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AFSC 1A1X1 FLIGHT ENGINEER



CAREER FIELD EDUCATION AND TRAINING PLAN (CFETP)

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**CAREER FIELD EDUCATION AND TRAINING PLAN
FLIGHT ENGINEER
AFSC 1A1X1**

PART I

Preface

1. This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education/training requirements, training support resources and minimum core task requirements for this specialty. The CFETP will provide personnel a clear career path to success and instill rigor in all aspects of career field training.
2. The CFETP consists of two parts; both of which are used by management 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 everyone will use the plan; Section B identifies career progression information, duties and responsibilities, training strategies, and career field path; Section C associates each level with specialty qualifications (knowledge, education, training, and other); Section D indicates resource constraints. Some examples are funds, manpower, equipment, and facilities. *Note: The Air Force Enlisted Classification Directory (AFECD) and AFI 36-2101 Classifying Military Personnel (Officer and Enlisted) contain the specialty descriptions.*
 - 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) conducted training, and correspondence course requirements. Section B contains the course objective list and training standards supervisors will use to determine if Airmen satisfy training requirements. Section C identifies available training support materials. Section D identifies a training course index that is used to determine resources available to support training. Included here are both mandatory and optional courses. Sections E and F identify MAJCOM unique training requirements.
 - 2.3. Attachment 3 to the electronic version of the CFETP is a career path chart. This chart provides a visual depiction of the Flight Engineer AFSC, Critical Skill Incentive Pay (CSIP) gates and years of aviation service, and key information to education, training and qualification. It also contains promotion information specific to the Flight Engineer AFSC, such as average time in grade, time in service, as well as Air Force averages. This chart provides a timeline for achieving additional qualifications such as instructor, evaluator, flying training unit (FTU) assignment, and leadership opportunities within the squadron, group, wing MAJCOM and HQ/USAF.
3. This CFETP is designed to ensure individuals in AFSC 1A1XX receive comprehensive and effective training at the appropriate phases of their career. At unit level, supervisors and trainers use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

ABBREVIATIONS/TERMS EXPLAINED

NOTE: These terms have been standardized through all Career Enlisted Aviator CFETPs. Not all terms may appear in this volume.

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

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

Air Force Specialty Code (AFSC)

Air Reserve Component (ARC). Air National Guard and Air Force Reserve units.

Aircrew Fundamentals Course (AFC). A course designed to prepare enlisted personnel for their transition to a career in aviation. Knowledge presented in the course includes physiological, survival, aircrew mission, anti-hijacking and anti-terrorism, aircrew coordination, aircrew training, basic aerodynamics, aircraft publications, safety, and flight medicine. This course screens for the ability to handle the rigor of aircrew duties prior to candidates entering expensive follow-on training resources.

Aircrew Training System (ATS). A system wherein a civilian contractor provides academic, simulator, and other designated aircrew training. ATS courses are listed in the applicable AFI 11-2 MDS-Specific, Volume 1 or the Education and Training Course Announcement (ETCA) website (<https://etca.randolph.af.mil>).

Airman Leadership School (ALS)

Basic Aircraft Qualification (BAQ). An aircrew member who has satisfactorily completed training prescribed to maintain the skills necessary to perform aircrew duties in the unit aircraft.

Basic Flight Engineer Course (BFE)

Basic Loadmaster Course (BLM)

Basic Military Training (BMT)

Basic Mission Capable (BMC). An aircrew member who has satisfactorily completed mission qualification training, is qualified in some aspect of the unit mission, but does not maintain MR/CMR status.

Basic Qualification (BQ). A status of a crewmember who has satisfactorily completed the basic training prescribed to maintain the skills necessary to operate the unit aircraft. The member must perform at the minimum frequency necessary to meet the most recent sortie and flight standards set for that weapons system.

Basic Qualified Flight Attendant (FA). FA who has completed an initial evaluation, but is not yet fully mission qualified as a FA.

Basic Qualified Flight Engineer (FE). FE who has completed an initial evaluation, but is not yet fully mission qualified as an FE.

Basic Sensor Operator Course (BSOC)

Career Enlisted Aviator (CEA). An aircrew member in any of the 1AXXX or 1UXXX career fields.

Career Enlisted Aviator Center of Excellence (CEA CoE). The USAF CEA Undergraduate Training Center located at Joint Base San Antonio-Lackland, TX. Provides undergraduate, initial skills training through award of the 3-skill level.

Career Field Education and Training Plan (CFETP). A CFETP is a comprehensive core training document that identifies: life-cycle education and training requirements; training support resources, and minimum core task requirements for a specialty. The CFETP aims to give personnel a clear path and instill a sense of industry in career field training.

Combat Mission Ready (CMR). An aircrew member who has satisfactorily completed mission qualification training and maintains qualification and proficiency in the command or unit combat mission.

Community College of the Air Force (CCAF)

Continuation Training (CT). The continuation training program provides crew members with the volume, frequency, and mix of training necessary to maintain proficiency in the assigned qualification level.

Core Task (CT). A task AFCFMs identify as a minimum qualification requirement within an Air Force specialty or duty position. Core Tasks for the AFS can be either task or knowledge based and are the STS line items fundamental to meeting these core competencies. Each MAJCOM is responsible for developing the minimum standard to which each core task will be trained. Core skills (or knowledge) must be trained, maintained, and certified, regardless of duty position/location and are based upon skill level.

Course Objective Lists (COL). A publication derived from the initial and advanced skills course training standard (CTS), identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3- or 7-skill level in this career field. Supervisors use the COL to assist in conducting graduate evaluations.

Course Training Standard (CTS). A training standard identifying the training members will receive in a specific course.

Crew Resource Management (CRM). The effective use of all available resources—people, weapon systems, facilities and equipment, and environment by individuals or crews to safely and efficiently accomplish an assigned mission or task. The term “CRM” will be used to refer to the training program, objectives, and key skills directed to this end.

Critical Skill Incentive Pay (CSIP)

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

Evaluator [Crew Position] (EXX). An instructor qualified in that crew position selected from the most highly qualified and experienced instructors and designated in writing by the OG/CC or SQ/CC to administer evaluations to others in that crew position.

Executive Aircrew Training Center (EATC). Formal training center for pilots, flight engineers, communication systems operators and flight attendants that provides flight training in assigned weapon systems.

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

Facilitated Distance Learning (FDL)

Federal Aviation Administration (FAA). Federal agency designed to monitor, approve, and qualify all aspects of the aircraft industry.

Field Evaluation Questionnaire (FEQ). An extensive survey based on the CFETP to determine how well the formal training met the apprentice levels outlined in the CFETP. This survey is sent approximately six months after graduation to the Base Education and Training Manager, if unclassified, or direct to the unit training manager, if classified.

Field Technical Training. Special or regular on-site training conducted by a field training detachment (FTD), Formal Training Unit (FTU) or by a mobile training team (MTT).

First Flight Attendant (FFA). FA assigned to supervise a multiple FA crew. Directly responsible for customer safety and satisfaction. Maintains mission or higher qualification, or a student under direct supervision of an instructor FA.

First Flight Engineer. An engineer fully qualified to perform flight engineer duties.

Flight Attendant (FA). An aircrew member qualified in flight attendant duties.

Formal/ Flying Training Unit (FTU). Name given to an AETC, Air Combat Command (ACC), or Air Mobility Command (AMC) school conducting formal/flight training.

Full Motion Video (FMV). Motion pictures are run at 30 fps, which is the minimum frequency required to eliminate the perception of moving frames and make the images appear visually fluid to the eye. FMV is delivered to provide moving video images to airborne and ground based platforms.

Functional Manager. Individual appointed by MAJCOMs to manage education, training, and resources for an Air Force Specialty (MAJCOM Functional Manager or MFM).

Graduate Assessment Survey (GAS). Survey conducted in accordance with AFI 36-2201. Used by recent graduates to evaluate the quality of formal training received and its applicability to their job. The data is used to determine the effectiveness of, and need for changes in training.

Initial Qualification Training (IQT). Training needed to qualify aircrew for basic aircrew duties in an assigned crew position for a specific aircraft, without regard for the unit's operational mission.

Initial Skills Training. A formal school course that results in the award of a 3-skill level AFSC.

Input/Feeder AFSC. A list of AF specialties designated as approved pre-requisites for entry into subsequent AFSC.

Instructional System Development (ISD). A deliberate and orderly, but flexible process for planning, developing, validating, implementing, and reviewing instructional programs. It ensures personnel are taught, in a cost efficient way, the knowledge and skills for successful job performance.

Instructor [Crew Position] (IXX). A crew member authorized to instruct on those missions for which qualified.

Launch & Recovery Qualification Training (LRQT)

Lead Command. A MAJCOM responsible for an assigned weapons system. Lead Commands establish advocacy for designated weapon systems during their life cycle and clarify responsibilities for all using and supporting organizations. They provide primary input into the purpose of developing and maintaining a force structure with a balance of complementary capabilities.

MAJCOM Functional Manager (MFM). Primary focal point and liaison between the MAJCOM and HQ USAF on all matters relating to the aircrew career fields and aviation resource management within the command. This includes, but is not limited to, responsibility for the aircrew training programs, coordination on aircrew resource allocations, and managing education, training, and resources for a specific career field(s) for that MAJCOM.

Major Weapons Systems (MWS). Several like Mission Design Series (MDS) comprise a Major Weapons System (MWS) category (e.g., the bomber MWS is comprised of the B-1, B-2, and B-52 MDSs).

Mission Capable (MC). Status of an aircrew member who has satisfactorily completed mission qualification training but who does not maintain mission ready status.

Mission Design Series (MDS). A term used to identify a specific aircraft designation (e.g. C-32A, VC-25A).

Mission Qualification Training (MQT). Training needed to qualify a crewmember in an assigned crew position for a specific aircraft to perform the command or unit mission.

Mission Ready (MR). An aircrew member who has satisfactorily completed mission qualification training and maintains qualification and proficiency in the command or unit operational mission.

Non-commissioned Officer Academy (NCOA)

Non-commissioned Officer Distance Learning Course (NCO DLC)

On-the-Job Training (OJT). A delivery method used to certify personnel in job qualification (duty position certification) training. It is hands-on, over-the-shoulder training conducted at the duty location.

Operational Flying Duty Accumulation (OFDA). Aggregate months of flying duty performed under competent orders while serving in assignments in which flying skills are maintained in the performance of assigned duties

Practicum. A means of receiving college credits through Community College of the Air Force (CCAF) Teaching Technology Associates Degree Program for formal schoolhouse instructors. It covers a wide variety of subjects beyond initial instructor qualification.

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

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

Retraining. An Air Force objective to balance the career force of each AFSC as needed. The retraining program allows individual Airmen a choice of career fields from which to pursue an Air Force career and provides a method to return Airmen disqualified from their current AFSC to a productive status.

Second Flight Engineer. An engineer qualified to perform limited engineer duties (not to be considered mission qualified).

Senior Enlisted Joint Professional Military Education (SEJPME)

Senior Non-commissioned Officer Academy (SNCOA)

Senior Non-commissioned Officer Distance Learning Course (SNCO DLC)

Sensor Operator Advanced Instructor Course (SOAIC). A formal instructor course to provide advanced academic, simulator, and flight training with a focus on building and developing tactical, technical, and instructional expertise. The overall vision is to enhance enlisted aircrew leadership, develop instructional methodology, technical expertise, and continuity within the RPA sensor operator community.

Specialty Training Standard (STS). An AF publication that describes an AFSC in terms of tasks and knowledge an Airman in that specialty may be expected to perform or to know on the job. It further serves as a contract between AETC and the functional user to show which of the overall training requirements for an AFSC are taught in formal schools and correspondence courses.

Squadron Operations Cell (SOC). An entity composed of intelligence and operational support personnel that focuses on dynamic mission planning and ongoing mission support. Composition may vary, but a typical SOC will include a mission commander or operations supervisor, intelligence personnel, and possibly one or more weather specialists.

Standard. An exact value, a physical entity, or abstract concept, that the appropriate authority, custom, or common consent sets up and defines to serve as a reference, model, or rule in measuring quantities or qualities, developing practices or procedures, or evaluating results. A fixed quantity or quality.

Subject Matter Expert (SME). An individual qualified in a particular specialty and who is consulted with for his or her subject matter expertise or knowledge of the specialty.

Survival, Evasion, Resistance, and Escape Training (SERE)

Syllabus. Published outline of training required to achieve the proficiency specified in the course training standards for a specific course. It prescribes the course content, instructions to conduct the training, and the approximate time necessary to successfully complete all requirements. A formal syllabus may be published to include IQT, MQT, CT, and other aircrew training as determined by the training command, MAJCOM, or unit. (Formal and standardized syllabus are used primarily in AETC formal or developed courses.)

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

Unit Type Code (UTC). A UTC is a potential unit of capability focused on accomplishment of a specific Air Force mission. It can consist of manpower (MFE) only, equipment (LOGDET) only, or both.

Unqualified [Crew Position] (UXX). Student in upgrade training for a particular crew position's duties must be supervised by an instructor.

Upgrade Training (UGT). Mandatory training that leads to attainment of higher level of proficiency.

Utilization and Training Workshop (U&TW). A forum consisting of the AFCFM, MAJCOM functional managers (MFM), Subject Matter Experts (SME), and AETC training personnel who determine career field training requirements.

Weapons System Training Package (WSTP). An instructional course which includes IQT, MQT, and CT designed for use at the unit to qualify or aid qualification in a duty position, program, or on a piece of equipment. The WSTP may be printed, computer based, flying, simulator, or other audiovisual material.

Years of Aviation Service (YAS)

Section A - General Information

1. Purpose.

This CFETP provides information necessary for the Air Force Career Field Manager (AFCFM), MAJCOM functional managers (MFMs), commanders, training managers, supervisors, and trainers to plan, develop, manage, and conduct an effective and efficient career field training program. The plan outlines the training that individuals must receive in order to develop and progress throughout their career. For the purpose of this plan, training is divided into three areas: initial skills, qualification training (QT), and continuation training (CT). Initial skills training is the Air Force Specialty specific training an individual receives upon entry into the Air Force or upon retraining into this specialty for award of the 3-skill level. Qualification training is actual hands-on task performance training designed to qualify an airman in a specific duty position. It is designed to provide the performance skills/knowledge training required for the job. Continuation training is additional training either in-residence or exportable advanced training courses, or on-the-job training provided to personnel to increase their skills and knowledge beyond the minimum required. The CFETP has several purposes, some are:

- 1.1. Serves as a management tool to plan, manage, conduct, and evaluate a career field training program.
- 1.2. Identifies task and knowledge training requirements and recommends education and training for each skill level and phase of an individual's career in this AFS.
- 1.3. Lists training courses available in the specialty, identifies sources of training, and the training medium.
- 1.4. Identifies major resource constraints that impact full implementation of the desired career field training program.

2. Uses.

The plan will be used by MFMs and supervisors at all levels to ensure comprehensive and cohesive training programs are available and/or instituted for each individual in the specialty.

- 2.1. AETC training personnel will develop and revise formal resident, non-resident, field and exportable training based on requirements established by the user and documented in Part II of the CFETP. They will also work with the AFCFM to develop acquisition strategies for obtaining resources needed to provide the identified training.
- 2.2. MFMs will ensure their training programs complement the CFETP mandatory initial and upgradeskills requirements. OJT, resident training, contract training, or exportable courses can satisfy identified requirements. MAJCOM-developed training to support this AFSC must be identified for inclusion in this plan and must not duplicate available training resources.
- 2.3. Each individual will complete the mandatory training requirements specified in this plan. The list of courses in Part II will be used as a reference to support training.
- 2.4. Personnel in AFSCs 1AXXX or 1U0X1 are exempt from maintaining OJT Training Folders (AF Form 623). All training is documented via AF Form 8 *Certificate of Aircrew Qualification* by trained flight examiners. Qualification on the AF Form 8 eliminates the requirement to document STS items in this CFETP.

3. Coordination and Approval.

The AFCFM is the approval authority. MAJCOM functional managers and AETC training managers will identify and coordinate on the career field training requirements. The AFCFM will initiate an annual review of this document and coordinate with AETC and MFMs to ensure currency and accuracy. Using the list of courses in Part II, they will eliminate duplicate training. Send applicable inputs/changes to this CFETP through MAJCOM Functional Managers to HQ USAF/A3TF, 1480 Air Force Pentagon, Washington D.C. 20330-1480 or the following organizational email address: usaf.pentagon.af-a3.mbx.a3xi-workflow@mail.mil.

Section B - Career Progression and Information

4. Specialty Description

4.1. **Specialty Summary.** Performs aircraft visual inspections, computes aircraft performance data and accomplishes in-flight duties. Operates and monitors engine and aircraft systems controls, panels, indicators and devices. Manages flight engineer functions and activities. Related DOD Occupational Subgroup: 195000.

4.2. Duties and Responsibilities.

4.2.1. Performs aircraft inspections. Performs aircrew visual inspection; non-scheduled aircraft maintenance; and pre-flight, through-flight, and post-flight inspections of aircraft away from home station. Maintains aircraft forms and records during flight and while aircraft is away from home station.

4.2.2. Computes and applies aircraft weight and balance, and performance data. Determines and verifies passenger, cargo, fuel, and emergency and special equipment distribution and weight. Computes aircraft weight and balance to ensure specified limits are maintained. Computes takeoff, climb, cruise, orbit and landing data. Determines engine fuel consumption using airspeed, atmospheric data, charts, computer, or electronic calculator. Records actual aircraft performance data in flight engineer's log.

4.2.3. Operates and monitors engine and aircraft systems controls and indicators. Assists pilot or performs engine starts, and monitors run-up, flight operations, and engine shutdown. Operates engine controls to provide desired performance efficiency and economy. Monitors engine instruments throughout period of operation. Controls, monitors, and regulates aircraft systems such as electric, communication, navigation, hydraulic, pneumatic, fuel, air conditioning; and pressurization; ventilation; auxiliary power unit; and lubrication systems. Observes warning indicators and lights for fire, overheat, depressurization, and system failure(s). Reports abnormal conditions to the pilot, and recommends corrective action.

4.2.4. Plans and organizes flight engineer activities. Organizes flight engineering standardization, qualification, and other requirements flight engineer logs, reports, and records for accuracy, completeness, format, and compliance with current directives. Operates and monitors navigation equipment, radar, and radios when navigator is not on the aircraft. Coordinates with other agencies and organizations to conduct flight engineer activities.

4.2.5. Directs flight engineer activities. Administers qualification flight to personnel engaged in flight engineer activities within flight test and operations organizations. Directs standardization of flight engineer performance in conjunction with aircraft performance engineering, engine conditioning, and preventive maintenance programs. Ensures conformance with prescribed aircrew procedures.

4.2.6. Inspects and evaluates flight engineer activities. Evaluates individual and group performance in terms of effectiveness and qualification in using equipment and materials. Interprets and discusses evaluation findings, and recommends action to correct deficiencies.

4.2.7. Performs technical flight engineer functions. Resolves technical problems encountered by operating units. Renders advice and technical assistance to agencies engaged in functions associated with flight engineer activities. Advises organizational commander or staff agencies on status of flight engineer activities and adequacy of equipment. Maintains qualification in aircraft.

4.2.8. Performs staff functions. Performs staff duties at squadron level and above where Flight Engineer expertise is required.

5. Skill/Career Progression.

Adequate training and timely progression from the apprentice to the superintendent skill level plays an extremely important role in the Air Force's ability to accomplish its mission. Therefore, it is essential that everyone involved in training do their part to plan, develop, manage, conduct and evaluate an effective and efficient training program. The guidance provided in this part of the CFETP will ensure individuals receive viable training at the appropriate points in their career. AFI 36-2101, *Classifying Military Personnel (Officer and Enlisted)* and *Air Force Enlisted Classification Directory* (AFECD) identify mandatory requirements for the specialty description. The following

narrative and the AFSC 1A1XX career field flow charts identify the training career path. They define the training required in an individual's career.

5.1. **Apprentice (3) Level.** Meeting requirements listed in AFI 36-2101, *Classifying Military Personnel (Officer and Enlisted)*, and specialty description completion of the Aircrew Fundamentals Course at Joint Base San Antonio-Lackland, TX is mandatory for pipeline and non-aviation service cross training students. The Basic Flight Engineer (BFE) course at Joint Base San Antonio-Lackland, TX is mandatory for award of the 3-skill level AFSC. Initial skills training requirements are identified and revised (if necessary) during the 1A1X1 Utilization and Training Workshop (U&TW). Task and knowledge requirements are identified in the STS, Part II, Sections A and B. Individuals must complete an initial skills course to be awarded AFSC 1A131.

5.2. **Journeyman (5) Level** To be awarded AFSC 1A151, the trainee must complete requirements as listed in the applicable MAJCOM aircrew training directives, initial and mission qualification training, and a successful form 8.

5.3. **Craftsman (7) Level.** To be awarded AFSC 1A171, the trainee must be a SSgt, complete all 3- and 5-skill level training requirements and meet all requirements as listed in the applicable MAJCOM aircrew training directives and have completed a minimum of 12 months fully mission qualified. Individuals in retraining status are subject to the same training requirements and a minimum of six months fully mission qualified.

5.4. **Superintendent (9) Level.** To be awarded AFSC 1A191, an individual must be a SMSgt and have his or her supervisor's recommendation. Additionally, complete any other requirements specified in the *Air Force Enlisted Classification Directory (AFECD)* and AFI 36-2101, *Classifying Military Personnel (Officer and Enlisted)*.

5.5. **Chief Enlisted Manager (CEM).** CEM code is awarded when selected for promotion to CMSgt.

6. Training Decisions.

The CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Flight Engineer specialty. This CFETP was developed to include life-cycle (day one through retirement) training requirements for this specialty. 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.

6.1. **Initial Skills Training.** Initial physiological training will be conducted at the Aircrew Fundamentals Course. A Course Training Standard (CTS) was created to align common core training amongst all 1A/1U AFSCs into the Aircrew Fundamentals Course.

6.2. **Five Level Upgrade Training.** Completion of initial and mission qualification training and a successful AF Form 8 on member's first assigned weapons system.

6.3. **Seven Level Upgrade Training.** Must complete all 3- and 5-skill level training requirements. No formal 7-level upgrade training exists. The CSAF has approved a variance, eliminating the requirement for in-residence 7-level training for all 1AXXX/1U0XX (Aircrew Operations Career Field) personnel.

7. Community College of the Air Force (CCAF) Academic Programs.

CCAF provides the opportunity to obtain an Associate in Applied Sciences (AAS) Degree. Enrollment in CCAF occurs upon completion of basic military training. Off-duty education is a personal choice but is highly encouraged. See the CCAF web site for program details regarding the AAS degree at: <http://www.au.af.mil/au/ccaf/>.

Additionally, see the Air Force Virtual Education Center website regarding AAS degree progress at: <https://my.af.mil/afvecprod/>. In addition to its associate degree program, CCAF offers the following:

7.1. **Occupational Instructor Certification.** The CCAF 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. **Instructor of Technology & Military Science Degree.** This program is offered to enlisted members who are assigned to CCAF affiliated schools teaching CCAF degree-applicable courses. Applicants must complete three

semester hours of CCAF-approved instructor methodology coursework and hold their career-field related CCAF degree or equivalent civilian college degree before registration.

7.3. 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.

7.4. Degree Requirements. All Airmen are automatically entered into the CCAF program. The current associate's degree program available from the CCAF for AFSC 1A1XX is the Aviation Operations (4VCB) degree. Prior to completing an associate degree, the 5-skill level must be awarded and the following requirements in Table 1 must be met.

Table 1 Degree Requirements

Subject Area	Semester Hours
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	15
Program Elective	15
Totals	64

7.4.1. Technical Education (24 Semester Hours): A minimum of 12 semester hours of Technical Core subjects/courses must be applied and the remaining semester hours applied from Technical Core/Technical Elective subjects/courses. Requests to substitute subjects/courses must be approved in advance by the Technical Branch at CCAF. Refer to the CCAF Academic Programs page for a current listing of Technical Core and Elective Subjects/Courses.

Table 2 Technical Core (12-24 Semester Hours)

Subjects/Course	Max Semester Hrs.
Flight Engineer	24
Air Transportation Principles	6
Aviation/Flight Safety	6
CCAF Internship	18
Flight Rules and Regulations	3
Introduction to Aviation/Aeronautics	3
Survival Training	6

Table 3 Technical Electives (0-12 Semester Hours)

Subjects/Course	Max Semester Hrs.
Advanced Flight Engineering	12
Aerodynamics	3
Aircraft Systems	6
Aircraft Weight and Balance	3
Aviation Law	6
Climatology/Meteorology	6
Computer Science	6
Electricity/Electronics	6
FAA Airframe and Power plant Certification	6
General Chemistry/Algebra-Based Physics	4
Human Factors in Aviation/Flight Physiology	3
Human Relations	3
FAA Private/Commercial Pilot's License	3

7.4.2. **Leadership, Management, and Military (LMMS) Studies (6 Semester Hours):** The leadership, management and military studies (LMMS) requirement may be satisfied by applying professional military education, civilian courses accepted in transfer and/or by testing credit. However, the preferred method of completing leadership, management and military studies is through attending an Airman Leadership School, the NCO Academy and/or the Air Force Senior NCO Academy.

7.4.3. **Physical Education (4 Semester Hours):** This requirement is satisfied by completion of Basic Military Training.

7.4.4. **General Education (15 Semester Hours):** Applicable courses must meet the criteria for application of courses to the General Education Requirement (GER) and be in agreement with the definitions of applicable General Education subject/courses as provided in the CCAF general catalog.

Table 4 General Education Requirements

Subject/Courses	Semester Hours
Oral Communication (speech)	3
Written Communication (English composition)	3
Mathematics (intermediate algebra or college-level mathematics)	3
Social Science (anthropology, archaeology, economics, geography, government, history, political science, psychology, sociology)	3
Humanities (courses in fine arts (criticism, appreciation, historical significance, foreign language, literature, philosophy, religion)	3

7.4.5. **Program Elective (15 Semester Hours):** Satisfied with applicable Technical Education, Leadership, Management, and Military Studies or General Education subjects/courses.

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

Table 5 1A1X1 Assignments

Assignment Locations	Visit the following site:
Reg AF	https://afas.afpc.randolph.af.mil/AMSNET40/EnlistedAssignments/EnlistedA
Air Force Reserve	https://w45.afpc.randolph.af.mil/RMVSNet40/VacancySummary.aspx
Air National Guard	http://www.ang.af.mil/careers/

8. Career Field Flow Charts.

Figure 1 1A1X1 Training Path 1 of 2

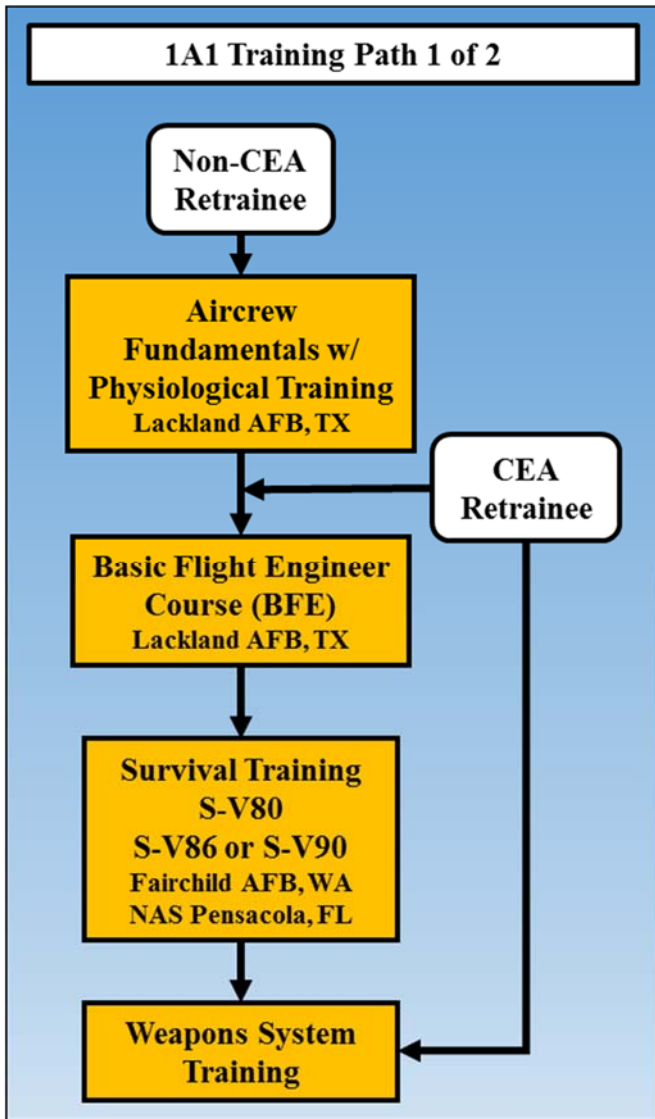


Figure 2 1A1X1 Training Path 2 of 2

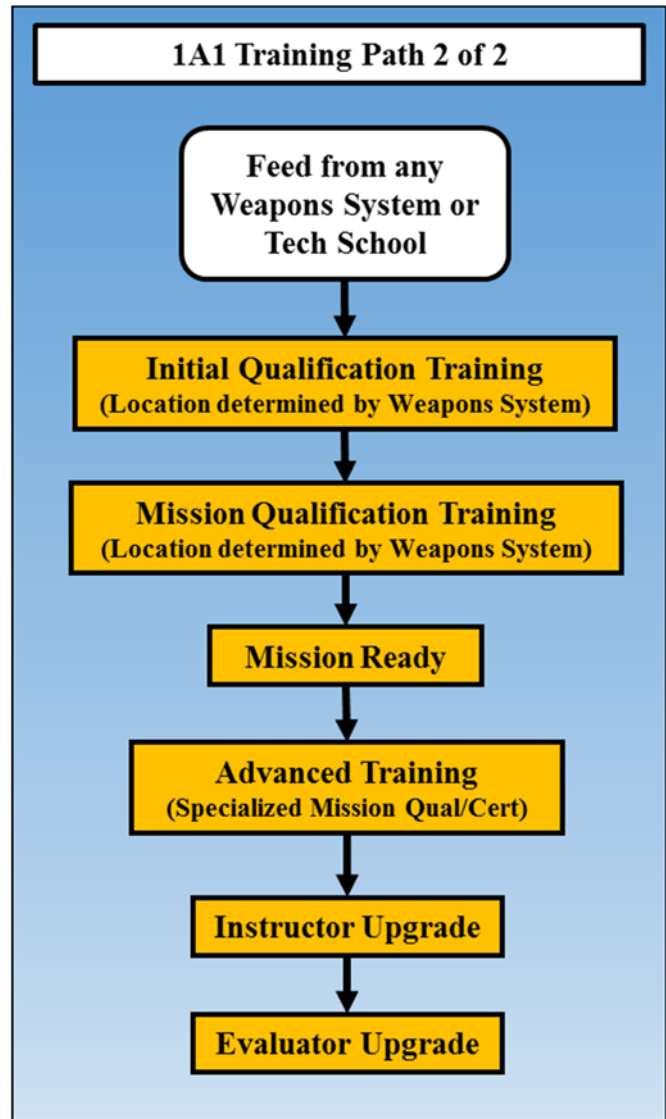


Table 6 1A1X1 Enlisted Education and Training Path

Enlisted Education and Training Path					
Education and Training Requirements	GRADE REQUIREMENTS				
	Rank	Earliest Sew-on	Air Force Average	1A1X1 Average	High Year of Tenure (HYT)
Basic Military Training School (BMTS)					
Apprentice Technical School (3-Skill Level)	Amn A1C	6 months 10 months			
Upgrade To Journeyman (5-Skill Level) - Completion of Initial/Mission Qualification Training	Amn A1C SrA				
Airman Leadership School (ALS)* - Resident graduation is a prerequisite for SSgt sew-on (RegAF Only)	SrA	28 months	3 years	3 years	8 years
Upgrade To Craftsman (7-Skill Level) - Minimum rank of SSgt - 12 months OJT (6 months for retrainees)	SSgt	3 years	4.39 years	4.61 years	15 years
NCO Academy (NCOA)* - Must be a TSgt or TSgt-select to attend (SSgts may attend if all class seats have not been filled) Resident graduation is a prerequisite for MSgt sew-on (RegAF Only)	TSgt	5 years	9.19 years	10.78 years	20 years
Senior NCO Academy (SNCOA)* - Must be a SMSgt, SMSgt select, or Non-selects to SMSgt across AFSCs, from highest WAPS score descending until class seats are filled	MSgt	8 years	14.36 years	14.88 years	24 years
Upgrade to Superintendent (9-Skill level) - Minimum rank of SMSgt	SMSgt	11 years	18.40 years	18.94 years	26 years
Chief Leadership Course FDL -Required for re-enlistment and development opportunities -Must be a CMSgt or CMSgt-select to attend	CMSgt	14 years	20.97 years	22.77 years	30 years
Chief Enlisted Manager (CEM) - Minimum rank of CMSgt - Completed SNCO Academy (RegAF Only)					
*ARC personnel may satisfy EPME requirements via Distance Learning					
Data current as of 18 May 2018 References: AFI 36-2301 AFGM2014-01 <i>Developmental Education</i> ; AFI 36-2201, <i>Air Force Training Program</i> ; and https://mypers.af.mil					

Section C - Skill Level Training Requirements

9. Purpose.

Skill level training requirements in this career field are defined in terms of task 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 and the Course Objective List at Part II, Section A and B of this CFETP.

10. Specialty Qualifications:

10.1. Apprentice 3-Level Training:

10.1.1. Specialty Qualification.

10.1.1.1. **Knowledge.** Knowledge is mandatory of: electrical, communications, navigation, mechanical, hydraulic, fuel and pneumatic systems applying to aircraft and related systems; flight theory; minor in-flight maintenance; personal equipment and oxygen use; aircraft emergency procedures; and using and interpreting diagrams, schematics, aircraft performance charts, loading charts, technical publications, and flight manuals.

10.1.1.2. **Education.** For entry into this specialty, completion of high school with courses in physics, computer principles, mathematics, typing, speech, and English is desirable.

10.1.1.3. **Training.** Completion of the Aircrew Fundamental Course (L3AQR1A111) at Joint Base San Antonio-Lackland, TX is mandatory for pipeline and non-aviation service cross training students. Completion of the Basic Flight Engineer course (L3ABR1A331) at Joint Base San Antonio-Lackland, TX is mandatory for award of the 3-skill level AFSC.

10.1.1.4. **Other.** The following are mandatory for entry, award, and retention of these AFSCs:

10.1.1.4.1. For entry into 1A1X1 specialty, prior qualification at the 5- or 7-skill level in the 1A0, 1A2, 1A3, 1A9, 2AXXX, 2M0, 2T3, and 3E0 career field ladder, or possession of a valid Federal Aviation Administration (FAA) Flight Engineer certificate with a jet or turboprop rating, or valid FAA airframe and power plant (A&P) license and/or Aircraft Maintenance Technician (AMT) or Private Pilot License (PPL).

10.1.1.4.2. A minimum score of 57 is required on the General portion of the AQE.

10.1.1.4.3. For entry into this specialty, normal color vision and depth perception as defined in AFI 48-123, *Medical Examination and Standard*.

10.1.1.4.4. For entry, award, and retention of this AFSC, physical qualification for aircrew duty according to AFI 48-123, *Medical Examination and Standards*.

10.1.1.4.5. For entry, award, and retention of this AFSC, Qualification for aviation service according to AFI 11-402, *Aviation and Parachutist Service, Aeronautical Ratings and Badges*.

10.1.1.4.6. Completion of SERE Training Course (S-V80-A) and Water Survival Training Course (S-V86 or S-V90) is mandatory for all 1A1X1 personnel.

10.1.1.4.7. Must maintain eligibility to deploy and mobilize worldwide.

10.1.1.4.8. Specialty requires routine access to Secret material or similar environment. For award and retention of AFSCs 1A131/51/71/91/00, a current National Agency Check, Local Agency Checks and Credit (NACLCL) according to AFI 31-501, *Personnel Security Program Management*.

NOTE: Award of the 3-skill level without a completed NACLCL is authorized provided an interim Secret security clearance has been granted according to AFI 31-501, *Personnel Security Program Management*.

10.1.2. **Training Sources.** Completion of Aircrew Fundamentals Course (if pipeline or non-aviation, prior-service) and the Basic Flight Engineer (BFE) course at CEA Center of Excellence satisfies the knowledge and training requirements specified in the specialty qualification section (above) for award of the 3-skill level.

10.1.3. **Implementation.** Entry into training is accomplished by initial accessions from Basic Military Training School (BMTS) or approved retraining from any AFSC. After graduation from 3-level awarding course, initial qualification training (IQT) begins when the individual enters formal flight training. Thereafter, upgrade training is initiated anytime an individual is assigned duties they are not qualified to perform.

10.2. Journeyman 5-Level Training:

10.2.1. Specialty Qualification.

10.2.1.1. **Knowledge.** In addition to knowledge required for the 3-level and other qualifications as listed above, an individual must possess the knowledge of: electrical, communications, navigation, mechanical, hydraulic, fuel and pneumatic systems applying to aircraft and related systems; flight theory; minor in-flight maintenance; personal equipment and oxygen use; aircraft emergency procedures; and using and interpreting diagrams, schematics, aircraft performance charts, loading charts, technical publications, and flight manuals. Completion of qualification criteria in current assigned aircraft is mandatory, which is attained by completion of initial qualification training and a successful form 8.

10.2.1.2. **Education.** No additional requirements for entry into this skill level.

10.2.1.3. **Training.** The following training is mandatory for the award of the 5-skill level: 10.2.1.3.1. Completion of the resident and informal training for the assigned weapon system.

10.2.1.4. **Experience.** Qualification in and possession of AFSC 1A131. In addition, the trainee must complete requirements as listed in the applicable MAJCOM aircrew training directives, initial qualification training, and a successful form 8.

10.2.1.5. **Other.** See paragraph 10.1.1.4

10.2.2. **Training Sources.** Refer to Part II, Section D, Training Course Index.

10.2.3. **Implementation.** Entry into journeyman upgrade is accomplished after the individual completes initial qualification training.

10.3. Craftsman 7-Level Training:

10.3.1. Specialty Qualification.

10.3.1.1. **Knowledge.** In addition to knowledge required for the 5-skill level and other qualifications as listed above and individual must possess the knowledge and skills necessary to supervise personnel.

10.3.1.2. **Education.** To assume the grades of SSgt and MSgt, individuals must be graduates of the Airman Leadership School and at a minimum the Enlisted Professional Military Education Distance Learning commensurate with Time in Service, respectively. Reference AFI 36-2301 *Developmental Education*.

10.3.1.3. **Training.** The CSAF has approved a variance eliminating the requirement for in-residence 7-skill level training for all CEA career Fields. However, minimum rank of SSgt and recommendation by the supervisor still applies.

10.3.1.4. **Experience.** Qualification in and possession of AFSC 1A151 and fully mission qualified for at least 12 months (6 months for retrainees). Also, experience is mandatory in performing or supervising functions such as flight engineer activities.

10.3.1.5. **Other.** See paragraph 10.1.1.4.

10.3.2. **Training Sources.** Refer to Part II, Section D, Training Course Index.

10.3.3. **Implementation.** Trainees selected for promotion to SSgt will enter 7-level upgrade training the first day of the promotion cycle, (1 September of each year). The only exception is promotion under the Stripes for Exceptional Performers (STEP) program. Additionally, qualification training is initiated anytime an individual is assigned duties they are not qualified to perform.

10.4. Superintendent 9- Level Training:

10.4.1. Specialty Qualification.

10.4.1.1. **Knowledge.** In addition to knowledge required for the 7-skill level qualification, an individual must possess advanced skills and knowledge of concepts and principles in the effective management of Flight Engineer systems and personnel.

10.4.1.2. **Education.** Completion SNCOA (RegAF – In-Residence, ARC – In-Residence or DL) commensurate with rank requirements. Additionally, at this level, award of the Community College of the Air Force (CCAF) Associate of Applied Science degree in this field is required.

10.4.1.3. **Training.** Must hold the rank of Senior Master Sergeant (SMSgt) and have supervisor’s recommendation for award of the 9-skill level (RegAF only).

10.4.1.4. **Experience.** Qualification in and possession of AFSC 1A171. Also, experience managing flight engineer functions and activities.

10.4.1.5. **Other.** See paragraph 10.1.1.4.

10.4.2. Training Sources.

10.4.3. Implementation..

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 cost and manpower. Narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training are included. Also included in this section are actions required, office of primary responsibility, and target completion dates. Resource constraints will be reviewed and updated at least annually.

12. Apprentice Level Training.

None identified.

13. Journeyman Level Training.

None identified.

14. Craftsman Level.

None identified.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

**ERIC N. RIGBY, CMSgt, USAF
Career Enlisted Aviator Career Field Manager
Headquarters Air Force**

PART II

Section A - Specialty Training Standard (STS)

1. Implementation.

This STS will be used for technical training provided by AETC for classes beginning January 2014.

2. Purpose.

As prescribed in AFI 36-2201, Volume 5, and this STS:

2.1. Lists in column 1 of attachment 2, the tasks, knowledge, and technical references (TR) necessary for airmen to perform in the 3- skill level AFSC in the Flight Engineer ladder of the Aircrew Operations Career Field.

2.2. Column 2 (3-Skill Level) shows formal training and correspondence course requirements as described in the Education and Training Course Announcements (ETCA) web site at: <https://etca.randolph.af.mil/> and the career knowledge provided by the correspondence course. There are no CDCs listed for this AFSC.

2.3. 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, and:

2.3.1. Becomes a job qualification standard (JQS) for on-the-job training and used according to AFI 36-2201, Air Force Training Program. For OJT, the tasks in column 1 are trained and qualified to the go/no-go level. Go means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of procedures.

2.3.2. Is a guide for development of promotion tests used in the Weighted Airmen Promotion System (WAPS)? Senior NCOs with extensive practical experience in their career fields develop the Specialty Knowledge Tests (SKTs) at the USAF Occupational Measurement Squadron. The tests sample knowledge of STS subject matter areas judged by test development team members to be most appropriate for promotion to higher grades. Individual responsibilities are in AFI 36-2606, Reenlistment in the United States Air Force.

3. Recommendations.

Report unsatisfactory performance of individual course graduates to 37 TRG/DOS, 1220 Truemper Street, Suite 1, JBSA-Lackland TX 78236-5568. Please reference specific STS paragraphs.

3 Attachments:

1. Qualitative Requirements
2. STS Flight Engineer (1A1X1)
3. CFETP Career Path Chart (1A1X1)

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 performance progress check.

5. Standard.

The standard is 85 percent 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 proficiency level which means the students can do simple parts of the task, but needs to be told or shown how to do most of the task (extremely limited) or to a proficiency level which means

the students 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. Advanced Skills Course.

NOTE: There is currently no advanced course. This area is reserved.

Section C - Support Material

8. Support Materials.

NOTE: There are currently no support material requirements. This area is reserved.

Section D - Training Course Index

9. Purpose.

This section of the CFETP identifies training courses available for the specialty and shows how the courses are used by each MAJCOM in their career field training programs.

Table 7 Air Force Flight Engineer Courses 1 of 3

COURSE NUMBER	COURSE TITLE	LOCATION
L3ALR1A131 048C	Basic Flight Engineer - Undergraduate Flying Training	JBSA-Lackland, TX
L3AQR1A111 01AB	Aircrew Fundamentals-Flight Engineer	JBSA-Lackland, TX
CCALLFE/IQ	EC-130H Compass Call Flight Engineer (IQ) Training Course	Davis-Monthan AFB, AZ
CCALLFE/TX1	EC-130H Compass Call Flight Engineer (TX1) Training Course	Davis-Monthan AFB, AZ
CCALLFE/TX2	EC-130H Compass Call Flight Engineer (TX) Training Course	Davis-Monthan AFB, AZ
CCALLFE/TX3	EC-130H Compass Call Flight Engineer (TX3) Training Course	Davis-Monthan AFB, AZ
E3BQFE	E-3 Flight Engineer Initial Qualification and Requalification Training Course	Tinker AFB, OK
E3IFE	E-3 Instructor Flight Engineer (IFE) Course	Tinker AFB, OK
E4BIFE	E4B IFE Qualification & Requalification Course	Offutt AFB, NE
E4FE	E4B Flight Engineer Qualification & Requalification Course	Offutt AFB, NE
E8FE-QT	E-8 Flight Engineer - Qualification Training	Robins AFB, GA
E8FE-RQ	E-8 Flight Engineer - Requalification Training	Robins AFB, GA
E8FE-TX	E-8 Flight Engineer - Transition Training	Robins AFB, GA
E8IFE	E-8 Instructor Flight Engineer	Robins AFB, GA
0C130H2FEQ1LP	C130H2 Flight Engineer Initial Qualification (Basic)	Little Rock AFB, AR
C130H2FEQ3LP	C130H2 Flight Engineer Initial & Mission Qualification	Little Rock AFB, AR
C130H2FIN3LP	C130H2 Flight Engineer Instructor	Little Rock AFB, AR
NOTE: Please check Education & Training Course Announcements for most updated Course Number and information: https://etca.randolph.af.mil/ Current as of 11 November 2017		

Table 8 Air Force Flight Engineer Courses 2 of 3

COURSE NUMBER	COURSE TITLE	LOCATION
MC130H-IF-UQ	MC-130H Instructor Flight Engineer Upgrade Qualification	Kirtland AFB, NM
MC130H-MF-IQ	MC-130H Mission Flight Engineer Initial Qualification	Kirtland AFB, NM
MC130H-MF-SR	MC-130H Mission Flight Engineer Simulator Refresher	Kirtland AFB, NM
MC130H-MF-SYSR	MC-130H Mission Flight Engineer Systems Refresher	Kirtland AFB, NM
NOTE: Please check Education & Training Course Announcements for most updated Course Number and information: https://etca.randolph.af.mil/ Current as of 18 May 2018		

Table 9 Air Force Flight Engineer Courses 3 of 3

COURSE NUMBER	COURSE TITLE	LOCATION
AC130UFE	Flight Engineer Initial Mission Qualification	Hurlburt Field, FL
AC130UIFE	Instructor Flight Engineer Upgrade	Hurlburt Field, FL
AC130WFE	AC-130W Flight Engineer Mission Qualification	Cannon AFB, NM
AC130WIFE	AC-130W Instructor Flight engineer Upgrade Course	Cannon AFB, NM
C20H FIQ	C-20H Flight Engineer Initial Qualification	Flight Safety
C37A FMX	C-37A (G-5) Flight Engineer Initial Maintenance Course	Flight Safety
C37A FIQ	C-37A Flight Engineer Initial Qualification	Flight Safety
C5MFEIQ	C-5M Flight Engineer Initial Qualification	JBSA-Lackland, TX
C5MIFE	C-5M Instructor Flight Engineer Qualification	JBSA-Lackland, TX
KC10FBP	KC10 Flight Engineer (Basic) Precourse	In-Unit
KC10FIC	KC10 Flight Engineer Instructor Course	In-Unit
KC10FIQ	KC10 Flight Engineer Initial Qualification	In-Unit
KC10FRQ	KC10 Flight Engineer Requalification	In-Unit
ANGBFE(I)	ANG Basic Flight Engineer International Course	Little Rock, AFB, AR
NOTE: Please check Education & Training Course Announcements for most updated Course Number and information: https://etca.randolph.af.mil/ Current as of 11 November 2017		

Table 10 Advanced Training

COURSE NUMBER	COURSE TITLE	LOCATION
RESERVED	RESERVED	RESERVED

Table 11 Other Courses in the Field

COURSE NUMBER	COURSE TITLE	LOCATION
AMC AAMOC	Advanced Air Mobility Operations Course	JB MDL, NJ

Table 12 Air Mobility Command Advanced Distributed Learning Service (ADLS) Courses

COURSE NUMBER	COURSE TITLE	WEBSITE
WBT AMOC	Introduction to Air Mobility Operations Course	https://amc.csd.disa.mil/
FEMO	Fundamentals of Expeditionary Mobility Operations	https://amc.csd.disa.mil
STAGE	Stage Management Course	https://amc.csd.disa.mil

Section E - MAJCOM Unique Requirements

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

Section F - MAJCOM Unique Resource Requirements

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

**Attachment 1
Qualitative Requirements**

<i>THIS BLOCK FOR IDENTIFICATION PURPOSES ONLY</i>		
NAME OF TRAINEE		
PRINTED NAME (<i>Last, First Middle Initial</i>)	INITIALS (<i>Written</i>)	SSAN
PRINTED NAME OF CERTIFYING OFFICIAL AND WRITTEN INITIALS		
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	

QUALITATIVE REQUIREMENTS

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. (ADVANCED 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

** 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)

*** 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.

x This mark is used alone in course columns to show that training is required but not given due to limitations in resources.

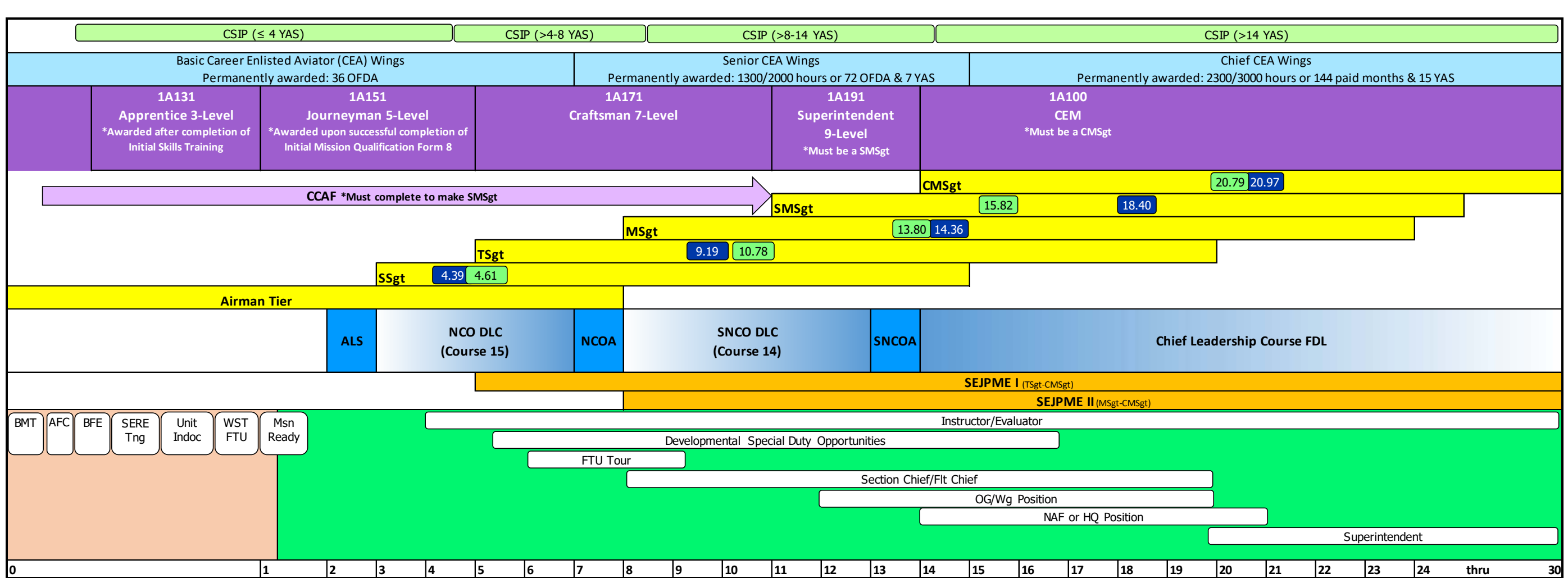
**Attachment 2
Tasks, Knowledge, and Technical References**

TASKS, KNOWLEDGE AND TECHNICAL REFERENCES			3-Skill Level Course
1. CAREER FIELD INFORMATION			
AF Instructions	Technical Orders	Miscellaneous	
AFI 11-401		AFECD	
AFI 11-402		AFPD 10-1	
AFI 36-2101			
1.1. Duties and Progression Within 1A1XX AFSC			A
2. AIRCREW TRAINING / SUPERVISION			
AF Instructions	Technical Orders	Miscellaneous	
AFI 11-202 V1			
AFI 11-202 V2			
AFI 36-2201			
2.1. Training Qualifications			-
2.2. Standardization/Evaluation Functions			-
3. PUBLICATIONS			
AF Instructions	Technical Orders	Miscellaneous	
AFI 11-201,V2/V3	T.O. 00-5-1		
AFI 11-215	T.O. 00-5-3		
AFI 33-360	T.O. 00-20-1		
3.1. AF Technical Orders (T.O.s)			2b
3.2. Publications			2b
3.3. AFTO IMT 781 Series			-
4. AIRCRAFT SYSTEMS/EQUIPMENT			
AF Instructions	Technical Orders	Miscellaneous	
	T.O. 00-25-172		
	T.O. 1X-XXX-1		
4.1. Electrical			A
4.2. Hydraulic			A
4.3. Bleed Air			A
4.4. Air Conditioning			A
4.5. Pressurization			A
4.6. Communication			A
4.7. Fuel			A
4.8. Engines			A
4.9. Flight Instruments			A
4.10. Flight Controls			A
4.11. Landing Gear			A
4.12. Brake			A
4.13. Auxiliary Power			A
4.14. Fire Detection			A
4.15. Fire Extinguishing			A
4.16. Aircraft Sensors			A
4.17. Aircraft Defensive Systems			A
4.18. Propeller Systems			A
4.19. Aircraft Systems Integration			A

TASKS, KNOWLEDGE AND TECHNICAL REFERENCES			3-Skill Level Course
5. AERODYNAMICS			
AF Instructions	Technical Orders	Miscellaneous	
	T.O. 1X-XXX-1	AFH 11-203 V1	
		AFH 11-203 V2	
		FAA-H-8083-3A	
		FAA-H-8083-25A	
5.1. Turbo-Prop/Turbo-Fan Propulsion			A
5.2. Fixed Wing			A
5.3. Atmosphere and Weather			
5.3.1. Basic Atmosphere/Physics Principles			A
5.3.2. Weather Report Interpretation			A
6. AIRCRAFT PERFORMANCE			
AF Instructions	Technical Orders	Miscellaneous	
	T.O. 1C-130 A/ H / U/ J-1	AFH 11-203 V1	
	T.O. 1-1B-50	AFH 11-203 V2	
	T.O. 1C-XXX-1	MIL-STD-3013A	
	T.O. 1C-XXX-1-1		
6.1. Weight and Balance			
6.1.1. Concepts			A
6.1.2. Apply Formulas			2b
6.1.3. Weight and Balance Records			A
6.1.4. Complete Weight and Balance DD Form 365-4			2b
6.1.5. Effects of Weight and Balance			A
6.2. Solve Performance Math Problems			2b
6.3. Fuel Management Principles			-
6.4. Complete Fuel Log Computations			-
6.5. TOLD			
6.5.1. Perform Basic Chart Reading			2b
6.5.2. Compute Fixed-Wing Takeoff Data			2b
6.5.3. Compute Fixed-Wing Emergency Return Data			2b
6.5.4. Compute Fixed-Wing Climb Data			2b
6.5.5. Compute Fixed-Wing Cruise Data			2b
6.5.6. Compute Fixed-Wing Holding Data			2b
6.5.7. Compute Fixed-Wing Descent Data			2b
6.5.8. Compute Fixed-Wing Landing Data			2b

TASKS, KNOWLEDGE AND TECHNICAL REFERENCES			3-Skill Level Course
7. GENERAL NAVIGATION			
AF Instructions	Technical Orders	Miscellaneous	
AFI 11-208(I)		AFMAN 11-217 V1	
AFI 11-218		AFMAN 11-217 V2	
AFI 11-230		AFMAN 11-217 V3	
7.1. Extract and Interpret Terminal and En-route NAVAID Information			2b
7.2. Determine Position Orientation			2b
7.3. Determine Latitude/Longitude			2b
7.4. Extract and Interpret General Navigation Information from FLIP / TCNs / NOTAMs / Airport Diagrams			2b
7.5. Extract and Interpret General Navigation Information from SID / En-route Charts			2b
7.6. Extract and Interpret General Navigation Information from STAR / IAP			2b
8. MISSION PLANNING AND COMPUTATIONS			
AF Instructions	Technical Orders	Miscellaneous	
AFI 11-2KC-10 V3	T.O. 1X-XXX-1		
AFI 11-202 V3	T.O. 1X-XXX-1-1		
8.1. Compute Fuel Required for the Mission			2b
8.2. Perform Mission Planning			2b

**Attachment 3
Flight Engineer Career Path Chart
1A1X1**



References:
 AFI 11-401 Aviation Management
 AFI 11-402 Aviation and Parachutist Service, Aeronautical Ratings, and Aviation Badges
 AFI 36-2201 Air Force Training Program
 AFI 36-2301 Developmental Education
 AFI 36-2502 Enlisted Airman Promotion/Demotion
<https://mypers.af.mil/>

**OPR: HQ USAF/A3TF
 POC: CMSgt Eric N. Rigby
 25 January 2018**

Legend:

- Compensation *Gate months: cumulative, not consecutive
- CEA Milestones
- AFSC Skill Level
- Promotions
- PME
- Training Progression
- Years Of Service (not necessarily same as YAS)
- Career Progression

NOTE: Career progression is typical, but not mandatory. Each member's career may take shape in many different permutations