the unit level use Part I, Section C, and Part II of the CFETP to identify, plan, and conduct unit level training commensurate with the overall goals of this plan.

3. Use of the guidance provided in this CFETP ensures individuals in this career field receive effective and efficient training at the appropriate points in their careers. This plan enables the Air Force to train today's work force for tomorrow's jobs.

Abbreviations/Terms Explained

This section provides a common understanding of the terms that apply to the Communications-Computer Systems Programming Career Field and Education Training Plan.

Advanced Training. A formal course of training that leads to a technical or supervisory level of an AFS. Training is for selected airmen at the advanced level of an AFS.

Air Education and Training Command (AETC).

Air Force Career Field Manager (AFCFM). Representative appointed by the respective HQ USAF Deputy Chief of Staff or Under Secretariat to ensure that assigned AF specialties are trained and utilized to support AF mission requirements.

Air Force Institute for Advanced Distributed Learning (AFIADL). The result of a merger between the Air Force Distance Learning Office and the Extension Course Institute.

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

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

Air Force Specialty (AFS). A group of positions (with the same title and code) that require common qualifications.

Career Field Education and Training Plan (CFETP). A comprehensive, multipurpose document, that encapsulates the entire spectrum of career field training. It outlines a logical growth plan that includes training resources and is designed to make career field training identifiable, eliminate duplication, and is budget defensible. CFETPs are officially posted at <http://afpubs.hq.af.mil/>. You can also download them from <https://www.afca.scott.af.mil/3c/training.htm> or <https://wwwmil.keesler.af.mil/81trss/qflight/welcome.html>.

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.

Command, Control, Communications, Computer, and Intelligence (C4I).

Communications-Computer Systems (C-CS).

Communications-Computer Systems Training Advisory Group (CTAG). Chaired by the HQ USAF C-CS AFCFM and attended by the C-CS MAJCOM and FOA functional managers. The CTAG sets training goals and priorities, reviews training programs, and evaluates emerging training technologies. The group meets, as required, to prioritize training product development.

Computer Based Training (CBT). A forum for training in which the student learns via a computer terminal. It is an especially effective training tool that allows the students to practice applications while they learn.

Continuation Training. Additional advanced training that exceeds the minimum upgrade training requirements and emphasizes present or future duty assignments.

Core Task. Tasks the AFCFM identifies as minimum qualification requirements within an AFSC, regardless of duty position. Core tasks may be specified for a particular skill level or in general across the AFSC. Guidance for using core tasks can be found in the applicable CFETP narrative.

Course Objective List (COL). A publication derived from initial/advanced skills Course Training Standard (CTS), identifying the tasks and knowledge requirements and respective standards provided to achieve a 3-skill level in this career field. Supervisors use the COL to assist in conducting graduate evaluations in accordance with AFI 36-2201, *Developing, Managing, and Conducting Training*.

Course Training Standard (CTS). A standard developed for all courses not governed by an STS, including specialized training packages and computer-based training courses.

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

Expeditionary Aerospace Force (EAF). The EAF concept is how the Air Force will organize, train, equip, and sustain itself by creating a mindset and cultural state that embraces the unique characteristics of aerospace power – range, speed, flexibility, precision – to meet the national security challenges of the 21st Century.

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

Field Operating Agency (FOA).

Field Training. Technical, operator, and other training that either a field training detachment or field training team conducts at operational locations on specific systems and associated direct-support equipment for maintenance and aircrew personnel.

Go/No Go. In OJT, the stage at which an individual has gained enough skill, knowledge, and experience to perform the tasks without supervision.

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

Instructional System Development (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.

Major Command (MAJCOM).

Occupational Survey Report (OSR). A detailed report showing the results of an occupational survey of tasks performed within a particular AFSC.

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.

Oracle Training Administration (OTA). An HQ AFPC/DPPAT managed computer support system that links Air Force units or activities. This system is used for planning, controlling, and funding formal training throughout the Air Force, including the MAJCOM TDY-to-School Program.

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

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

Skill Training. A formal course that results in the award of a skill level.

Specialty Training Standard (STS). An Air Force publication that describes skills and knowledge that an airman in a particular AFS needs on the job. It further serves as a contract between AETC and the user to show the overall training requirements for an AFSC that the formal schools teach.

Standard. An exact value, a physical entity, or an abstract concept established and defined by authority, custom, or common consent to serve as a reference, model, or rule in measuring quantities or qualities, establishing practices or procedures, or evaluating results. It is a fixed quantity or quality.

System Training Plan (STP). A living document that explains what training is needed for a system and how to obtain the training.

Task Module (TM). A group of tasks performed together within an AFS 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 United States Air Force.

Training Capability. 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 U&TW, TPTs are more intimately involved in training development and the range of issues examined is greater than in the U&TW forum.

Training Requirements Analysis (TRA). A detailed analysis of tasks for a particular AFSC 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.).

Upgrade Training. Training that leads to the award of a higher skill level.

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 AFS. 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 AFCFM, MAJCOM Functional Managers, subject matter experts (SME), and AETC training personnel that determines career ladder training requirements.

Section A - General Information

1. Purpose of the CFETP. This CFETP provides the information necessary for career field managers, training management, supervisors, and trainers to plan, develop, manage, and conduct an effective and efficient career field training program. The plan outlines the training that individuals in AFSC 3C0X2 should receive in order to develop and progress throughout their careers. For purpose of this plan, training is divided into: initial skills, upgrade, qualification, and continuation training. Initial skills training is the AFS specific training an individual receives upon entering into the AFSC. This training is provided by the 336 Training Squadron (TRS) at Keesler AFB, MS. Upgrade training identifies the mandatory courses, task qualification requirements, and Career Development Course (CDC) completion required for award of the 5-, 7-, or 9-skill level. Qualification training is actual hands-on task performance training designed to qualify an airman 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/knowledge training required to do the job. Continuation training is additional training provided to 3-, 5-, 7-, and 9-level personnel to increase their skills and knowledge beyond the minimum required for upgrade. The CFETP has several purposes, some of which are:

1.1. Serves as a management tool to plan, develop, manage, and conduct a career field training program. Also, ensures that established training is provided at the appropriate point in an individual's career.

1.2. Identifies task and knowledge training requirements for each skill level in the specialty and recommends training throughout each phase of an individual's career.

1.3. Lists training courses available in the specialty, identifies sources of the training, and provides the training medium.

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

2. Use of the CFETP. The CFETP is maintained by the 3CXXX Air Force Career Field Manager (AFCFM), HQ USAF/SCXFD. MAJCOM Functional Managers and AETC review the plan annually to ensure currency and accuracy and forward recommended changes to the AFCFM. Using the list of courses in Part II, they determine whether duplicate training exists and take steps to eliminate/prevent duplicate efforts. Career field training managers at all levels use the plan to ensure a comprehensive and cohesive training program is available for each individual in the career ladder.

2.1. AETC training personnel develop/revise formal resident and exportable training based upon requirements established by the users and documented in the STS. They also develop procurement and acquisition strategies for obtaining resources needed to provide the identified training.

2.2. MAJCOM Functional Managers ensure their training programs complement the CFETP mandatory initial skill and upgrade requirements. They also identify the needed AFJQs/AFQTPs to document unique upgrade and continuation training requirements. Requirements are satisfied through OJT, resident training, contract training, or exportable courseware/courses. MAJCOM developed training to support this AFSC must be identified for inclusion into this plan.

2.3. 81 TRSS Qualification Training Flight (Q-Flight) personnel develop AFJQs/AFQTPs based on requests submitted by the MAJCOMs and according to the priorities assigned by the Communications-Computer Systems Training Advisory Group (CTAG).

2.4. Unit level training managers and supervisors manage and control progression through the career field by ensuring individuals complete the mandatory training requirements for upgrade specified in this plan and supplemented by their MAJCOM. The list of courses in Part II is used as a reference for planning continuation or career enhancement training.

2.5. Submit recommended CFETP improvements/corrections to the AFSC Training Manager at 336 TRS/TRR, 600 Hanger Road, Keesler AFB MS 39534-2235 or call DSN 597-5327.

3. Coordination and Approval of the CFETP. The AFCFM is the approval authority. MAJCOM representatives and AETC training personnel coordinate on the career field training requirements. The AFCA Mission Area Manager (MAM) reviews CFETPs for accuracy prior to submission for approval by the AFCFM.

Section B - Career Field Progression and Information

4. Specialty Description. This information supplements that presented in AFMAN 36-2108, *Airman Classification*.

4.1. Communications-Computer Systems Programming Apprentice/Journeyman/Craftsman (3C032/3C052/3C072).

4.1.1. Specialty Summary. Supervises and performs C-CS software analysis, development, design, and programming. Develops computer systems programs and procedures. Interprets specification, coding, formats, testing, maintaining, and modifying programs. Analyzes and designs automated systems. Prepares documentation of proposal specifications and programs. Performs program and documentation maintenance. Related DoD Occupational Subgroup: 532.

4.1.2. Duties and Responsibilities:

4.1.2.1. Prepares, tests, and documents software. Determines input and output devices. Designs input source data and prepares output formats and instructions. Prepares system or program test data. Prepares edits of input data. Analyzes output products for programming logic and errors in program logic, syntax, and data entry. Arranges test data and tests routines, and isolates and corrects programming errors. Desk-checks codes, and debugs programs. Prepares, writes, and updates documentation, including user, operations, and program maintenance manuals. Designs, develops, and enforces prescribed directives and security techniques for operating systems, application software, files and data bases to preclude unauthorized access to classified, sensitive information, or misuse of communications-computer resources.

4.1.2.2. Schedules and controls computer input and output. Reviews input data for completeness before scheduling programs for computer runs. Establishes and updates program handling for production control system. Ensures output production is timely, accurate, and conforms to the established procedures. Uses internal and remote inquiry techniques to provide functional users desired products.

4.1.2.3. Analyzes and updates existing programs. Ensures accuracy and efficiency of existing programs. Develops new and improved processing procedures and techniques, and applies them to existing programs. Applies computer security techniques designed to preclude unauthorized access to computer data and to reduce potential for misuse of computer software or hardware resources. Enforces data base protection and security requirements.

4.1.2.4. Designs C-CS. Develops and prepares C-CS studies. Analyzes requests for information. Organizes system study teams and conducts briefings. Analyzes documents and items. Determines how requirements can be met more effectively by automated methods. Determines systematic procedures needed to solve problems arising in communications-computer processing systems. Determines and recommends most reasonable approach in designing new systems or modifying existing system. Prepares system graphics, standard language statements, workload data, and present and proposed costs. Designs and develops functionally unique C-CS and software methodologies such as distributed processing, systems networking, advanced information storage and retrieval, and management techniques. Determines requirements for communications-computer processing equipment and facilities. Participates in economic analyses to determine cost benefits.

4.2. Communications-Computer Systems Superintendent/Communications-Computer Systems Chief Enlisted Manager (CEM) (3C090/3C000).

4.2.1. Specialty Summary. Manages C-CS activities. Activities include system analysis and design, programming, systems operation and maintenance, resource management, and security management. Monitors functional C-CS. Helps develop C-CS plans and policy. Related DoD Occupational Subgroup: 532.

4.2.2. Duties and Responsibilities.

4.2.2.1. Plans and organizes C-CS activities. Plans and supervises system installation, and evaluates facilities layout. Evaluates performance standards. Determines equipment, training, and supplies required for systems implementation and support. Interacts with customers to promote customer satisfaction. Establishes C-CS procedures.

4.2.2.2. Establishes training requirements. Establishes training programs to meet local knowledge and skill requirements and to enhance professional awareness of C-CS technology.

4.2.2.3. Directs C-CS activities responsible for system analysis and design, programming, operations and maintenance, security, systems management, technical support, and resource management. Interprets and implements policies, directives, and procedures.

4.2.2.4. Inspects and evaluates C-CS activities for compliance with directives. Evaluates, rates, and prepares reports on C-CS activity effectiveness. Recommends and implements corrective action for improved methods and procedures. Evaluates effectiveness of equipment usage, personnel, systems performance, customer service, supplies, and systems scheduling, processing, and maintenance.

4.2.2.5. Manages C-CS development functions. Helps functional users define requirement. Recommends automation methods to enhance resource use. Supervises functional user requirements translation into automated system capabilities. Organizes software development teams that use software methodologies. Oversees data base design to optimize collecting and retrieving information. Supervises test and evaluation efforts to determine errors in logic, information flow, and systems performance. Organizes and participates in C-CS implementation and conversion. Ensures continued interface between functional users and programming and operations personnel for implemented systems. Ensures compliance with standards for systems software and documentation.

5. Skill/Career Progression. Adequate training and timely progression from the apprentice to superintendent skill levels play an important role in the Air 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 and the [3C0X2 Education and Training Path](#) table will ensure individuals receive viable training at appropriate points in their careers.

Apprentice (3-Level) Training
Upon completion of initial skills training a trainee will work with a trainer to enhance their knowledge and skills.
Utilize CDCs, AFJQs/AFQTPs, and other exportable courses to progress in the field.
Once task certified, a trainee may perform the task unsupervised.
Journeyman (5-Level) Training
Enter into continuation training to broaden experience base.
Five-levels may be assigned job positions such as team leader and shift supervisor.
Attend the Airman Leadership School (ALS) after serving 48 months in the Air Force or selection to rank of SSgt (active duty only). In-residence or correspondence course is required for Air National Guard/Air Force Reserve Command (ANG/AFRC) personnel.
Use CDCs and other references identified by the AFCFM to prepare for Weighted Airman Performance Systems (WAPS) testing.
Should continue pursuing a Community College of the Air Force (CCAF) degree.
Craftsman (7-Level) Training
A seven-level can expect to fill various supervisory and management positions such as shift leader, team chief, supervisor, or task certifier.
Seven-levels should take courses or obtain added knowledge on management of resources and personnel, complete 7-level CDCs, and attend the 7-level resident course.
Encouraged continuing academic education through CCAF and higher degree programs.
Attend the Noncommissioned Officer Academy (NCOA). In-residence or correspondence course is required for ANG/AFRC personnel.
Superintendent (9-Level) Training
A nine-level can be expected to fill positions such as flight chief, superintendents, and various staff positions.
Should pursue increased knowledge for budget, manpower, resources, and personnel management.
Recommend they pursue additional education and completion of courses outside of their AFSC.
Chief Enlisted Manager (CEM) Training
Must be selected for CMSgt and possess qualifications in a feeder specialty (3C090, 3C191, 3C192, 3C291, or 3C391).
CEMs work in a variety of similar jobs and functional areas where general managerial and supervisory abilities can be most effectively used and challenged.
Resident graduation of the USAF Senior NCO Academy (SNCOA) is a prerequisite for CMSgt sew-on (active duty only). In-residence or correspondence course required for ANG/AFRC personnel.

6. Training Decisions. This CFETP was developed to encapsulate an entire spectrum of training requirements for the Communications-Computer Systems Programming career field, using a building block approach (simple to complex). Included in this spectrum was the strategy of 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. The following training decisions were made by members of the April 1999 Utilization and Training Workshop.

6.1. The following requirements were added to the 3- and 7-level courses: C++, Program Design Language (pseudo code), and web base training.

6.2. Proficiency Training. This training is job qualification for an assigned duty position. Additional qualification training becomes necessary when personnel transfer to another duty position, the unit mission changes, a new personnel program comes on board, or any time changes in techniques or procedures occur. The 81 TRSS (Q-Flight) develops AFJQSS/AFQTPs to support tasks relating to communications-electronics and communications-computer systems, functions, and duties. Completion of AFJQSS/AFQTPs is mandatory by duty position for personnel in upgrade or qualification training. Personnel assigned to a Network Control Center (NCC) performing Network Management duties would use AFJQS 3CXXX-200C.

7. Community College of the Air Force (CCAF) Academic Programs. Enrollment in CCAF occurs upon completion of basic military training. CCAF provides the opportunity for all enlisted members to obtain an Associate in Applied Science degree. The degree must be completed before the student separates from the Air Force, retires, or is commissioned as an officer. In addition to its associates degree program, CCAF offers the following:

7.1. Occupational Instructor Certification. The College offers the Occupational Instructor Certification to instructors teaching full time in a CCAF affiliated school. To qualify, instructors must complete an instructor course, a teaching practicum, have two years teaching experience, hold an associate or higher degree, and be recommended by their commander/commandant.

7.2. Trade Skill Certification. When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency based assessment process for trade skill certification at one of four proficiency levels-Apprentice, Journeyman, Craftsman/Supervisor, or Master Craftsman/Manager. All are transcribed on the CCAF transcript.

7.3. The Computer Science Technology (0CYY) program applies to the 3C0X2 career field.

7.3.1. Degree Requirements: Individuals must hold the 5-skill level at the time of program completion.

	Semester hours
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	15
Program Electives	15
 Total	 64

7.3.2. Technical Education (24 semester hours): A minimum of 12 semester hours of Technical Core subjects and courses must be applied and the remaining semester hours will be applied from Technical Core/Technical Elective subjects and courses. Requests to substitute comparable courses or to exceed specified semester hour values in any subject/course must be approved in advance by the technical branch of the CCAF Administrative Center.

7.3.3. Leadership, Management, and Military Studies (6 semester hours): Professional military education (PME) and/or civilian management courses. See CCAF General Catalog for application of civilian management courses.

7.3.4. Physical Education (4 semester hours): Satisfied upon completion of basic military training.

7.3.5. General Education (15 semester hours): Courses must meet the criteria for application of courses to the General Education requirement and be in agreement with the definitions of applicable General Education subjects/courses as outlined in the CCAF General Catalog.

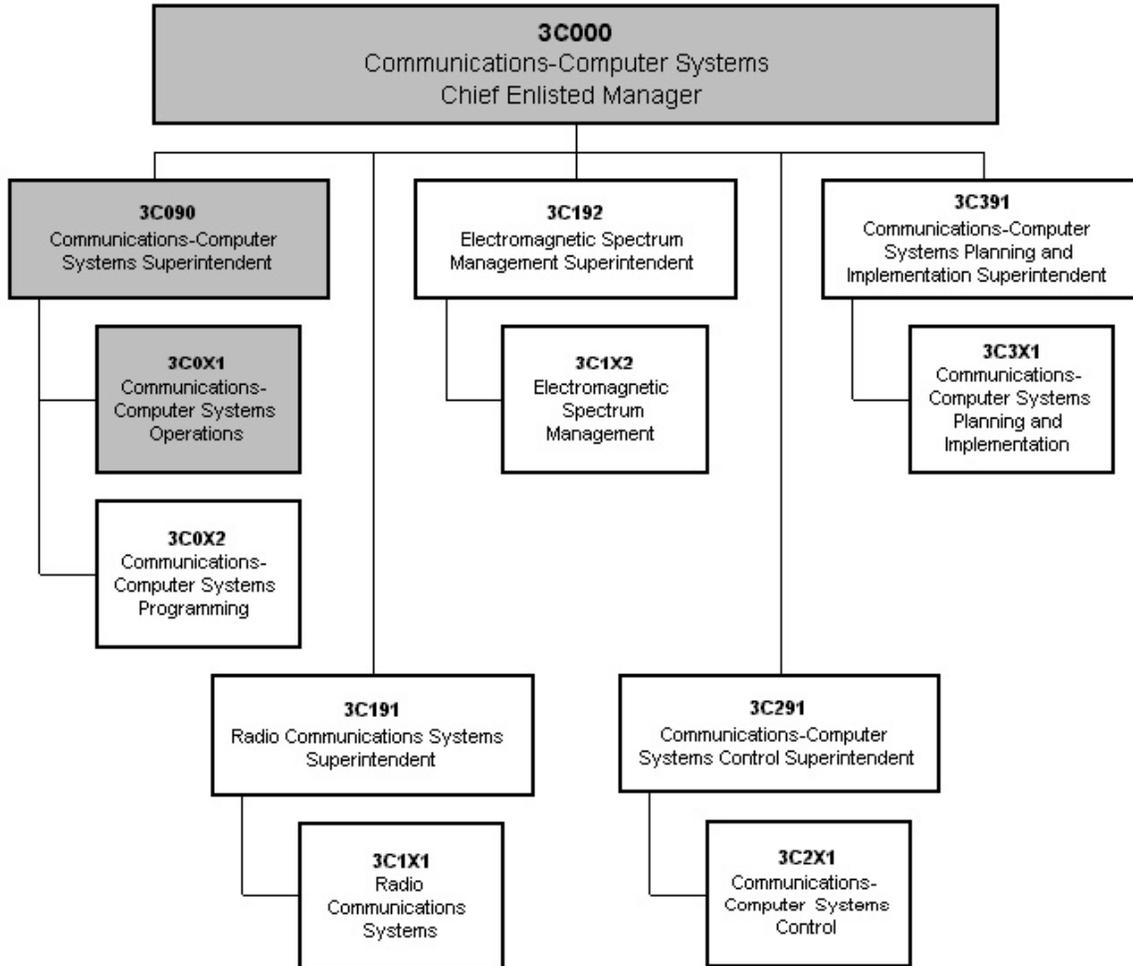
7.3.6. Program Elective (15 semester hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education courses, including natural science courses meeting General Education requirement application criteria. Six semester hours of CCAF degree applicable technical credit otherwise not applicable to this program may be applied.

7.4. See the current CCAF General Catalog for details regarding the Associates of Applied Science in Computer Science Technology. The catalog is available at your education office or from <http://www.maxwell.af.mil/au/ccaf/>.

7.5. Additional off-duty education is a personal choice that is encouraged for all. Individuals desiring to become an AETC instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain CCAF's accreditation through the Southern Association of Colleges and Schools.

8. Career Field Path. The following summarizes career progression and personnel allocations across the career ladder. 3C0XX personnel maintain their individual AFSC identifiers through the rank of MSgt. Upon promotion to SMSgt, AFSCs 3C0X1 and 3C0X2 merge to become a 3C090. At Chief, the 3C090 merges with other 3CXXX 9-level specialties to become a 3C000. Specific demographic information is available on the Web at <http://www.afpc.randolph.af.mil/demographics/demograf/CAFSC.html>.

3CXXX Career Field Progression



**3C0X2, COMMUNICATIONS-COMPUTER SYSTEMS PROGRAMMING
EDUCATION AND TRAINING PATH**

EDUCATION AND TRAINING REQUIREMENTS	AVERAGE SEW ON TIME AND COMMENTS
BASIC MILITARY TRAINING SCHOOL	
APPRENTICE TECHNICAL SCHOOL (3-SKILL LEVEL) Mandatory	Amn 6 months
UPGRADE TO JOURNEYMAN (5-SKILL LEVEL) Minimum 15 months OJT training (9 months for retrainees). Complete 5-Level CDCs. Mandatory Specific AFJQs/AFQTPs for equipment at assigned location. Mandatory C-CS Management and Generic AFJQs/AFQTPs for various unit level duties. Mandatory AETC Supplemental training courses as determined by MAJCOM Optional	A1C..... 16 months SrA..... 3 years Earliest..... 3 years HYT 10 years
AIRMAN LEADERSHIP SCHOOL (ALS) Attendance is limited to SSgt selectees or those attaining 48 months Total Active Federal Military Service (TAFMS) and who have not been selected for promotion to SSgt. Completion is mandatory before assuming the rank of SSgt. ANG/AFRC may complete by correspondence course. Mandatory	TRAINER: Any rank may qualify as a trainer provided they attend a formal OJT Trainer course; are officially appointed by the commander; and are certified on the task they are training.
UPGRADE TO CRAFTSMAN (7-SKILL LEVEL) Minimum rank of SSgt. 12 months OJT training. Completion of 7-level CDCs, if available. Completion of AFQTP 3CXXX-212A, Work Center Supervisor's Handbook. Attendance at formal 7-level school. Must be 7-level to sew on TSgt. Mandatory C-CS Management and Generic AFJQs/AFQTPs for various unit level duties. Mandatory AETC Supplemental training courses as determined by MAJCOM Optional	SSgt..... 7.5 years Earliest..... 3 years HYT 20 years TSgt 12.5 years Earliest..... 5 years HYT 22 years CERTIFIER: Must be a SSgt and possess at least a 5-skill level or equivalent experience (civilian); be officially appointed by the commander; attend a formal OJT Certifier course; be certified on the task they are certifying; and be a person other than the trainer.

**3C0X2, COMMUNICATIONS-COMPUTER SYSTEMS PROGRAMMING
EDUCATION AND TRAINING PATH**

EDUCATION AND TRAINING REQUIREMENTS	AVERAGE SEW ON TIME AND COMMENTS
<p>NONCOMMISSIONED OFFICER ACADEMY (NCOA) Attendance is limited to TSgt and TSgt selectees. Completion is mandatory before assuming the rank of MSgt. ANG/AFRC may attend in-residence as SSgt or TSgt or complete correspondence course. Mandatory</p> <p>NCOA Correspondence Course..... Optional</p>	<p>MSgt..... 16 years Earliest..... 8 years HYT 24 years</p>
<p>USAF SENIOR NONCOMMISSIONED OFFICER ACADEMY (SNCOA) Attendance is limited to SMSgt, SMSgt selectees, and selected MSgts. Completion is mandatory before assuming the rank of CMSgt. Mandatory</p> <p>SNCOA Correspondence Course Optional</p> <p>ANG/AFRC may complete by correspondence course. ANG/AFRC MSgts may attend in-residence..... Mandatory</p>	<p>SMSgt..... 19.2 years Earliest..... 11 years HYT 26 years</p>
<p>UPGRADE TO SUPERINTENDENT (9-SKILL LEVEL) Awarded upon sew on of SMSgt..... Mandatory</p> <p>C-CS Management and Generic AFJQSs/AFQTPs for various unit level duties. Mandatory</p>	<p>CMSgt..... 21.5 years Earliest..... 14 years HYT 30 years</p>

NOTE 1: Published sew-on times are Air Force averages. Refer to the Air Force Personnel Center's homepage to determine career field specific information: <http://www.afpc.randolph.af.mil/eprom>.

NOTE 2: See Part II, Sections C and D for a list of AFJQSs/AFQTPs and AETC supplemental training.

Section C - Skill Level Training Requirements

9. Purpose. The various skill levels in the career field are defined in terms of tasks and knowledge requirements for each skill level in the Communications-Computer Systems Programming career field of the Communications-Computer Systems career ladder. They are stated in broad, general terms and establish the standards of performance. Core tasks, knowledge items, and skill requirements for this specialty are identified in the STS, COL, CDCs, AFJQs/AFQTPs, etc. Completion of the mandatory 3-level skill awarding course, CDCs, 7-level course, and applicable AFJQs/AFQTPs define the Air Force core tasks for this specialty.

10. Specialty Qualification Requirements.

10.1. Apprentice (3-Level) Training.

KNOWLEDGE	System capabilities, limitations, and logic Techniques and procedures of systems analysis and design Related information processing devices and systems C-CS and technology Software methodologies Methods of editing input and output data Configuration management techniques Security practices Customer relations C-CS Application of mathematical and analytical process to C-CS processing problems Computer program editing and testing techniques
EDUCATION	Completion of high school with courses in algebra, geometry, and computer science and programming is desirable
TRAINING	Completion of the Apprentice C-CS Programming Specialist course, E3ABR3C032 003 (PDS Code K5A) (See Part II, Section B for Course Objective List)
EXPERIENCE	None required
OTHER	A minimum score of 71 on the Air Force Electronic Data Processing Test Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i> , is mandatory for award and retention of this skill level
IMPLEMENTATION	Attendance at the Apprentice C-CS Programming Specialist course is mandatory for award of the 3-skill level unless waived by the 3CXXX AFCFM

10.2. Journeyman (5-Level) Training.

KNOWLEDGE	All 3C032 knowledge qualifications apply to the 3C052 requirements
TRAINING	No mandatory AETC training courses are required for upgrade.
EXPERIENCE	Qualification in and possession of AFSC 3C032 Experience performing functions of programming such as designing, coding, testing, or documenting software Completion of the 3C052 Career Development Course Completion of all STS core tasks Completion of applicable AFJQs/AFQTPs Completion of all local tasks assigned for the duty position
OTHER	Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i> , is mandatory for award and retention of this skill level
IMPLEMENTATION	Entry into formal journeyman upgrade training is accomplished once individuals are assigned to their first duty station. Qualification training is initiated anytime individuals are assigned duties for which they are not qualified. Use CDCs and AFJQs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.

10.3. Craftsman (7-Level) Training.

KNOWLEDGE	All 3C052 knowledge qualifications apply to the 3C072 requirements
TRAINING	Completion of the Advanced C-CS Programming Craftsman course, E3ACR3C072 002 (PDS Code K5G) (See Part II, Section B for Course Objective List)
EXPERIENCE	Qualification in and possession of AFSC 3C052 Experience performing or supervising one of the functions of programming, such as preparing computer programs, developing systematic procedures for solution of problems associated with programming data for computer application, coding software, or applying broad mathematical principles to C-CS processing problems. Completion of all STS core tasks Completion of AFQTP 3CXXX-212A, Work Center Supervisor's Handbook Completion of the 3C072 Career Development Course Completion of applicable AFJQs/AFQTPs Completion of all local tasks assigned for the duty position
OTHER	Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i> , is mandatory for award and retention of this skill level
IMPLEMENTATION	Entry into OJT is initiated when individuals obtain the necessary rank and skill level. Qualification training is initiated anytime an individual is assigned duties for which they are not qualified. Use CDCs and AFJQs/AFQTPs concurrently to obtain the necessary qualification for refresher and cross-utilization training.

10.4. Superintendent (9-Level) Training.

KNOWLEDGE	Techniques and procedures of systems analysis and design Software methodology Communications-computer processing System operation and maintenance System and equipment capability, capacity, and logic Performance measurement, security, and resource management
TRAINING	No mandatory AETC training courses are required for upgrade.
EXPERIENCE	Qualification in and possession of AFSC 3C071 or 3C072 Directing functions such as systems analysis or design, software development, teleprocessing systems operations and maintenance, C-CS security, or resource management
OTHER	Eligibility for a Secret security clearance according to AFI 31-501, <i>Personnel Security Program Management</i> , is mandatory for award and retention of this skill level
IMPLEMENTATION	Entry into OJT is initiated when individuals are selected for the rank of SMSgt. Qualification training is initiated anytime individuals are assigned duties for which they are not qualified. Completion of CDCs associated with related 3C0XX career fields is recommended.

10.5. Training Sources.

10.5.1. AFSC specific training – 336 TRS, Keesler AFB, MS at <https://wwwmil.keesler.af.mil>.

10.5.2. CDCs 3C052 and 3C072 are available for upgrade purposes through the unit training manager. For individual qualification and cross-utilization training, CDCs are ordered through the unit training office.

10.5.3. AFJQSS/AFQTPs are Air Force publications and are mandatory for use by personnel in upgrade or qualification training. They are developed by the 81 TRSS (Q-Flight), Keesler AFB, MS and may be downloaded from <https://wwwmil.keesler.af.mil/81trss/qflight/welcome.html>. Procedures for requesting development of AFJQSS/AFQTPs are contained in AFI 36-2233, *Air Force On-the-Job Training Products for Communications-Electronics Enlisted Specialty Training*. AFJQSS/AFQTPs are listed in Part II, Section C, of this CFETP.

Section D - Resource Constraints

11. Purpose. This section identifies known resource constraints that preclude optimal/desired training from being developed or conducted, including information such as part numbers, national stock numbers, number of units required, cost, manpower, etc. Included are narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training. Finally, this section includes actions required, OPR, and target completion date. Resource constraints will be, at a minimum, reviewed and updated annually.

12. Apprentice (3-Level) Training.

12.1. Constraints: None.

12.1.1. Impact. N/A

12.1.2. Resources Required. N/A

12.1.3. Action Required. N/A

12.2. OPR/Target Completion Date. N/A

13. Journeyman (5-Level) Training.

13.1. Constraints: None.

13.1.1. Impact. N/A

13.1.2. Resources Required. N/A

13.1.3. Action Required. N/A

13.2. OPR/Target Completion Date. N/A

14. Craftsman (7-Level) Training.

14.1. Constraints: None.

14.1.1. Impact. N/A

14.1.2. Resources Required. N/A

14.1.3. Action Required. N/A

14.2. OPR/Target Completion Date. N/A

Section E - Transition Training Guide

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

PART II

Section A - Specialty Training Standard

1. Implementation. This STS will be used for technical training provided by AETC for the 3-level class beginning 20010709 and graduating 20010924 and the 7-level class beginning 20010710 and graduating 20010806.

2. Purpose. As prescribed in AFI 36-2201, this STS:

2.1. Lists in column 1 (Task, Knowledge, and Technical Reference) the most common tasks, knowledge, and technical references (TR) necessary for airman to perform duties in the 3-, 5-, and 7-skill level. Column 2 (Core Tasks) identifies, by asterisk (*), 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. Task certification must show a certification/completion date. (As a minimum, use the following column designators: Stop Date, Certifier Initials).

2.3. Shows formal training and correspondence course requirements. Column 4 shows the proficiency to be demonstrated on the job by the graduate as a result of training on the task/knowledge and the career knowledge provided by the correspondence course. See the AFIADL Catalog maintained at <http://www.maxwell.af.mil/au/afiadl/> for current CDC listings.

2.4. Qualitative Requirements. Attachment 1 contains the proficiency code key used to indicate the level of training and knowledge provided by resident training and career development courses.

2.5. Becomes a job qualification standard (JQS) for on-the-job training when placed in AF Form 623, On-the-Job Training Record, and used according to AFI 36-2201. When used as a JQS, the following requirements apply:

2.5.1. Training Documentation. Document and certify completion of training. Identify duty position requirements by circling the subparagraph number next to the task statement. Complete the following columns in Part II of the CFETP:

2.5.1.1. Initial Certification. Evaluate qualifications and when verified, certify using:

2.5.1.1.1. Core/Critical Tasks. Start date, stop date, trainee's initials, trainer's initials, and certifier's initials.

2.5.1.1.2. Non-Core/Non-Critical Tasks. Start date, stop date, trainee's initials, and trainer's initials.

2.5.1.2. Transcribing from Old Document to CFETP. Evaluate current qualifications and when verified recertify using:

2.5.1.2.1. Tasks Previously Certified and Required in Current Duty Position (Core/Critical Tasks). Current date as stop date, trainee's initials, and certifier's initials.

2.5.1.2.2. Tasks Previously Certified and Required in Current Duty Position (Non-Core/Non-Critical Tasks). Current date as stop date, trainee's initials, and trainer's initials.

2.5.1.2.3. Tasks Previously Certified but Not Required in Current Duty Position. Carry forward only the previous completion date of certification (not the initials of another person). If and when transcribed tasks become duty position requirements, recertify using standard certification procedures.

2.5.1.2.4. The person whose initials appear in the trainer or certifier block during the transcription process must meet the requirements of their prescribed role.

2.5.1.2.5. Give the member the old CFETP upon completion of transcription.

2.5.1.3. Documenting Career Knowledge. When a CDC is not available: the supervisor identifies STS training references the trainee requires for career knowledge and ensures, as a minimum, that trainees cover the mandatory items in AFMAN 36-2108. For two time CDC course exam failures, supervisors identify all STS items corresponding to the areas covered by the CDC. The trainee completes study of the STS references, undergoes evaluation by the task certifier, and receives certification on the STS. NOTE: Career knowledge must be documented prior to submitting a CDC waiver.

2.5.1.4. Decertification and Recertification. When an airman is found to be unqualified on a task previously certified, the supervisor lines through the previous certification or deletes the previous certification when using an automated system. Appropriate remarks are entered on the AF Form 623A, On-the-Job Training Record Continuation Sheet, as to the reason for decertification. The individual is recertified using the normal certification process.

2.5.2. Training Standard. Tasks are trained and qualified to the go/no go level. Go means the individual can perform the task without assistance and meet local demands for accuracy, timeliness, and correct use of procedures.

2.6. Promotion Tests. The CFETP also serves as a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKT) are developed at the USAF Occupational Measurement Squadron by senior NCOs with extensive practical experience in their career fields. The tests sample knowledge of STS subject matter areas judged by test development team members as most appropriate for promotion to higher grades. Questions are based upon study references listed in the WAPS catalog. Individual responsibilities are listed in chapter 1 of AFI 36-2605, *Air Force Military Personnel Testing System*. WAPS is not applicable to the Air National Guard or Air Reserve Forces.

3. Recommendations. Comments and recommendations are invited concerning the quality of AETC training. A Customer Service Information Line (CSIL) has been installed for the supervisors' convenience. For a quick response to concerns, call our CSIL at DSN 597-4566, fax us at DSN 597-3790, or e-mail us at 81trg-tget@keesler.af.mil. Reference this STS and identify the specific area of concern (paragraph, training standard element, etc).

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

JOHN L. WOODWARD, JR., Lieutenant General, USAF
DCS/Communications and Information

Attachment:
3C0X2 Specialty Training Standard

PREFACE

NOTE 1: Users are responsible for annotating technical references to identify current references pending STS revision. Locate current Air Force publications at <http://afpubs.hq.af.mil>, AFSSIs at <https://www.afca.scott.af.mil/ip/> or in AFIND 5, DISA Circulars and Instructions at <http://www.disa.mil/pubs/pubs01.html>, and Technical Orders (TO) at <https://toindex-s.robins.af.mil/toindex>.

NOTE 2: Knowledge and/or performance tasks are defined in the AFJQS. AFJQS items set the standard for qualification and certification and are mandatory for use in conjunction with this STS when applicable to the duty position.

NOTE 3: AFQTP 3CXXX-212A, Work Center Supervisor's Handbook is mandatory for upgrade to the 7-skill level in all 3CXXX career fields.

NOTE 4: All objectives are trained during wartime.

NOTE 5: When available, Core Automated Maintenance System (CAMS) is the primary means of collecting and maintaining information pertaining to OJT training and is mandatory for use by all 3CXXX career fields. You must have prior approval by the Air Force Career Field Manager before using a different data collection system. AFQTPs listed in the STS are generally handbooks which do not have task listings, therefore tracking through CAMS is not possible. Annotate completion of these products on the AF Form 623A.

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: The individual
Task Performance Levels	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 Knowledge Levels	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. (COMPLETE THEORY)
**Subject Knowledge Levels	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		
<p>* 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. (Examples: b and 1b)</p> <p>** 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.</p> <p>- This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or CDC.</p> <p>X This mark is used alone in course columns to show that training is required, but not given, due to limitations in resources.</p>		

<i>THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY</i>		
Personal Data – Privacy Act of 1974		
PRINTED NAME OF TRAINEE (<i>Last, First, Middle Initial</i>)	INITIALS (<i>Written</i>)	SSN
PRINTED NAME OF TRAINER AND CERTIFYING OFFICIAL AND WRITTEN INITIALS		
N/I	N/I	

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
1. COMMUNICATIONS-COMPUTER SYSTEMS (C-CS) PROGRAMMING CAREER FIELD TR: AFH 33-337; AFIs 33-101, 33-110, 33-112, 33-113; AFMAN 36-2108; AFVA 36-212; 3C0X2 CFETP	*											
1.1. Structure						A			-	B	-	
1.2. Progression within Air Force Specialty Code (AFSC)						A			-	-	-	
1.3. Air Force Specialty Code (AFSC)												
1.3.1. Duties						A			A	-	-	
1.3.2. Responsibilities						A			-	B	-	
1.3.3. Qualifications						A			-	B	-	
1.3.4. Customer relations						A			-	B	-	
1.3.5. Associated Communications & Information (C&I) AFSCs						A			A	-	-	
1.4. Roles and Mission						A			-	2b	-	
1.5. Aerospace Expeditionary Force (AEF)						A			B	B	-	
2. SUPERVISION TR: AFI 36-2618; AFQTP 3CXXX-212A												
2.1. Brief Newly Assigned Personnel TR: AFI 36-2110												
2.1.1. Safety									-	-	-	
2.1.2. Mission									-	-	-	
2.1.3. Responsibilities									-	-	-	
2.1.4. Recognition programs TR: AFI 36-2845									-	-	-	
2.2. Interpret for Subordinates												
2.2.1. Policies									-	-	-	
2.2.2. Directives									-	-	-	
2.2.3. Procedures									-	-	-	

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
2.3. Plan and Schedule												
2.3.1. Work assignments							-			-	-	-
2.3.2. Shifts							-			-	-	-
2.3.3. Priorities							-			-	-	-
2.4. Establish												
2.4.1. Work methods							-			-	-	-
2.4.2. Controls							-			-	-	-
2.4.3. Performance standards							-			-	-	-
2.5. Brief Subordinates on Local and Standard Procedures							-			-	-	-
2.6. Provide Feedback and Evaluate Work Performance TR: AFI 36-2406							-			-	-	-
2.7. Initiate Action to Correct Substandard Personnel Performance TR: AFI 36-2907, 36-3208							-			-	-	-
2.8. Rate Personnel Performance							-			-	-	-
2.9. Counsel Personnel on Personal and Military Related Problems							-			-	-	-
2.10. Identify												
2.10.1. Personnel requirements							-			-	-	-
2.10.2. Equipment requirements							-			-	-	-
2.11. Resolve Technical Problems Encountered by Subordinates							-			-	-	-
2.12. Observe Equipment Operation to Ensure Conformance with Established Standards							-			-	-	-
2.13. Demonstrate how to Operate Equipment							-			-	-	-
2.14. Facility Maintenance												
2.14.1. Plan							-			-	-	-
2.14.2. Schedule							-			-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
2.14.3. Supervise							-			-	-	-
2.15. Operating Instructions (OI)												
2.15.1. Prepare local operating procedures							-			-	-	-
2.15.2. Issue							-			-	-	-
2.15.3. Review							-			-	-	-
2.16. Self-Inspections/ Quality Indicators												
2.16.1. Prepare							-			-	-	-
2.16.2. Review							-			-	-	-
2.16.3. Issue							-			-	-	-
2.16.4. Conduct							-			-	-	-
2.16.5. Follow-up							-			-	-	-
2.17. Develop Budget Input												
2.17.1. Analyze costs and utilization							-			-	-	-
2.17.2. Create budget							-			-	-	-
3. TRAINING TR: AFCAT 36-2223; AFIs 36-2201, 36-2233; AFMANs 36-2236, 36-2245, 36-2247; AFQTP 3CXXX-212A												
3.1. Evaluate Personnel for Need of Training							-			-	-	-
3.2. Enlisted Specialty Training (EST) Management												
3.2.1. Prepare job qualification standard (JQS)							-			-	-	-
3.2.2. Procure training material							-			-	-	-
3.2.3. Motivate trainers and trainees							-			-	-	-
3.2.4. Develop training materials							-			-	-	-
3.2.5. Counsel trainees on training progress							-			-	-	-
3.2.6. Monitor effectiveness of:												
3.2.6.1. Career knowledge upgrade training progress							-			-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
3.2.6.2. Job proficiency upgrade training							-			-	-	-
3.2.6.3. Qualification training							-			-	-	-
3.3. Maintain Training Records							-			-	-	-
3.4. Evaluate Effectiveness of Training Programs							-			-	-	-
3.5. Recommend Personnel for Training							-			-	-	-
4. OPERATIONAL RISK MANAGEMENT (ORM) TR: AFIs 90-901, 91-301, 91-302; AFOSH STDs 91-50, 91-64	*											
4.1. Hazards of AFSC 3C0X2							A			-	-	-
4.2. AFOSH Standards for AFSC							-			-	-	-
4.3. Use Consistent Safety Practices							A			-	-	-
4.4. Maintain Clean Work Environment							A			-	-	-
5. C-CS ADMINISTRATIVE FUNCTIONS TR: AFINDs 2, 5, 8; AFIs 33-Series; AFMAN 37-139												
5.1. Publications												
5.1.1. Air Force Manuals (AFMAN)							A			-	-	-
5.1.2. Air Force Policy Directives (AFPD)							A			-	-	-
5.1.3. Air Force Instructions (AFI)							A			-	-	-
5.1.4. Air Force Pamphlets (AFPAM)							A			-	-	-
5.1.5. Joint Army Navy Air Force Publications (JANAP)							-			-	-	-
5.1.6. Allied Communications Publications (ACP)							-			-	-	-
5.1.7. Operating Instructions (OI)							A			-	-	-
5.1.8. Commercial/vendor publications							A			-	-	-
5.1.9. DISA Publications							A			-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
5.1.10. Technical Orders (TO)							A			-	-	-
5.1.11. Military Standard (MIL STD)							A			-	-	-
5.2. Publications Handling												
5.2.1. Order documents and changes							-			-	-	-
5.2.2. Post changes							-			-	-	-
5.3. Locate Publication Numbers and Titles Using Indexes	*						-			-	-	-
5.4. Use Publications to Locate Operating Procedures and Technical Data							-			-	-	-
5.5. Supply Functions												
5.5.1. Maintain accounts							-			-	-	-
5.5.2. Keep records							-			-	-	-
5.6. Equipment Records							-			-	-	-
5.7. Office Records Management							-			-	-	-
5.8. System Software Support							-			-	-	-
5.9. Magnetic Media Handling and Disposition							-			-	-	-
6. C4I SECURITY TR: ACP 122; AFDIR 33-303; AFIs 33-110, 33-129, 33-206, 33-219, 33-332; AFKAG-1&2; AFMAN 33-326; AFSSI 5021; DISAC 310-90-1; DOD 5200.1-R												
6.1. Operations Security (OPSEC) TR: AFI 10-1101; AFPD 10-11												
6.1.1. Definition							A			-	-	-
6.1.2. Background							A			-	-	-
6.1.3. Relationship of OPSEC to other security programs							A			-	-	-
6.1.4. Vulnerabilities	*						A			B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
6.1.5. Critical information							A			-	-	-
6.2. Information Security TR: AFI 31-401; AFPDs 31-4, 33-2												
6.2.1. Information safeguards	*											
6.2.1.1. Unclassified												
6.2.1.1.1. Privacy Act							A			-	-	-
6.2.1.1.2. For Official Use Only (FOUO) TR: AFSSI 5009							A			-	-	-
6.2.1.1.3. Sensitive But Unclassified (SBU)							A			-	-	-
6.2.1.2. Classified							A			-	-	-
6.3. Communications Security (COMSEC) TR: AFIs 33-211, 33-212; AFPD 33-2	*											
6.3.1. Definition							A			-	-	-
6.3.2. Vulnerabilities							A			-	-	-
6.3.3. Safeguarding information							b			B	-	-
6.3.4. Identify/report insecurities							b			-	-	-
6.4. Computer Security (COMPUSEC) TR: AFIs 33-202, 33-207; AFPD 33-2												
6.4.1. Definition							A			B	-	-
6.4.2. Vulnerabilities							A			B	2b	-
6.4.3. Processing classified information							b			B	2b	-
6.4.4. Identify/report security violations							b			B	2b	-
6.5. Physical Security TR: AFI 31-101; AFPD 31-1												
6.5.1. Definition	*						A			-	-	-
6.5.2. Facility security requirements							A			-	-	-
6.5.3. Identify/report violations procedures							b			-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
6.6. Security Awareness Training and Education (SATE) TR: AFI 33-204	*											
6.6.1. Information Awareness (IA)							-			-	-	-
6.6.2. Threats and vulnerabilities							-			-	-	-
6.6.3. Identify/report insecurities							-			-	-	-
6.6.4. Protective measures							-			-	-	-
7. C-CS PROGRAMMING CONCEPTS TR: AFDIR 33-303; AFIs 33-110, 33-113, 33-114	*											
7.1. Communications/ Network Concepts							A			B	-	C
7.2. Communications Topology							A			B	-	C
7.3. Communications/ Network Protocols												
7.3.1. International Standards Organization (ISO) Open Systems Interconnect (OSI) Model							A			B	-	C
7.3.2. Department of Defense (DoD) Standards Protocol							A			B	-	C
7.3.3. Communication through TCP/IP							A			B	-	C
7.4. Network Programming Concepts												
7.4.1. Client server implementation							A			B	-	C
7.4.2. Distributive databases							A			B	-	C
7.4.3. Distributive tasking							A			B	-	C
8. C-CS COMPONENTS TR: AFDIR 33-303; AFIs 33-110, 33-113, 33-114; IEEE/EIA 12207, 12207.0, 12207.1	*											
8.1. Hardware												
8.1.1. CPU							A			B	-	-
8.1.2. Peripheral equipment							A			B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
8.1.3. Storage media							A			B	-	-
8.1.4. Networks							A			B	-	-
8.2. Software												
8.2.1. Operating system characteristics							A			B	-	-
8.2.2. Applications							A			B	-	-
8.2.3. Utilities							A			B	-	-
8.2.4. Programming language types							A			B	-	-
8.2.5. Networks							A			B	-	-
8.3. Firmware							A			B	-	-
8.4. Internal Data Representation							A			B	-	-
8.5. Data Flow							A			B	-	-
8.6. Documentation							A			B	-	-
9. DESIGNING COMPUTER ROUTINES AND PROGRAMS TR: TR: AFIs 33-101, 33-110, 33-114; AFMAN 33-105; IEEE/EIA 12207, 12207.0, 12207.1												
9.1. Software Engineering												
9.1.1. Goals and principles	*						A			B	B	-
9.1.2. Use software engineering tools	*						1b			A	2b	B
9.1.3. Apply software engineering principles to software life cycle							-			-	C	B
9.2. Problem Solving	*											
9.2.1. Define problem							2b			B	-	-
9.2.2. Problem solution statements							2b			B	-	-
9.2.3. Develop problem solution							2b			B	-	-
9.3. Object Oriented Design Methodology							A			b	-	-
9.4. Design Algorithms												

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
9.4.1. Sequential design	*						2b			B	-	-
9.4.2. Conditional primitives	*						2b			B	-	-
9.4.3. Iterative primitives	*						2b			B	-	-
9.4.4. Formula interpretation	*						1a			B	-	B
9.4.5. Data manipulation							-			B	-	B
9.5. Standard Data Elements	*						A			B	-	-
9.6. Prepare Graphic Representations							2b			B	-	-
9.7. Recover from Abnormal Terminations	*						2b			B	-	-
10. PREPARING, TESTING, AND DOCUMENTING COMPUTER ROUTINES AND PROGRAMS TR: AFIs 33-101, 33-104, 33-108, 33-114; AFMAN 33-105; IEEE/EIA 12207, 12207.0, 12207.1; TAFIM Vol 3												
10.1. Develop Structured Code	*						2b			B	-	-
10.2. Correct Errors												
10.2.1. Data entry							2b			B	-	-
10.2.2. Syntax							2b			B	-	-
10.2.3. Logic							2b			B	-	-
10.2.4. Interface with existing systems							1b			B	-	-
10.2.5. Develop users interfaces							1b			-	2b	-
10.2.6. Create/update software documentation												
10.2.6.1. Software system documentation							2b			B	-	-
10.2.6.2. User documentation							1b			B	-	-
10.2.7. Validate software systems												
10.2.7.1. Prepare a test plan							1b			B	-	-
10.2.7.2. Prepare test data							1b			B	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. CORE TASKS	3. CERTIFICATION FOR OJT					4. PROFICIENCY CODES USED TO INDICATE TRAINING/INFORMATION PROVIDED					
		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
10.2.7.3. Analyze output products												
10.2.7.3.1. Compliance with specifications							2b			B	-	-
10.2.7.3.2. Compliance with standards							2b			B	-	-
10.2.7.4. Validate against user requirements							2b			B	-	-
10.2.8. Software security practices							A			B	-	C
11. ANALYZING AND UPDATING EXISTING PROGRAMS TR: AFIs 33-113, 33-114; AFMAN 33-105	*											
11.1. Maintenance Concepts												
11.1.1. Corrective							A			B	-	-
11.1.2. Enhancement							A			B	-	-
11.1.3. Redesign							A			B	-	-
11.1.4. Preventive							A			B	-	-
11.2. Analyze Existing Systems							2b			B	-	-
11.3. Modify Software							2b			B	-	-
11.4. Revalidate Software Systems							2b			B	-	-
12. PERFORMING RELATED PROGRAMMING FUNCTIONS TR: AFIs 33-101, 33-104; AFMAN 33-105												
12.1. Reusable Software Components												
12.1.1. Develop							2b			B	-	-
12.1.2. Use							2b			B	-	-
12.1.3. Maintain							2b			B	-	-
12.2. Software Support Libraries												
12.2.1. Develop input to library							B			B	-	-
12.2.2. Use							2b			B	-	-

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		A	B	C	D	E	A 3 SKILL LEVEL		B 5 SKILL LEVEL		C 7 SKILL LEVEL	
		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
12.2.3. Maintain							B			B	-	-
13. DESIGNING AUTOMATED DATA SYSTEMS TR: AFIs 33-101, 33-104, 33-114; AFMAN 33-105												
13.1. Evaluate User Requirements	*						A			B	2c	C
13.2. Document Flow Analysis							-			B	-	C
13.3. Feasibility Studies							-			B	2c	C
13.4. Open Systems Architecture							A			B	-	-
14. CAPABILITY MATURITY MODEL TR: AFIs 33-104, 33-112, 33-113, 33-114; IEEE/EIA 12207, 12207.0, 12207.1												
14.1. Monitor Contracts							-			A	-	B
14.2. Software Acquisition							-			A	2b	B
14.3. Configuration Management Techniques							A			B	2b	C
14.4. Apply Software Quality Metrics							-			A	2b	B
14.5. Software Life Cycle Management							A			B	2b	C
14.6. Acceptance Testing							A			B	2b	-
14.7. Software Process Improvement							A			B	-	C
15. DATABASE TR: AFI 33-110												
15.1. Data Elements/ Structure	*						A			B	C	-
15.2. Design/Develop												
15.2.1. Logical							1b			B	2b	-
15.2.2. Physical	*						1b			B	2b	-
15.2.3. Security	*						A			B	2b	-
15.3. Access Methods												
15.3.1. Retrieve data	*						2b			B	2b	-
15.3.2. Update data	*						2b			B	2b	-

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		START DATE	STOP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFIER INITIALS	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
15.3.3. Forms							1b			B	-	-
15.4. Maintenance	*						1b			B	-	-
15.5. WEB Base Interface							A			B	2b	C
16. NEW TECHNOLOGY TR: AFI 33-124							-			-	2b	-
200. AIR FORCE JOB QUALIFICATION STANDARDS APPLICABLE TO AFSC 3C0X2. TR: AFI 36-2233, CFETP 3C0X2 (See Note 2)												
212.1. AFQTP 3CXXX-212A, Work Center Supervisor's Handbook (See Note 3)												
212.2. AFQTP 3CXXX-212B, C4 Systems Technology Handbook												
212.3. AFQTP XXXXX-212C, C4 Information Systems Familiarization Handbook												

Section B - Course Objective List

4. Measurement. Each objective is indicated as follows: W indicates task or subject knowledge which is measured using a written test, PC indicates required task performance which is measured with a performance progress check, and PC/W indicates separate measurement of both knowledge and performance elements using a written test and a progress check.

5. Standard. The standard is 70% on written examinations. Standards for performance measurement are indicated in the objective and delineated on the individual progress checklist. Instructor assistance is provided as needed during the progress check, and students may be required to repeat all or part of the behavior until satisfactory performance is attained.

6. Proficiency Level. Most task performance is taught to the "2b" proficiency level which means the student can do most parts of the task, but does need assistance on the hardest parts of the task (partially proficient). The student can also determine step by step procedures for doing the task.

7. Course Objectives. These objectives are listed in the sequence taught by Block of Instruction. Because the communications career field is ever changing, we are providing a website with a "living" course objective list (COL). As changes are made to the courses they will also be made to the website. Use the following link to get started, then navigate to the COL by selecting the 81 TRW, 81 TRG, and finally the 336 TRS to locate the COL for the C-CS Programming courses. <https://wwwmil.keesler.af.mil/>.

Section C - Support Materials

8. 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://wwwmil.keesler.af.mil/81trss/qflight/welcome.html>. These training products are also listed in AFIND 8, though not as current. Procedures for requesting product development are found in AFI 36-2233.

8.1. Generic AFJQSS/AFQTPs applicable to AFSC 3C0X2:

<u>Publication No.</u>	<u>Pseudo Code</u>	<u>Publication Title</u>
AFQTP 3CXXX-212A	N/A	Work Center Supervisor's Handbook
AFQTP 3CXXX-212B	N/A	C4 Systems Technology Handbook
AFQTP XXXXX-212C	N/A	C4 Information Systems Familiarization Handbook

Section D - Training Course Index

9. 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, formerly AFCAT 36-2223, *USAF Formal Schools Catalog* at <https://hq2af.keesler.af.mil/etca.htm>.

10. Air Force In-Residence Courses.

<u>Course Number</u>	<u>Course Title</u>	<u>Location</u>
E3ABR3C032 003	Communications-Computer Systems Programming Apprentice	Keesler
E3ACR3C072 002	Communications-Computer Systems Programming Craftsman	Keesler

11. Air Force Institute for Advanced Distributed Learning (AFIADL) Courses.

For a current listing of AFIADL courses go to <http://www.maxwell.af.mil/au/afiadl/>.

12. Exportable Courses.

For a current list of the available CBT courses refer to <http://afcbt.den.disa.mil>.

Section E - MAJCOM Unique Requirements

There are currently no MAJCOM unique requirements. This area is reserved.