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From: Commandant of the Marine Corps
To: Distribution List

Subj: SMALL UNMANNED AIRCRAFT SYSTEMS TRAINING AND READINESS MANUAL

Ref: (a) NAVMC 3500.14D

Encl: (1) Small Unmanned Aircraft Systems Training and Readiness Manual

1. Purpose. In accordance with reference (a), enclosure (1) contains revised standards and regulations regarding training for Small Unmanned Aircraft Systems aircrew.

2. Cancellation. NAVMC 3500.107B.

3. Scope. Highlights of major changes included in this Manual are:

a. Chapter 1 revisions include the following:

(1) Prerequisites for the 8623 Free Military Occupational Specialty (FMOS) are defined. The FMOS is used for unit tracking and reporting purposes.

(2) The mission essential task list has been updated to provide greater clarity in its use as a tool to report readiness.

(3) The core model minimum requirement now captures minimum manning per system type.

b. Chapter 2 revisions include the following:

(1) Administrative details for the training and logistics support activity has been updated, providing locations and contact information.

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(2) Training documentation has been transferred to the Marine Corps Training Information Management System, formerly tracked in paper-bound training jackets.

(3) Terms and definitions "shall," "should," and "may" have been applied per reference (a).

(4) Each event has been validated and updated to reflect the proper instructor and hours per event number.

4. Information. Commanding General (CG), Training and Education Command (TECOM) will update this Training and Readiness (T&R) Manual as necessary to provide current and relevant training standards to commanders. All questions pertaining to the Marine Corps Aviation T&R Program and Unit Training Management should be directed to: CG, TECOM, Policy and Standards Division (C 466), 1019 Elliot Road, Quantico, Virginia 22134.

5. Command. This Manual is applicable to the Marine Corps Total Force.

6. Certification. Reviewed and approved this date.

W. F. MULLEN III

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CHAPTER 1

SMALL UNMANNED AIRCRAFT SYSTEMS (SUAS)

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CHAPTER 1

SMALL UNMANNED AIRCRAFT SYSTEMS (UAS) TRAINING AND READINESS

1.0 TRAINING AND READINESS REQUIREMENTS. The purpose of SUAS training and readiness is to attain and maintain the ability to effectively support units where SUAS assets are assigned. The standards established in this program are validated by subject matter experts to maximize combat capabilities for assigned METs. These standards describe and define unit capabilities and requirements necessary to maintain proficiency in SUAS operations. Training Events are based on specific requirements and performance standards to ensure a common base of training (See Appendix E for futher information on Currency and Proficiency).

1.1 MISSION. Small Unmanned Aircraft Systems (SUAS) are comprised of Group 1 and man packable Group 2 UAS's. Commanders are responsible for establishing and maintaining a SUAS training program that includes integral and essential personnel to facilitate the functional and operational aspects of the program. Unit personnel assigned to serve in the billets listed in Appendix C shall be designated in writing. Personnel may be designated for more than one SUAS program billet provided requirements for each are met.

Note: For the purpose of this Manual, from here forward Group 1 and man packable Group 2 UAS will be referred to collectively as Small Unmanned Aircraft System (SUAS).

1.1.1 Unit SUAS Allowance. A unit's Table of Equipment (T/E) defines its allowance for a particular type of SUAS. MCCDC CD&I ACE UAS Branch controls the T/E allocation for all Marine Corps Units. Unit SUAS-PMs should coordinate with their unit supply/operations (S-4) sections to determine their total SUAS allowance (by type and total of each). SUAS equipment data is noted at Table 1-1.

SUAS	NSN	TAMCN	SUAS Type
RQ-11B DDL Raven	1550-01-641-0658	A03217G	Fixed Wing
RQ-12A Wasp IV	1550-01-628-7648	A03987G	Fixed Wing
RQ-20A PUMA 1	1550-01-632-3359	A04147G	Fixed Wing
RQ-20B PUMA 2	1550-01-659-8723	A04147G	Fixed Wing
PD-100 Black Hornet 2	1550-07-000-3119	A00117G	Nano-VTOL*
PD-100 Black Hornet 3	Not Yet Assigned	A00117G	Nano-VTOL*
InstantEye Gen 3 InstantEye Gen 3 Q4S	1550-01-651-5315 1550-01-672-3939	A01587G	Micro-VTOL*
InstantEye Gen 5	Not Yet Assigned	A01587G	Micro-VTOL*
R60D SkyRanger	Not Yet Assigned	A00187G	Short Range/Short Endurance SR VTOL*
R80D SkyRaider	Not Yet Assigned	A00187G	SRDR VTOL*
Stalker LE	Not Yet Assigned	Not Yet Assigned	Not Yet Assigned
* VTOL – vertical take-off and landing.			

Table 1-1. SUAS Equipment Data.

1.1.2 Authorization to Operate SUAS Equipment. A unit's SUAS equipment may only be operated by SUAS-Os assigned to that unit unless approved in writing by the commanding officer or otherwise authorized by governing directives or orders. Prior to an SUAS-O operating another unit's SUAS, the owning unit's SUAS-PM shall audit the individual training record (ITR) of that SUAS-O to ensure the individual is properly trained, designated and current on the SUAS requesting to operate. If a unit is being supported by the TALSA, permission for TALSA personnel to operate that unit's SUAS(s) is implied. Responsibility and liability for SUASs operated by authorized SUAS-Os from other units or TALSA personnel remains with the owning unit.

1.2 PREREQUISITES FOR FREE MOS (FMOS) 8623 SMALL UNMANNED AIRCRAFT SYSTEM (SUAS) SPECIALIST

1.2.1 Per the current MOS Manual, dtd 2019, the Small Unmanned Aircraft Systems Specialist is responsible for planning, integrating, and executing small unmanned aircraft system (SUAS) operations in support of the MAGTF. They integrate SUAS capabilities with unit operations IAW mission orders, scheme of maneuver, fire support coordination measures, airspace control measures, frequency assignments, airspace, and range regulations. Small

Unmanned Aircraft Systems Specialist training and readiness skill progression includes SUAS-Operator, SUAS-Evaluator, Adjunct Faculty (for MVTL only) and SUAS-Program Manager (PM).

1.2.2 FMOS 8623 SUAS prerequisites:

Level	Content
A	Must possess a GT score of 90 or higher.
B	Security requirement: none.
C	Must have normal color vision and depth perception.
D	Must be in accordance with reference (ah), para 8.8.1, MANMED (NAVMED P-117 dtd 17 Feb 2019) Article 15-85.

1.2.3 Article 15-63 of NAVMED 117, UAS aircrew standards to the Manual of the Medical Department (MANMED) points to the U.S. Navy Aeromedical Reference and Waiver Guide (ARWG) and a provides a link to the approved worksheet, NAVMED 6410/13 Unmanned Aircraft System (UAS) Physical Worksheet to assist Department of Defense (DoD) providers with the completion of UAS physicals**.**

1.2.3.1 The physical qualification submission requirements and any associated waiver recommendations are now based on the assigned UAS Group as listed in Commander Naval Air Forces (CNAF) M-3710.7 series or with respect to commercial, off-the-shelf, models by aircraft operating characteristics. While the physical standards across all of the UAS Groups remain the same, the physical exam processing requirements have changed appropriately to address operational requirements. UAS operators must be assessed and processed based on the highest UAS Group they are qualified to operate. UAS operators flying aircraft limited only to those of UAS Group 1 and 2 and small, commercial, off-the-shelf vehicles weighing 55 pounds or less may have their physicals performed by any qualified DoD medical provider and any associated waivers may be approved locally by individual unit commanders. The NAVMED 6410/13 UAS Physical Worksheet, and the ARWG continue to provide useful reference and guidance for all UAS classes. However, there are likely few conditions for the majority of the small UAS operators that may demand aeromedical standards above that of the general duty Sailor or Marine. In no case should an individual receive medical clearance with a medical condition present, which may incapacitate an individual suddenly, subtly, or without warning. Further, personnel may not perform UAS operations while using any medication whose known common adverse effects or intended action(s) affect alertness, judgment, cognition, special sensory function or coordination. This includes both over the counter and prescription medications.

1.3. MISSION ESSENTIAL TASK LIST (METL). The METL is comprised of specified capabilities-based Mission Essential Tasks (METs) which a unit is designed to execute. METs are drawn from the Marine Corps Task List (MCTL), are standardized by type unit, and defined as Core or Core Plus METs. Core METs are those tasks that a unit is expected to execute at all times and are the only METs used in reporting the Training Level (T-Level) for the Core Mission (C-Level) in the Defense Readiness Reporting System – Marine Corps (DRRS-MC). Core Plus METs identify additional capabilities to support missions or plans which are limited in scope, theater specific, or have a lower probability of execution. Core Plus METs may be included in readiness reporting when contained within an Assigned Mission METL. An Assigned Mission METL consists of only selected METs (drawn from Core and Core plus METs) necessary to conduct the assigned mission. MCO 3000.13 provides additional information on readiness reporting.

1.3.1 The SUAS does not have its own METS, but rather, are utilized in the performance of other T&R's METS. Refer to the specific Community of Interest (COI) T&R for SUAS association with the assigned METS.

1.4. MISSION ESSENTIAL TASK (MET) OUTPUT STANDARDS. MET output standards are the required level of performance a UNIT must be capable of sustaining during contingency operations for their specific assigned T/E SUAS systems by MET to be considered MET-ready. SUAS systems assigned to a given unit and assume a single crew per system operating for 6 continuous hours, waiverable to 8 hours. Consult the METS in the various community T&R manuals for SUAS application in those METs.

1.5. CORE MODEL MINIMUM REQUIREMENTS (CMMR) TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC). The paragraphs and table below delineate the minimum crew required to execute the MET training standards and MET Output Standards of para 1.4. MCO 3000.13 Readiness Reporting provides additional guidance and a detailed description of readiness reporting using DRRS-MC.

1.5.1 In lieu of a CMMR Readiness Reporting Matrix a table depicting the minimum crew (defined as qualified personnel on each specific systems) reflecting the number personnel required per system has been provided. The

number of crews a unit needs to have trained can be determined by multiplying the number of systems a unit has by the system minimum manning number. This calculation can be utilized to assist in capturing the unit's readiness of trained SUAS personnel to perform in support of a given mission. Consult the specific COI's Approved Acquisition Objective (AAO) for the anticipated type and number of systems for an individual unit.

1.5.2 SUASs minimum system manning is noted in Table 1-2 below. In certain circumstances, when a commander deems it necessary, systems that require two operators may be manned with one designated SUAS-O and one assistant (as defined by applicable SUAS Operator's Manual) during operations. Assistants shall not be used during event training or evaluations unless the T&R Manual specifically directs their use. Single Operator with assistants increase the risk of damaged or loss of aircraft.

SUAS	System Minimum Manning
RQ-11B DDL Raven	2
RQ-12A Wasp IV	1
RQ-20 Puma	2
PD-100/200 (Nano-VTOL)	1
InstantEye (MVTOL)	1
SkyRanger/Sky Raider (SR/SRDR VTOL)	1
Stalker	2

Table 1-2. Minimum Manning Requirements

1.6 INSTRUCTOR DESIGNATIONS

VTOL (MVTOL/ SR/SRDR/ Nano-VTOL)			
	13 SYS	6 SYS	2 SYS
SUAS-E [1]	4	2	1

*Note: 1. If a unit has less than (3) systems on the T/E, they should have (1) trained SUAS-E.

VTOL (MVTL)	
	39 SYS
Adjunct Faculty (AF) [1 & 2]	1

Note: 1. If a Battalion has less than (39) MVTL systems on the T/E, they should have (1) trained AF.
2. See paragraph 2.11.10 "MVTOL AF STAGE" for further clarification of this designation.

RQ-20 Puma			
	6 SYS	4 SYS	2 SYS
SUAS-E	3	2	1

1.7. SUAS EQUIPMENT AND PERSONNEL READINESS REPORTING

1.7.1 Readiness levels of SUAS trained personnel and ready equipment shall be measured against the unit's METs annotated within their individual T&R's.

1.7.2 The Commander's remarks, on a units DRRS-MC, should explain, in succinct and easily understood terms, the "bottom line" assessment of organization's capability to carry out its missions whilst utilizing SUAS assets. This is especially important for intermediate commands, which must not simply repeat data and remarks from subordinate units. Until such time as formal DRRS guidance on SUAS is provided via MCO, unit commanders should consider reporting the percentage of total systems on hand that are 100% functional and ready to deploy, and the number and type of designated and current operators within the unit.

1.7.3 This T&R provides SUAS Operators the tools to properly operate SUAS in support of their units METs.

CHAPTER 2

SMALL UNMANNED AIRCRAFT SYSTEMS (SUAS) TRAINING AND READINESS

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CHAPTER 2

SMALL UNMANNED AIRCRAFT SYSTEMS (UAS) TRAINING AND READINESS

2.0 CREWMEMBER SYLLABUS T&R REQUIREMENTS. This T&R manual is based on specific goals and performance standards designed to ensure individual proficiency in Core Introduction and Core Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

2.0.1 Unmanned Aircraft Systems Minimum Training Standards

2.0.1.1 NATO Standardized Agreement (STANAG) 4670. The STANAG 4670 is a ratified NATO Standardization Agreement that provides recommended guidance for the training of designated unmanned aerial vehicle operators. The aim of this agreement is to establish a broad set of training guidelines and to define the minimum skills required of UAS operators. This T&R Manual complies with STANAG 4670 requirements.

2.0.1.1.1 Training Marines to perform as a cohesive unit in combat lies at the heart of the T&R program. Unit readiness and individual readiness are directly related; individual core skills serve as the building block for unit combat readiness. The Training and Readiness (T&R) Program is the Marine Corps' primary tool for planning, conducting and evaluating training, and assessing readiness. This syllabus is mandated for all personnel assigned to operate, instruct, evaluate, or manage small unmanned aircraft systems.

2.0.1.1.2 This T&R Manual contains the minimum individual training standards required for a Marine to initially attain and maintain currency in Group 1 and Group 2 Small Unmanned Aircraft Systems (SUAS) operations. It is a fundamental planning tool for commanders to construct and execute an effective training plan that builds and maintains unmanned aircraft systems personnel readiness to support the unit mission.

2.0.1.1.3 CJCSI 3255.01_, Joint Unmanned Aircraft Systems Minimum Training Standards (JUMTS), defines UAS groups, with small unmanned aircraft systems classified as Group 1 UAS. Per CJSCI 3255.01_, a Group 1 UAS weighs 20 pounds or less. It normally operates Visual Flight Rules (VFR) in Class E, G, and Restricted or Uncontrolled airspace below 1200' above ground level (AGL) at speeds less than 100 knots. A Group 2 UAS weighs between 21 and 55 pounds. The SUAS variants of Group 2 operate at extended ranges and endurance relative to their Group 1 counterparts but retain the portability and small manning requirements of the Group1 systems.

2.0.1.1.3.1 Basic UAS Qualification (BUQ). There are four levels of BUQ training. Group 1 SUAS-Os are required to achieve BUQ-1 prior to designation. BUQ-1 was developed to give the SUAS-O the required aviation and SUAS knowledge-based skills to fly Visual Flight Rules (VFR) in Class E and G, and restricted/combat airspace <1200' above ground level (AGL). BUQ-2 expands the operator's knowledge base to include additional classes of airspace and altitude blocks and is required for Group 2 SUAS-Os and SUAS-Es, in addition to BUQ-1.

2.0.1.1.3.2 Joint Mission Qualification A (JMQ-A). There are three JMQ levels. Group 1/2 SUAS-Os are required to achieve JMQ-A prior to deployment. Common SUAS Skills (CSS) stage events in Core Phase (2000 Level) of this T&R satisfies JMQ-A requirements. JMQ-A provides general knowledge of the SUAS mission. This is critical to ensure SUAS-Os understand their role in accomplishing a larger joint military objective.

2.0.1.1.3.3 The IQT courses contained in this manual fully comply with CJCSI 3255.01_ BUQ-1 and JMQ-A requirements.

2.0.2 Training and Logistics Support Activity (TALSA).

2.0.2.1 Background. Since the approval of the USMC's Small Unit Remote Scouting System (SURSS) ORD dated 9 Aug 2004, fixed wing (e.g., RQ-20 PUMA) and Vertical Take-Off and Landing (e.g., Sky Ranger) SUASs have been added to the inventory to meet emerging operational requirements. In order to support the operating forces in a

more responsive manner, the Navy and Marine Corps Small Tactical Unmanned Aircraft Systems Program Office (NAVAIRSYSCOM PMA-263) consolidated all SUAS training requirements at three Training and Logistics Support Activity (TALSA) locations. The TALSAs provide centralized, flexible new equipment and sustainment training for all SUAS systems fielded by PMA-263 to ensure training requirements are met. The TALSAs are located aboard Marine Corps Bases Camp Lejeune, NC, Camp Pendleton, CA, and MCBH Kaneohe Bay HI. A fourth TALSA (TALSAM) is located at the MARSOC compound at Stone Bay, NC with the primary function of training special operations forces (SOF).

2.0.2.2 TALSA Services. TALSAs are centralized locations that offer scheduling and formal entry-level SUAS courses that provide initial qualification training (IQT) for SUASs currently in use by the operating forces. Each TALSA is also capable of assisting units:

a. Manage systems through centralized storage.

b. Provide maintenance and supply support.

c. Maintain SUAS currency/proficiency per requirements set forth in this T&R Manual.

d. Advise personnel on SUAS integration (integration, mission planning and employment).

e. Provide subject matter expertise (SME) at various venues.

f. Provide Field Service Representative (FSR) support.

2.0.2.3 Locations.

a. TALSA East

- Address: Bldg 1771, Louis Rd, Camp Lejeune, NC 28542
- Phone Numbers: 910-450-8098/9903
- Email: talsaeast@eri-engineering.com

b. TALSA West

- Address: Bldg 13131, 14th Street, Camp Pendleton, CA 92055
- Phone Numbers: 760-725-4565/4575
- Email: TALSAWest@eri-engineering.com

c. TALSA PAC

- Address: Bldg 505, Mokapu Rd, Kaneohe Bay, HI 96863
- Phone Numbers: 808-257-4145
- talsapac@eri-engineering.com

d. TALSA MARSOC (TALSAM). TALSAM is located aboard the MARSOC compound at Stone Bay, NC. TALSAM provides SOF Peculiar (SoP) IQT, CSS, Operational, SME, and Logistics/Maintenance support to Marine Special Operations Forces (MARSOF).

2.0.2.4 Mobile Training Teams (MTTs). Although there are fixed TALSA sites, training, logistics and other support services can be conducted using mobile training teams (MTTs) at any location where required support resources are available (i.e., ranges, frequencies, classroom, etc.). MTTs can be requested through the appropriate regional SUAS-PM.

2.0.3 SUAS Training Program Roles and Responsibilities. See Appendix D for position descriptions and training responsibilities.

2.0.4 Unit SUAS Inspection (USI). The Unit SUAS-PM at each command echelon shall conduct annual USIs for each immediate subordinate command maintaining an SUAS Program. SUAS USIs shall be conducted in accordance with the SUAS Program Inspection Checklist (see APPENDIX A of this manual for location of the SUAS Program Assessment Checklist). The purpose of these visits is to ensure proper program administration and standardization and to provide assistance and guidance for programs that do not meet standards.

2.0.5 T&R Support.

2.0.5.1 Syllabus Sponsor. A syllabus sponsor is a unit that coordinates T&R changes on behalf of the SUAS user community in coordination with MAGTF Training and Education Standards Division, Aviation Standards Branch (ASB). The SUAS Syllabus Sponsor shall maintain close liaison with the respective SUAS user community representatives. Roles and responsibilities of assigned syllabus sponsor for this T&R Manual are per NAVMC 3500.14_, chapter 5.

2.0.5.2 Marine Corps Training Information Management System, or MCTIMS, is the primary database system that shall be used to track all SUAS training to include flights, simulator events, and currency requirements. It is an automated, web-based database that, once fully implemented, will replace the requirement to maintain hard copy ITRs.

2.0.5.3 T&R Documents. Unless otherwise noted, supporting and required documents referred to in this Manual can be found at the respective sites noted below:

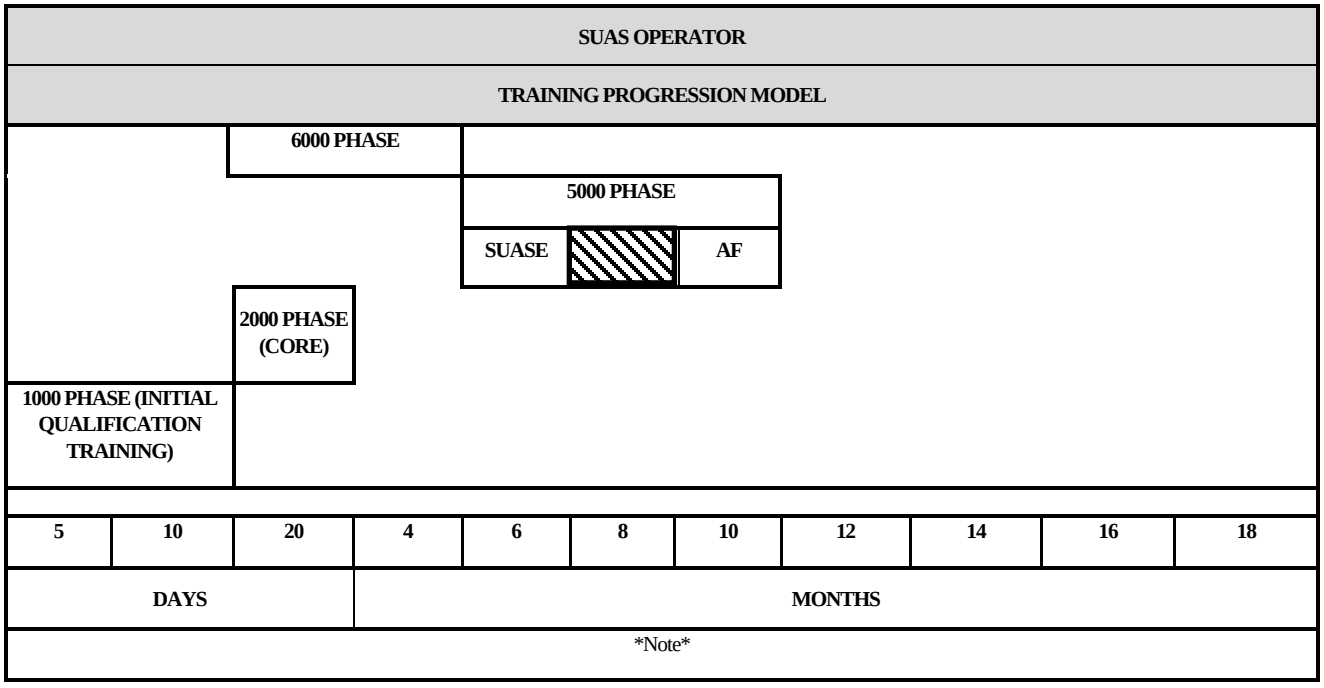
a. Marine Corps Forces. Supporting documentation for the implementation of this T&R Manual is available at the TALSA and will be available on MCTIMS.

b. The syllabus sponsor, in coordination with the TALSAs, shall ensure T&R documents are maintained current and available on the Training and Education Command's (TECOM) Aviation Support Branch (ASB) (https://vcepub.tecom.usmc.mil/sites/directorates/mtesd/asb/G1_Trng/default.aspx?PageView=Shared&InitialTabId=Ribbon.WebPartPage&VisibilityContext=WSSWebPartPage).

2.0.6 Explanation of Specific Terms. The concept of word usage and intended meaning that has been adhered to in preparing this T&R Manual is as follows:

1. "Shall" is used only when application of a procedure is mandatory.
2. "Should" is used only when application of a procedure is recommended.
3. "May" and "need not" is used only when application of a procedure is optional.

2.1 TRAINING PROGRESSION MODEL. Represents the recommended training progression for a SUAS Operator. This model represents generalized minimum to maximum time to train regardless of the SUAS platform.



The above progression model indicates the earliest time a given syllabus may begin and incorporates the minimum to maximum time to train parameters for each phase.

2.2 PROGRAMS OF INSTRUCTION (POI)

2.2.1 General. Represents the average POI time-to-train by Phase. Note: Each POI built during the syllabus chapter requires a POI Table.

2.2.2 Basic (B) POI. The Basic Crewmember shall execute or fly the entire syllabus.

DAYS	COURSE	PERFORMING ACTIVITY
10	Core Introduction Training	TALSA
10	Core Training	Unit
12	Core Plus (Evaluator/Adjunct Faculty)	Unit
1	SUAS-PM	TALSA

2.2.3 Refresher (R) POI. The Refresher Crewmember shall execute or fly those Events annotated with an R. Commanding officers/OICs will review the qualifications, previous experience, currency, and demonstrated ability of Refresher Crewmembers with a view towards combining required flights.

WEEKS	COURSE	PERFORMING ACTIVITY
10	Core Training	Unit
12	Core Plus (Evaluator/Adjunct Faculty)	Unit
1	SUAS-PM	TALSA

Note: The above progression model indicates the earliest time a given syllabus may begin and incorporates the minimum to maximum time to train parameters for each phase.

2.3 PROFICIENCY & CURRENCY

2.3.1 Event Proficiency. Event proficiency is defined as successful completion of the performance standard as determined by the instructor or evaluator. Event completion is predicated upon demonstrated proficiency. Once completed, it is logged in MCTIMS by entering the appropriate event code.

2.3.2 Skill Proficiency. Proficiency is a measure of achievement of a specific skill. To attain Individual Skill proficiency, an individual must be simultaneously proficient in all events for that Skill. Individuals may be attaining proficiency in some skills while maintaining proficiency in others. Amplifying information concerning proficiency requirements for unit and individual type mission profiles can be found in Appendix E.

2.3.2.1 Maintaining Skill Proficiency. Once attained, skill proficiency is maintained by executing those events which have a Proficiency Period (Maintain events). Proficiency Periods establish the maximum time between Event demonstrations. Should proficiency be lost in any maintain event, for a specific skill, that skill proficiency is temporarily lost (when skill proficiency is lost the individual is unable to operate a system until proficiency is regained). Skill proficiency can be re-attained by again demonstrating proficiency in the event(s) that are not proficient. An individual shall complete delinquent events with a proficient instructor, or operator.

2.3.2.2 Loss of Individual Proficiency. Every SUAS-O/SUAS-E must fly and log all 2000 phase events with a proficiency period prior to reaching those proficiency periods to remain current. If an individual fails to fly and log an event then they must fly the event with a proficient SUAS-E. If the unit does not have a proficient SUAS-E, see Loss of Unit Skill Proficiency below.

2.3.2.3 Loss of Unit Skill Proficiency. If an entire unit loses proficiency in an Event, unit SUAS-E's shall regain proficiency by completing the Event with a SUAS-E for the specific SUAS from another unit. If not feasible, the SUAS-E shall regain proficiency by completing the Event with another non-proficient SUAS-E (from the same unit). If a unit has only one SUAS-E and cannot complete the Event with a SUAS-E from another unit, the SUAS-E shall regain proficiency with another SUAS-O or as designated by the Commanding Officer.

2.3.3 Skill Currency. Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill and applies to all. It is a measure of time since the last event demanding that specific skill.

2.4 CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATION (CQD) TABLES. The table below delineates T&R Events required to be proficient or waived to attain Certifications, Qualifications, and Designations. Waiving of all Required Events leading to a Certification, Qualification, or Designation, is not allowed.

CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (CQD)	
CQD	**Events**
Small Unmanned Aircraft System- Operator (SUAS-O) Course	1000 - 1899 per specific SUAS taught by the TALSA
Small Unmanned Aircraft System- Evaluator (SUAS-E) Course	5000 - 5494 per specific SUAS taught by the TALSA
Small Unmanned Aircraft System- Program Manager (SUAS-PM) Course	6660, Designated by CO IAW NAVMC 3500.107X, Complete SUAS PM Course
Certifications	**Certification events and prerequisites**
RQ-11B Raven SUAS-O	1199
RQ-12A Wasp SUAS-O	1299
RQ-20 Puma SUAS-O	1399
Nano-VTOL PD-100/200 [PD] SUAS-O	1499
MVTOL InstantEye [IE] SUAS-O	1599
VTOL SkyRanger [SR] SUAS-O	1699
VTOL R80D SKY RAIDER [SRDR] SUAS-O	1799
STALKER XE DDL SUAS-O	1899
NPOR SUAS-O	1979
Qualifications	**Qualification Events and Prerequisites**
RQ-11B Raven Annual Evaluation	6022
RQ-12A Wasp Annual Evaluation	6032
RQ-20 Puma Annual Evaluation	6042
STALKER XE DDL Annual Evaluation	6052
Nano-VTOL PD-100/200 [PD] Annual Evaluation	6062
MVTOL InstantEye [IE] Annual Evaluation	6072
VTOL SkyRanger [SR] Annual Evaluation	6082
VTOL R80D SKY RAIDER [SRDR]	6092
NPOR SUAS Evaluation	6192
Designations	**Designation Events and Prerequisites**
SUAS-O	Refer to appropriate SUAS section of this T&R
SUAS-E	Refer to appropriate SUAS section of this T&R
SUAS-PM	Refer to appropriate SUAS section of this T&R
Adjunct Faculty	5394, Complete the prerequisites to the standards set in this T&R Manual

2.5 SYLLABUS NOTES

2.5.1 Each certification syllabus begins with an Instructor Demonstration Flight (code XX00). This is a group event that is only flown once per class for all students, simultaneously. The intent of this is to expose the students to an entire launch/fly/land cycle to serve as a transition between the academic phase and the hands on flight phase.

2.5.2 All events shall begin with a comprehensive brief with emphasis on administrative procedures, CRM, mission performance standards and aircrew expectations.

2.5.3 All flights shall terminate with a comprehensive debrief with emphasis on performance utilizing all evaluation techniques available.

2.5.4 An Event Training Form (ETF) is required for any initial event completed by a Basic or Refresher. If the Commanding Officer has waived/deferred a syllabus event, a waiver/deferral letter shall be placed in their record.

2.5.5 Event Conditions. Refer to the following table for required event conditions.

Code	Description (Environmental Condition)
D	Shall be conducted during day
N	Shall be conducted at night, aided or unaided, at least 30 minutes after official sunset.
(N)	May be conducted day or night. If at night, aided or unaided.

2.5.6 Device matrix. Only include applicable rows.

Device	
Symbol	**Meaning**
S	Conducted in Simulator
L	Conducted using Unit T/E equipment.
L/S	Live Preferred/Simulator Optional.
S/L	Simulator Preferred/Live Optional.
G	Ground/academic training. May include Distance Learning, CBT, lectures, self-paced.
Note – If the event is to be flown in the simulator the Simulator Instructor shall set the desired environmental conditions for the event.	

2.5.7 Program of Instruction Matrix. Only include applicable rows and columns.

PROGRAM OF INSTRUCTION MATRIX			
Program of Instruction (POI)	Symbol	Aviation Flying	Aviation Ground
Basic	B	Initial Skill Training	Initial Skill Training
Refresher	R	DIFDEN to DIFOPS in same T/M/S	Return to community from non (MOS/Skill) associated tour
*Many communities will assign Transition and Conversion aircrew to the Basic POI.			

2.5.8 Event Terms. As required. Flight communities may use the below listed terms. Aviation ground communities will use verbs that best describe executable and measurable goals and performance steps. Taxonomies, such as Bloom, offer a list of verbs for various learning levels.

EVENT TERMS	
TERM	**DESCRIPTION**
Discuss	An explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge of procedures.
Demonstrate	The description and performance of a particular maneuver/event by the instructor, observed by the PUI/student. The PUI/student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver/student.
Introduce	The instructor may demonstrate a procedure or maneuver to a student or may coach the PUI through the maneuver without demonstration. The PUI performs the procedures or maneuver with coaching as necessary. The PUI is responsible for knowledge of the procedures.
Practice	The performance of a maneuver or procedure by the PUI/student that may have been previously introduced in order to attain a specified level of performance.
Review	Demonstrated proficiency of a maneuver by the PUI/student.
Evaluate	Any flight designed to evaluate aircrew standardization that does not fit another category such as SUAS-E.

2.5.9 T&R EVENT STRUCTURE. The T&R event structure is provided below. The superscript numerals in the header section correspond to the explanation provided in the notes section below the example. The body sections contain embedded descriptions.

1/	2/	3/	4/	5/	6/	7/ 8/
RQ11B-1290	0.5	365	B,R	(N)	L	1 RQ-11B

Number	Section	Notes
1	Stage & and event code	
2	Minimum Required Time (Flight, Sim, Acad)	Minimum flight duration required for event to be considered complete. Events where all requirements are met, but minimum flight time is not shall be considered incomplete.
3	Proficiency Period	
4	Program of Instruction	
5	Conditions	
6	Device	
7/8	Number & Equipment	

2.6 CORE INTRODUCTION PHASE (1000)

Purpose. To provide entry-level instruction and develop expertise in the basic operation of the SUAS. Upon successful completion of this training, the student is certified as an SUAS-O and may be designated as such in writing by the unit Commanding Officer.

General. The following Stages are included in the Core Introduction Phase of training.

CORE INTRODUCTION PHASE		
STAGE	**PARAGRAPH**	**PAGE NUMBER**
RQ-11B Raven	2.7.1	2-8
RQ-12A WASP IV	2.7.2	2-25
RQ-20 PUMA	2.7.3	2-42
NANO VTOL (PD-100/200)	2.7.4	2-59
MICRO VTOL(INSTANTEYE [IE])	2.7.5	2-70
Vertical Takeoff and Land (VTOL)	2.7.6	2-82
Vertical Takeoff and Land (VTOL) R80 SKY RAIDER [SRDR]	2.7.7	2-96
Long Range / Long Endurance (LR/LE)	2.7.8	2-112
Non-POR VTOL (NPOR)	2.7.9	2-129

2.7 CORE INTRODUCTION STAGES

2.7.1 RQ-11B Raven CORE Skill Introduction

Purpose: To provide RQ-11B entry-level instruction and develop expertise in the basic operation of the SUAS.

CORE Skill Introduction Overview

RQ-11B Raven Academics	
ACAD-1001	Knowledge of specific system description.
ACAD-1002	Knowledge of controls and indicators.
ACAD-1003	Perform system assembly/disassembly.
ACAD-1004	Preflight & Launch
ACAD-1005	Landing & Recovery
ACAD-1006	Preflight, Launch, Landing & Recovery Demo

ACAD-1007	Assembly, Preflight, Launch, and Landing & Recovery
ACAD-1008	Perform system maintenance and troubleshooting.
ACAD-1009	Understand system specific emergency procedures.
ACAD-1010	Directives and Instructions
ACAD-1011	Prohibited Activities
ACAD-1012	Career Progression and Currency
ACAD-1013	Basic Aerodynamics
ACAD-1014	Advanced Flight
ACAD-1015	Airspace Management
ACAD-1016	Falcon View
ACAD-1017	Mobile Operations
ACAD-1018	Hand Off Procedures
ACAD-1019	Night Operations
ACAD-1020	Single Operator with assistant
ACAD-1021	Incident Reporting
ACAD-1022	Remote Launches
ACAD-1023	Flight Log
ACAD-1024	Relay Operations
ACAD-1025	Falcon Tracker
ACAD-1026	Base Mission Planning
ACAD-1027	Operate range and bearing tool.

CORE INTRODUCTION STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
RQ11B-1100	0.3	*	B	D	RQ-11B	1	Instructor Demonstration Flight
RQ11B-1105	0.5	*	B	D	RQ-11B	1	Basic Flight
RQ11B-1110	0.4	*	B	D	RQ-11B	1	Flight Mode Familiarization and MO Assisted Flight
RQ11B-1115	0.4	*	B	D	RQ-11B	1	Target Acquisition Flight
RQ11B-1120	0.3	*	B	D	RQ-11B	1	Covert Target Area Surveillance Flight
RQ11B-1125	0.3	*	B	D	RQ-11B	1	Target Offset Flight
RQ11B-1130	0.4	*	B	D	RQ-11B	1	Mobile Operations from a Moving Vehicle
RQ11B-1135	0.3	*	B	N	RQ-11B	1	Night Flight 01
RQ11B-1140	0.3	*	B	N	RQ-11B	1	Night Flight 02
RQ11B-1145	0.4	*	B	(N)	RQ-11B	1	AV Hand-Offs
RQ11B-1150	0.3	*	B	D	RQ-11B	1	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing

RQ11B-1155	0.5	*	B	(N)	RQ-11B	1	Area / Point / Zone Reconnaissance Flight
RQ11B-1199	0.5	*	B	(N)	RQ-11B	1	Certification Flight

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

RQ11B-1100 0.3 * B D L 1 RQ-11B

Goal: Conduct Instructor Demonstration Flight of the RQ-11B.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will observe the instructor demonstrate:

How to setup the GCS.
How to plan and load mission information on the RSTA laptop.
How to assemble and stage the AV.
How to launch the AV in MAN mode.
How to Change flight mode when AV is above all obstacles.
How to conduct timed turns.
How to conduct box patterns.
How to conduct orbits.
How to conduct teardrop approaches.
How to control the speed of the AV using the dash / hold feature.
How to enter LOIT mode and navigate AV.
How to enter HOME mode.
How to enter NAV mode.
How to conduct practice approaches.
How to land the AV from ALT mode by manually initiating AUTOLAND.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Observe how to properly setup the GCS.
Observe how to properly plan and load mission information on the RSTA laptop.
Observe how to properly assemble and stage the AV.
Observe how to properly launch the AV in MAN mode.
Observe how to properly Change flight mode when AV is above all obstacles.
Observe how to properly conduct timed turns.
Observe how to properly conduct box patterns.
Observe how to properly conduct orbits.
Observe how to properly conduct teardrop approaches.
Observe how to properly control the speed of the AV using the dash / hold feature.
Observe how to properly enter LOIT mode and navigate AV.
Observe how to properly enter HOME mode.
Observe how to properly enter NAV mode.
Observe how to properly conduct practice approaches.
Observe how to properly land the AV from ALT mode by manually initiating AUTOLAND.
Observe how to properly recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: ACAD Events 1000-1027.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1105 0.5 * B D L 1 RQ-11B

Goal: Conduct Basic Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Conduct timed turns.
Conduct box patterns.
Conduct orbits.
Conduct teardrop approaches.
Control the speed of the AV using the dash / hold feature.
Enter LOIT mode and navigate AV.
Enter HOME mode.
Enter NAV mode.
Conduct practice approaches.
Land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Successfully setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode.
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct timed turns.
Successfully conduct box patterns.
Successfully conduct orbits.
Successfully conduct teardrop approaches.
Successfully control the speed of the AV using the dash / hold feature.
Successfully enter LOIT mode and navigate AV.
Successfully enter HOME mode.
Successfully enter NAV mode.
Successfully conduct practice approaches.
Successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1100.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1110	0.4	*	B	D	L	1 RQ-11B

Goal: Conduct Flight Mode Familiarization and MO Assisted Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Enter LOIT, HOME, or NAV mode and use all speed submenus (Long, Slow, Far, and Fast).
Enter NAV mode and fly at least one complete orbit of diamond default.
In NAV mode, the VO will redirect AV to specified way points / orbit points.
In NAV mode, maneuver the payload and slave the payload to system waypoints.
In NAV mode, the MO will redirect AV to specified way points / orbit points.
On the RSTA laptop, the MO will change coordinate format from MGRS to LAT / LONG and back to MGRS.
On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode.
On the RSTA laptop, the MO will use Mission Management Tool to change waypoint / orbit point location.
Bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully Enter LOIT, HOME, or NAV mode and cycle through all speed submenus (Long, Slow, Far, and Fast).
Successfully enter NAV mode and fly at least one complete orbit of diamond default.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode.
Successfully maneuver the payload and slave the payload to at least two system waypoints in NAV mode.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode (MO).
Successfully change coordinate format from MGRS to LAT / LONG and back to MGRS on the RSTA laptop (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode (MO).

Successfully use Mission Management Tool on the RSTA laptop to change waypoint / orbit point location (MO).
Successfully bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1105.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1115	0.4	*	B	D	L	1 RQ-11B

Goal: Conduct Target Acquisition Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Navigate around target using ALT mode.
Navigate around target using LOIT mode.
Navigate around target using NAV mode.
Using the VO Hand Controller, use the Screen Capture Button to take pictures.
Using the VO Hand Controller, use the range and bearing tool to measure the distance between two objects, two locations, or a combination an object and a location.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target.
On the RSTA laptop, the MO will leapfrog diamond waypoints to allow AV to search and navigate along a linear feature.
On the RSTA laptop, the MO will track stationary and moving targets using the AV Screener.
On the RSTA laptop, the MO will capture images using the SD Image Capture Tool.
On the RSTA laptop, the MO will capture images using the HD Image Capture Tool.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe

Performance Standard. Conduct covert target area surveillance IAW the references, checklists, and ETF. The student will demonstrate the ability to:
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.

Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest or a combination of one TAI and one item of interest.
Successfully navigate around target in ALT mode.
Successfully navigate around target in LOIT mode.
Successfully navigate around target in NAV mode.
Successfully use the Screen Capture Button on the VO Hand Controller, to take at least four pictures.
Successfully use the VO Hand Controller to measure the distance between two objects, two locations, or a combination of an object and a location using the Range and Bearing Tool.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the target (MO).
Successfully leapfrog at least five diamond waypoints on the RSTA laptop to allow AV to search and navigate along a linear feature (MO).
Successfully track one stationary target and one moving target on the RSTA laptop using the AV Screener (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool (MO).
Successfully capture at least two images on the RSTA laptop, using the HD Image Capture Tool (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the Falcon View GUI on the RSTA laptop (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1110.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1120 0.3 * B D L 1 RQ-11B

Goal: Conduct Covert Target Area Surveillance Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Climb AV in ALT mode to covert operating altitude (NLT 800’ AGL).

Correlate winds aloft with target area in order to develop a sound covert approach plan. (Covert approach plan shall include: ingress direction / altitude, egress point / altitude, flight mode (MAN or ALT), and ensure obstacle clearance throughout entire profile)
Ingress to target using a combination of MAN mode and ALT mode to maintain altitude and covert profile while gliding to target.
Initiate covert approach no closer than 500m from target (preferably upwind) with emphasis on use of winds and awareness of winds.
Utilize teardrop entry into a surveillance profile and provide a minimum of 270º of observation prior to egress.
Initiate egress in MAN mode (preferably downwind) no closer than 300 meters and NLT 300' AGL, ensuring adequate obstacle clearance and without compromising the AV on the egress route.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully climb AV in ALT mode to covert operating altitude (NLT 800' AGL).
Successfully correlate winds aloft with target area in order and develop a sound covert approach plan including the following: ingress direction / altitude, egress point / altitude, flight mode (MAN or ALT), and obstacle clearance.
Successfully ingress to target using a combination of MAN mode and ALT mode to maintain altitude and covert profile while gliding to target.
Successfully initiate covert approach no closer than 500m from target (preferably upwind) with emphasis on use of winds and awareness of winds.
Successfully utilize teardrop entry into a surveillance profile and provide a minimum of 270º of observation prior to egress.
Successfully initiate egress in MAN mode (preferably downwind) no closer than 300 meters and NLT 300' AGL, ensuring adequate obstacle clearance and without compromising the AV on the egress route.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition. GCS powered down, FalconView closed. Load DTED, "UAV Origin", and 500m diamond default.

System Configuration. EO/IR Gimbal Payload, FalconView, RSTA. Configure system on a vehicle for mobile operations using mobile mount. If Gimbal payload not available, an EO or IR Payload may be used as appropriate.

Prerequisite. RQ11B-1115.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

RQ11B-1125	0.3	*	B		D	L	1 RQ-11B

Goal: Conduct Target Offset Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use AV Payload to identify Target Areas of Interest (TAIs) or items of interest.
On the RSTA laptop, the MO will activate Pushpins to show images captured using the VO Hand Controller, the SD Image Capture, and the HD Image Capture tools.
Using the VO Hand Controller, use the Screen Capture Button to take pictures to create a TAI for the AV to hold on using Pushpins.
On the RSTA laptop, the MO will capture images using the SD Image Capture and the HD Image Capture tools to create a TAI for the AV to hold on using Pushpins.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the TAI while maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode to support maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest.
Successfully activate and use Pushpins on the RSTA laptop, to show images captured using the VO Hand Controller, the SD Image Capture and the HD Image Capture tools (MO).
Successfully use the Screen Capture Button on the VO Hand Controller, to take at least two pictures (Red Pushpins) to create a TAI for the AV to hold on using Pushpins.
Successfully capture at least one image using the SD Image Capture Tool (Red Pushpin) and capture at least one image using the HD Image Capture Tool (Blue Pushpin) on the RSTA laptop to create a TAI for the AV to hold on using Pushpins (MO).
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the TAI while maintaining a strategic offset so as not to compromise the target under surveillance (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode to support maintaining a strategic offset so as not to compromise the target under surveillance (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in (MO).
Successfully land the AV in NAV mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1115.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1130	0.4	*	B	D	L	1 RQ-11B

Goal: Conduct Mobile Operations from a Moving Vehicle.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Assemble and setup the GCS in mobile configuration.
Plan and load mission information on the RSTA laptop.
On the RSTA laptop, the MO will configure the GCS in "Follow Mode". ("HOME" waypoint slaved to GPS).
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
NAV to Home or enter HOME mode or park the AV at a pre-briefed orbit point while entering vehicle (if not already inside the vehicle).
Track a moving vehicle from a stationary vehicle.
Track a moving vehicle from a moving vehicle.
From the RSTA Laptop, the MO will slave Waypoints / Orbit Points to the Home Point (which is slaved to the GPS). Monitor these Waypoints / Orbit Points as they maintain their preset offset from Home.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

Successfully assemble and setup the GCS in mobile configuration.
Successfully plan and load mission information on the RSTA laptop.
Successfully configure the GCS in "Follow Mode". ("HOME" waypoint slaved to GPS) on the RSTA laptop (MO).
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully NAV to Home or enter HOME mode or park the AV at a pre-briefed orbit point while entering vehicle (if not already inside the vehicle).
Successfully track a moving vehicle from a stationary vehicle.
Successfully track a moving vehicle from a moving vehicle.
Successfully slave Waypoints / Orbit Points to the Home Point (which is slaved to the GPS) by ensuring the slaved Waypoint / Orbit Points maintain their preset offset from Home on the RSTA Laptop (MO).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1115.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1135	0.3	*	B	N	L	1 RQ-11B

Goal: Conduct Night Flight 01.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Assemble and setup the GCS at night.
Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode at night.
Change flight mode when AV is above all obstacles at night.
Track a linear feature at night.
Conduct reconnaissance of a point feature at night.
Use the IR Illuminator at night.
Detect orientation of AV visually using beacons at night.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV at night.
Successfully launch the AV in MAN mode at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully track a linear target at night.
Successfully conduct reconnaissance of a point target at night.
Successfully use the IR Illuminator at night.
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with IR Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1115

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1140 0.3 * B N L 1 RQ-11B

Goal: Conduct Night Flight 02.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:
Assemble and setup the GCS at night.
Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode at night.
Change flight mode when AV is above all obstacles at night.
Use AV Payload to identify a Target Areas of Interest (TAIs) or items of interest at night.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the TAI or item of interest at night.
On the RSTA laptop, the MO will capture images using the SD Image Capture tool at night.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB at night.
On the RSTA laptop, the MO will process imagery from the current mission at night.
Detect orientation of AV visually using beacons at night.
Land the AV from ALT mode by manually initiating AUTOLAND at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:
Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI on the RSTA laptop using the drag and drop feature in order to maintain contact with the TAI or item of interest at night (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool at night (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the FalconView GUI on the RSTA laptop at night (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in at night (MO).
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV from ALT mode by manually initiating AUTOLAND at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with IR Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1135.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1145	0.4	*	B	(N)	L	1 RQ-11B

Goal: Conduct AV Hand-Offs Between Two Ground Control Stations

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

GCS 01 (Stationary Site)

Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02).
Standby in RVT configuration.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe

GCS 02 (Stationary Site or Mobile Site)

Note: This event can be conducted from a either a stationary location or a mobile configuration depending on training area and equipment available.
Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Once AV is airborne connect to AV in RVT configuration.
While in RVT configuration, the MO will pull the flight plan from the AV to the RSTA laptop.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01).
Standby in RVT configuration until AV is landed.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

GCS 01 (Stationary Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensuring that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the system.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT configuration.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration:

GCS 01 (Stationary Site): RQ-11B with EO Payload, IR Payload, or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

GCS 02 (Stationary or Mobile Site): GCS with VO Hand Controller and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1115, RQ11B-1140 (if event conducted at night).

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1150 0.3 * B D L 1 RQ-11B

Goal: Conduct Low Level (LL) flight operations and landing by Single Operator with the aid of an assistant

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

SUAS-O (Student VO)

Discuss with the Single Operator the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.

Launch the AV in MAN mode.
Conduct Low Level (LL) flying in ALT mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Conduct Low Level (LL) flying in MAN mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Conduct a Low-Level VO initiated AUTOLAND between 3’ and 6’ AGL.
Recover the AV and render it safe.
Inspect equipment prior to pack out and note all discrepancies.

Single Operator with assistant (Filling Single Operator with assistant / MO Duties)

Note: The Single Operator can be the instructor (if no other student is available), another student in the course (preferred), or an actual untrained person (if available due to circumstance).
Receive mission brief from SUAS-O.
Secure the launch site.
Transport equipment.
Hold AV for Pre-Flight Checks.
Provide airspace surveillance.
Monitor the RSTA laptop.
Recover equipment.
Pack out and transport equipment.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

SUAS-O (Student VO)

Successfully discuss with the Single Operator the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch AV in MAN mode.

Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Low Level (LL) flying in ALT mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Successfully conduct Low Level (LL) flying in MAN mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Successfully conduct a Low-Level VO initiated AUTOLAND between 3’ and 6’ AGL.
Successfully recover the AV and render it safe.
Successfully inspect equipment prior to pack out and note all discrepancies.

Single Operator with assistant (Filling Single Operator with assistant / MO Duties)

Successfully receive mission brief from SUAS-O.
Successfully secure the launch site.
Successfully transport equipment.
Successfully hold AV for Pre-Flight Checks.
Successfully provide airspace surveillance.
Successfully monitor the RSTA laptop.
Successfully recover equipment.
Successfully pack out and transport equipment.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1145.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1155	0.5	*	B	(N)	L	1 RQ-11B

Goal: Conduct Area / Point / Zone Reconnaissance.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use AV Payload to identify a Target Area of Interest (TAI) or items of interest.
Once a TAI or an item of interest is identified, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target while maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will capture images of the TAI or item of interest using the SD Image Capture and / or the HD Image Capture tools.
On the RSTA laptop, the MO will process imagery from the current mission.
Navigate the AV heads up to bring the AV into the wind to prepare for a High-Level landing to a confined area.
Command the AV to an altitude for High-Level AUTOLAND NLT 800' AGL.
Land the AV by manually initiating AUTOLAND Land within a confined area (20 meters x 20 meters) from High Altitude.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest or a combination of one TAI and one item of interest at night.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target while maintaining a strategic offset so as not to compromise the TAI or an item of interest under surveillance (MO).
Successfully capture four images of the TAI or item of interest using the SD image capture and / or the HD Image capture tools on the RSTA laptop (MO).
Successfully process two imagery items from the current mission on the RSTA laptop (MO).
Successfully navigate the AV heads up to bring the AV into the wind and prepare for a High-Level landing to a confined area.
Successfully command the AV to an altitude for High-Level AUTOLAND NLT 800' AGL.
Successfully manually land the AV within a confined area (20 meters x 20 meters) from High Altitude.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload, IR Payload, or Gimbal Payload, GCS with VO Hand Controller, and MO RSTA laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1120. RQ11B-1140 (if event conducted at night).

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ11B-1199	0.5	*	B	(N)	L	1 RQ-11B

Goal: Conduct Certification Flight on RQ-11B

Requirement: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, the student will:

Conduct full mission brief.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
MO will, Launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Navigate the AV in NAV mode to preprogrammed waypoints and / or orbit points.
Conduct area reconnaissance.
Conduct point reconnaissance.
Use the AV Payload to identify a Target Area of Interest (TAI) or items of interest.
On the RSTA laptop, the MO will capture images of the TAI or item of interest using the SD Image Capture and / or the HD Image Capture tools.
On the RSTA laptop, the MO will process imagery from the current mission.
Respond accurately and precisely to simulated emergency conditions.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-11B DDL, without assistance from the instructor, the student will demonstrate the ability to:

Successfully conduct full mission brief.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control for conduct of flight operations (Call is simulated with the instructor).
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully navigate the AV in NAV mode to four preprogrammed waypoints and / or orbit points.
Successfully conduct area reconnaissance on an area.
Successfully conduct point reconnaissance on a specified item.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.

Successfully capture four images of the TAI or item of interest using the SD image capture and / or the HD Image capture tools on the RSTA laptop (MO).
Successfully process two imagery items from the current mission on the RSTA laptop (MO).
Successfully respond accurately and precisely to four simulated emergency conditions.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe

Instructor. IQT-I

Initial System Condition: AV Disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-11B with EO Payload, IR Payload, or Gimbal Payload, GCS with VO Hand Controller and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ11B-1100, RQ11B-1105, RQ11B-1110, RQ11B-1115, RQ11B-1120, RQ11B-1125, RQ11B-1130, RQ11B-1135, RQ11B-1140, RQ11B-1145, RQ11B-1150, RQ11B-1155.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.2 RQ-12A WASP IV CORE Skill Introduction

Purpose: To provide RQ-12A WASP IV entry-level instruction and develop expertise in the basic operation of the SUAS.

CORE Skill Introduction Overview

RQ-12A WASP IV Academics	
ACAD-1201	Knowledge of specific system description.
ACAD-1202	Knowledge of controls and indicators.
ACAD-1203	Perform system assembly/disassembly.
ACAD-1204	Preflight & Launch
ACAD-1205	Landing & Recovery
ACAD-1206	Preflight, Launch, Landing & Recovery Demo
ACAD-1207	Assembly, Preflight, Launch, and Landing & Recovery
ACAD-1208	Maintenance and Troubleshooting
ACAD-1209	Emergency Procedures
ACAD-1210	Directives and Instructions
ACAD-1211	Prohibited Activities
ACAD-1212	Career Progression and Currency
ACAD-1213	Basic Aerodynamics
ACAD-1214	Advanced Flight
ACAD-1215	Airspace Management
ACAD-1216	Falcon View
ACAD-1217	Mobile Operations
ACAD-1218	Hand Off Procedures

ACAD-1219	Night Operations
ACAD-1220	Single Operator with assistant
ACAD-1221	Incident Reporting
ACAD-1222	Remote Launches
ACAD-1223	Flight Log
ACAD-1224	Relay Operations
ACAD-1225	Falcon Tracker
ACAD-1226	Base Mission Planning
ACAD-1227	Operate range and bearing tool.

CORE INTRODUCTION STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
RQ12-1200	0.3	*	B	D	RQ-12	1	Instructor Demonstration Flight
RQ12-1205	0.5	*	B	D	RQ-12	1	Basic Flight
RQ12-1210	0.4	*	B	D	RQ-12	1	Flight Mode Familiarization and MO Assisted Flight
RQ12-1215	0.4	*	B	D	RQ-12	1	Target Acquisition Flight
RQ12-1220	0.3	*	B	D	RQ-12	1	Alternate Launch and Recovery
RQ12-1225	0.3	*	B	D	RQ-12	1	Target Offset Flight
RQ12-1230	0.5	*	B	D	RQ-12	1	Mobile Operations from a Moving Vehicle
RQ12-1235	0.3	*	B	N	RQ-12	1	Night Flight 01
RQ12-1240	0.3	*	B	N	RQ-12	1	Night Flight 02
RQ12-1245	0.4	*	B	(N)	RQ-12	1	AV Hand-Offs
RQ12-1250	0.3	*	B	D	RQ-12	1	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing
RQ12-1255	0.5	*	B	(N)	RQ-12	1	Area / Point / Zone Reconnaissance Flight
RQ12-1299	0.5	*	B	(N)	RQ-12	1	Certification Flight

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)

4. Applicable Operator's Manual

RQ12-1200	0.3	*	B	D	L	1 RQ-12

Goal: Conduct Instructor Demonstration Flight of the RQ-12A.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will observe the instructor demonstrate:

How to setup the GCS.
How to plan and load mission information on the RSTA laptop.
How to assemble and stage the AV.
How to launch the AV in MAN mode.
How to Change flight mode when AV is above all obstacles.
How to conduct timed turns.
How to conduct box patterns.
How to conduct orbits.
How to conduct teardrop approaches.
How to control the speed of the AV using the dash / hold feature.
How to enter LOIT mode and navigate AV.
How to enter HOME mode.
How to enter NAV mode.
How to conduct practice approaches.
How to land the AV from ALT mode by manually initiating AUTOLAND.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Observe how to properly setup the GCS.
Observe how to properly plan and load mission information on the RSTA laptop.
Observe how to properly assemble and stage the AV.
Observe how to properly launch the AV in MAN mode.
Observe how to properly Change flight mode when AV is above all obstacles.
Observe how to properly conduct timed turns.
Observe how to properly conduct box patterns.
Observe how to properly conduct orbits.
Observe how to properly conduct teardrop approaches.
Observe how to properly control the speed of the AV using the dash / hold feature.
Observe how to properly enter LOIT mode and navigate AV.
Observe how to properly enter HOME mode.
Observe how to properly enter NAV mode.
Observe how to properly conduct practice approaches.
Observe how to properly land the AV from ALT mode by manually initiating AUTOLAND.
Observe how to properly recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12 with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: ACAD Events 1201-1227.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1205 0.5 * B D L 1 RQ-12

Goal: Conduct Basic Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Conduct timed turns.
Conduct box patterns.
Conduct orbits.
Conduct teardrop approaches.
Control the speed of the AV using the dash / hold feature.
Enter LOIT mode and navigate AV.
Enter HOME mode.
Enter NAV mode.
Conduct practice approaches.
Land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully complete at least four timed turns.
Successfully complete at least two box patterns.
Successfully complete at least two orbits.
Successfully complete at least two teardrop approaches.
Successfully control the speed of the AV using the dash / hold feature.
Successfully enter LOIT mode and navigate AV.
Successfully enter HOME mode.
Successfully enter NAV mode.
Successfully complete at least two practice approaches.
Successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1200.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1210	0.4	*	B		D	L	1 RQ-12

Goal: Conduct Flight Mode Familiarization and MO Assisted Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Enter LOIT, HOME, or NAV mode and use all speed submenus (Long, Slow, Far, and Fast).
Enter NAV mode and fly at least one complete orbit of diamond default.
In NAV mode, the VO will redirect AV to specified way points / orbit points.
In NAV mode, maneuver the payload and slave the payload to system waypoints.
In NAV mode, the MO will redirect AV to specified way points / orbit points.
On the RSTA laptop, the MO will change coordinate format from MGRS to LAT / LONG and back to MGRS.
On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode.
On the RSTA laptop, the MO will use Mission Management ToolMission Management Tool to change waypoint / orbit point location and AV orbit at orbit point from clockwise to counterclockwise.
Bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully Enter LOIT, HOME, or NAV mode and cycle through all speed submenus (Long, Slow, Far, and Fast).
Successfully enter NAV mode and fly at least one complete orbit of diamond default.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode.
Successfully maneuver the payload and slave the payload to at least two system waypoints in NAV mode.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode (MO).
Successfully change coordinate format from MGRS to LAT / LONG and back to MGRS on the RSTA laptop (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode (MO).
Successfully use Mission Management ToolMission Management Tool on the RSTA laptop to change waypoint / orbit point location and AV orbit at orbit point from clockwise to counterclockwise (MO).
Successfully bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1205.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1215	0.4	*	B	D	L	1 RQ-12

Goal: Conduct Target Acquisition Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Navigate around target using ALT mode.
Navigate around target using LOIT mode.
Navigate around target using NAV mode.
Using the VO Hand Controller, use the Screen Capture Button to take pictures.
Using the VO Hand Controller, use the range and bearing tool to measure the distance between two objects, two locations, or a combination an object and a location.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the FalconView GUI using the drag and drop feature in order to maintain contact with the target.
On the RSTA laptop, the MO will leapfrog diamond waypoints to allow AV to search and navigate along a linear feature.
On the RSTA laptop, the MO will track stationary and moving targets using the AV Tracker.
On the RSTA laptop, the MO will capture images using the SD Image Capture Tool.
On the RSTA laptop, the MO will capture images using the HD Image Capture Tool.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A. The student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest.
Successfully navigate around target in ALT mode.

Successfully navigate around target in LOIT mode.
Successfully navigate around target in NAV mode.
Successfully use the Screen Capture Button on the VO Hand Controller, to take at least four pictures.
Successfully use the VO Hand Controller to measure the distance between two objects, two locations, or a combination of an object and a location using the Range and Bearing Tool.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the target (MO).
Successfully leapfrog at least five diamond waypoints on the RSTA laptop to allow AV to search and navigate along a linear feature (MO).
Successfully track one stationary target and one moving target on the RSTA laptop using the AV Tracker (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool (MO).
Successfully capture at least two images on the RSTA laptop, using the HD Image Capture Tool (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the Falcon View GUI on the RSTA laptop (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1210.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1220 0.3 * B D L 1 RQ-12

Goal: Conduct Alternate Launch and Recovery Techniques.

Requirement: IAW the references, checklists, ETF, given a functional RQ-12A, and given an appropriate water landing site and/or cargo net, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from a moving vehicle (boat or ground vehicle) with appropriate safety controls implemented to prevent injury and / or equipment damage.
Change flight mode when AV is above all obstacles.
Landing Option 01: Land the AV in a body of water, if able (i.e. if a body of water is available to land the AV in and the recovery of the AV can be done in a safely and timely manner). The landing can be executed from either NAV Mode using the E to L approach (Commanding

AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
Landing Option 02: Land the AV in a cargo net or similar trapping device to limit impact and potential damage to AV, if able (i.e. if a cargo net or similar trapping device is available and able to be set up in the training area in such a manner that it can be used safely and in a timely manner). The landing can be executed from either NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from a moving vehicle (boat or ground vehicle) with appropriate safety controls implemented to prevent injury and / or equipment damage (MO).
Successfully Change flight mode when AV is above all obstacles.
If executing Landing Option 01: Successfully land the AV in a body of water, if able. The landing can be executed from either NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
If executing Landing Option 02: Land the AV in a cargo net or similar trapping device to limit impact and potential damage to AV, if able. The landing can be executed from either NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Any Launch Method.

Prerequisite: RQ12-1215.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1225 0.3 * B D L 1 RQ-12

Goal: Conduct Target Offset Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use AV Payload to identify Target Areas of Interest (TAIs) or items of interest.
On the RSTA laptop, the MO will activate Pushpins to show images captured using the VO Hand Controller, the SD Image Capture, and the HD Image Capture tools.

Using the VO Hand Controller, use the Screen Capture Button to take pictures to create a TAI for the AV to hold on using Pushpins.
On the RSTA laptop, the MO will capture images using the SD Image Capture and the HD Image Capture tools to create a TAI for the AV to hold on using Pushpins.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the TAI while maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode to support maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest.
Successfully activate and use Pushpins on the RSTA laptop, to show images captured using the VO Hand Controller, the SD Image Capture, and the HD Image Capture tools (MO).
Successfully use the Screen Capture Button on the VO Hand Controller, to take at least two pictures (Red Pushpins) to create a TAI for the AV to hold on using Pushpins.
Successfully capture at least one image using the SD Image Capture Tool (Red Pushpin) and capture at least one image using the HD Image Capture Tool (Blue Pushpin) on the RSTA laptop to create a TAI for the AV to hold on using Pushpins (MO).
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the TAI while maintaining a strategic offset so as not to compromise the target under surveillance (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode to support maintaining a strategic offset so as not to compromise the target under surveillance (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in (MO).
Successfully land the AV in NAV mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1215.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL.

Note: Tall obstacles may obstruct LOS during flight.

RQ12-1230	0.5	*	B	D	L	1 RQ-12

Goal: Conduct Mobile Operations from a Moving Vehicle.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS in mobile configuration (vehicle).
Plan and load mission information on the RSTA laptop.
On the RSTA laptop, the MO will configure the GCS in "Follow Mode". ("HOME" waypoint slaved to GPS).
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
NAV to Home or enter HOME mode or park the AV at a pre-briefed orbit point while entering vehicle (if not already inside the vehicle).
Track a moving vehicle from a stationary vehicle.
Track a moving vehicle from a moving vehicle.
From the RSTA Laptop, the MO will slave Waypoints / Orbit Points to the Home Point (which is slaved to the GPS). Monitor these Waypoints / Orbit Points as they maintain their preset offset from Home.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS in mobile configuration (vehicle).
Successfully plan and load mission information on the RSTA laptop.
Successfully configure the GCS in "Follow Mode" ("HOME" waypoint slaved to GPS) on the RSTA laptop (MO).
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully NAV to Home or enter HOME mode or park the AV at a pre-briefed orbit point while entering vehicle (if not already inside the vehicle).
Successfully track a moving vehicle from a stationary vehicle.
Successfully track a moving vehicle from a moving vehicle.
Successfully slave Waypoints / Orbit Points to the Home Point (which is slaved to the GPS) by ensuring the slaved Waypoint / Orbit Points maintain their preset offset from Home on the RSTA Laptop (MO).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1215.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1235 0.3 * B N L 1 RQ-12

Goal: Conduct Night Flight 01.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS at night.
Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode at night.
Change flight mode when AV is above all obstacles at night.
Track a linear feature at night.
Conduct reconnaissance of a point feature at night.
Detect orientation of AV visually using beacons at night.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A. The student will demonstrate the ability to:

Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV at night.
Successfully launch the AV in MAN mode at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully track a linear target at night.
Successfully conduct reconnaissance of a point target at night.
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1215.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1240 0.3 * B N L 1 RQ-12

Goal: Conduct Night Flight 02.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS at night.

Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode at night.
Change flight mode when AV is above all obstacles at night.
Use AV Payload to identify a Target Areas of Interest (TAIs) or items of interest at night.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the FalconView GUI using the drag and drop feature in order to maintain contact with the TAI or item of interest at night.
On the RSTA laptop, the MO will capture images using the SD Image Capture and / or the HD Image Capture tools at night.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB at night.
On the RSTA laptop, the MO will process imagery from the current mission at night.
Detect orientation of AV visually using beacons at night.
Land the AV from ALT mode by manually initiating AUTOLAND at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.
Successfully manipulate waypoints and / or orbit points in the FalconView GUI on the RSTA laptop using the drag and drop feature in order to maintain contact with the TAI or item of interest at night (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool and / or using the HD Image Capture Tool at night (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the Falcon View GUI on the RSTA laptop at night (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in at night (MO).
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV from ALT mode by manually initiating AUTOLAND at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1235.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1245 0.4 * B (N) L 1 RQ-12

Goal: Conduct AV Hand-Offs Between Two Ground Control Stations

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

GCS 01 (Stationary Site)

Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02).
Standby in RVT configuration.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Note: This event can be conducted from a either a stationary location or a mobile configuration depending on training area and equipment available.
Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Once AV is airborne connect to AV in RVT configuration.
While in RVT configuration, the MO will pull the flight plan from the AV to the RSTA laptop.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01).
Standby in RVT configuration until AV is landed.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

GCS 01 (Stationary Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensuring that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the system.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT configuration.

Successfully conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully connect to AV in RVT configuration once AV is airborne.
Successfully pull the flight plan from the AV to the RSTA laptop while in RVT configuration (MO).
Successfully conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01) at the planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01) at the planned hand-off point.
Successfully standby in RVT configuration until AV is landed.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration:

GCS 01 (Stationary Site): RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.
GCS 02 (Stationary or Mobile Site): GCS with VO Hand Controller and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1215, RQ12-1240 (if event conducted at night).

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1250	0.3	*	B	D	L	1 RQ-12

Goal: Conduct Low Level (LL) flight operations and landing by Single Operator with the aid of an assistant.

Requirement. IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

SUAS-O (Student VO)

Discuss with the Single Operator the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
Conduct Low Level (LL) flying in ALT mode beginning at 100' AGL and stepping down to between 20' and 30' AGL.
Conduct a Low-Level VO initiated AUTOLAND between 3' and 6' AGL.
Recover the AV and render it safe.
Inspect equipment prior to pack out and note all discrepancies.

Single Operator w/aid of an assistant (Filling Single Operator with assistant / MO Duties)

Note: The Single Operator with assistant can be the instructor (if no other student is available), another student in the course (preferred), or an actual untrained person (if available due to circumstance).
Receive mission brief from SUAS-O.
Secure the launch site.
Transport equipment.
Hold AV for Pre-Flight Checks.
Provide airspace surveillance.
Launch the AV in MAN mode.
Monitor the RSTA laptop.
Recover equipment.
Pack out and transport equipment.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

SUAS-O (Student VO)

Successfully discuss with the Single Operator the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Low Level (LL) flying in ALT mode beginning at 100' AGL and stepping down to between 20' and 30' AGL.
Successfully recover the AV and render it safe.
Successfully inspect equipment prior to pack out and note all discrepancies.

Single Operator with assistant (Filling Single Operator with assistant / MO Duties)

Successfully receive mission brief from SUAS-O.
Successfully secure the launch site.
Successfully transport equipment.
Successfully hold AV for Pre-Flight Checks.
Successfully provide airspace surveillance.
Successfully launch AV in MAN mode.
Successfully monitor the RSTA laptop.
Successfully recover equipment.
Successfully pack out and transport equipment.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1215.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1255 0.5 * B (N) L 1 RQ-12

Goal: Conduct Area / Point / Zone Reconnaissance.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, Launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use AV Payload to identify a Target Area of Interest (TAI) or items of interest.
Once a TAI or an item of interest is identified, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target while maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will capture images of the TAI or item of interest using the SD Image Capture and / or the HD Image Capture tools.
On the RSTA laptop, the MO will extract imagery with metadata from the current mission.
Navigate the AV heads up to bring the AV into the wind to prepare for a High-Level landing to a confined area.
Command the AV to an altitude for High-Level AUTOLAND NLT 800’ AGL.
Land the AV by manually initiating AUTOLAND Land within a confined area (20 meters x 20 meters) from High Altitude.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest or a combination of one TAI and one item of interest.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target while maintaining a strategic offset so as not to compromise the TAI or an item of interest under surveillance (MO).
Successfully capture four images of the TAI or item of interest using the SD image capture and / or the HD Image capture tools on the RSTA laptop (MO).
Successfully extract two images with metadatafrom the current mission on the RSTA laptop (MO).
Successfully navigate the AV heads up to bring the AV into the wind and prepare for a High-Level landing to a confined area.
Successfully command the AV to an altitude for High-Level AUTOLAND NLT 800’ AGL.

Successfully manually land the AV by within a confined area (20 meters x 20 meters) from High Altitude.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1220. RQ12-1240 (if event conducted at night).

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ12-1299 0.5 * B (N) L 1 RQ-12

Goal: Conduct Certification Flight on RQ-12A

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:
Conduct full mission brief.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Navigate the AV in NAV mode to preprogrammed waypoints and / or orbit points.
Conduct area reconnaissance.
Conduct point reconnaissance.
Use the AV Payload to identify a Target Area of Interest (TAI) or items of interest.
On the RSTA laptop, the MO will capture images of the TAI or item of interest using the SD Image Capture and / or the HD Image Capture tools.
On the RSTA laptop, the MO will process imagery from the current mission.
Respond accurately and precisely to simulated emergency conditions.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, without assistance from the instructor, the student will demonstrate the ability to:
Successfully conduct full mission brief.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control for conduct of flight operations (Call is simulated with the instructor).
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully navigate the AV in NAV mode to four preprogrammed waypoints and / or orbit points.
Successfully conduct area reconnaissance on an area.

Successfully conduct point reconnaissance on a specified item.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.
Successfully capture four images of the TAI or item of interest using the SD image capture and / or the HD Image capture tools on the RSTA laptop (MO).
Successfully process two imagery items from the current mission on the RSTA laptop (MO).
Successfully respond accurately and precisely to four simulated emergency conditions.
Successfully use Land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV Disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ12-1200, RQ12-1205, RQ12-1210, RQ12-1215, RQ12-1220, RQ12-1225, RQ12-1230, RQ12-1235, RQ12-1240, RQ12-1245, RQ12-1250, RQ12-1255.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.3 RQ-20 Puma CORE Skill Introduction

Purpose: To provide RQ-20 Puma entry-level instruction and develop expertise in the basic operation of the SUAS.

CORE Skill Introduction Overview

RQ-20 Puma Academics	
ACAD-1300	Knowledge of specific system description.
ACAD-1301	Knowledge of controls and indicators.
ACAD-1302	Perform system assembly/disassembly.
ACAD-1303	Preflight & Launch
ACAD-1304	Landing & Recovery
ACAD-1305	Preflight, Launch, Landing & Recovery Demo
ACAD-1306	Assembly, Preflight, Launch, and Landing & Recovery
ACAD-1307	Maintenance and Troubleshooting
ACAD-1308	Emergency Procedures
ACAD-1309	Directives and Instructions
ACAD-1310	Prohibited Activities
ACAD-1311	Career Progression and Currency
ACAD-1312	Basic Aerodynamics
ACAD-1313	Advanced Flight
ACAD-1314	Airspace Management
ACAD-1315	Falcon View

ACAD-1316	Mobile Operations
ACAD-1316	Hand Off Procedures
ACAD-1318	Night Operations
ACAD-1319	Single Operator with assistant
ACAD-1320	Incident Reporting
ACAD-1321	Remote Launches
ACAD-1322	Flight Log
ACAD-1323	Relay Operations
ACAD-1324	Falcon Tracker
ACAD-1325	Base Mission Planning
ACAD-1326	Operate range and bearing tool.

CORE INTRODUCTION STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
RQ20-1300	0.3	*	B	D	RQ-20	1	Instructor Demonstration Flight
RQ20-1305	0.5	*	B	D	RQ-20	1	Basic Flight
RQ20-1310	0.4	*	B	D	RQ-20	1	Flight Mode Familiarization and MO Assisted Flight
RQ20-1315	0.4	*	B	D	RQ-20	1	Target Acquisition Flight
RQ20-1320	0.3	*	B	D	RQ-20	1	Alternate Launch and Recovery
RQ20-1325	0.3	*	B	D	RQ-20	1	Target Offset Flight
RQ20-1330	0.5	*	B	D	RQ-20	1	Mobile Operations from a Moving Vehicle
RQ20-1335	0.3	*	B	N	RQ-20	1	Night Flight 01
RQ20-1340	0.3	*	B	N	RQ-20	1	Night Flight 02
RQ20-1345	0.4	*	B	(N)	RQ-20	1	AV Hand-Offs
RQ20-1350	0.3	*	B	D	RQ-20	1	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing
RQ20-1355	0.5	*	B	(N)	RQ-20	1	Area / Point / Zone Reconnaissance Flight
RQ20-1399	0.5	*	B	(N)	RQ-20	1	Certification Flight

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)

3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

RQ20-1300 0.3 * B D L 1 RQ-20

Goal: Conduct Instructor Demonstration Flight of the RQ-20.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will observe the instructor demonstrate:

How to setup the GCS.
How to plan and load mission information on the RSTA laptop.
How to assemble and stage the AV.
How to launch the AV in MAN mode.
How to Change flight mode when AV is above all obstacles.
How to conduct timed turns.
How to conduct box patterns.
How to conduct orbits.
How to conduct teardrop approaches.
How to control the speed of the AV using the dash / hold feature.
How to enter LOIT mode and navigate AV.
How to enter HOME mode.
How to enter NAV mode.
How to conduct practice approaches.
How to land the AV from ALT mode by manually initiating AUTOLAND.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Observe how to properly setup the GCS.
Observe how to properly plan and load mission information on the RSTA laptop.
Observe how to properly assemble and stage the AV.
Observe how to properly launch the AV in MAN mode.
Observe how to properly Change flight mode when AV is above all obstacles.
Observe how to properly conduct timed turns.
Observe how to properly conduct box patterns.
Observe how to properly conduct orbits.
Observe how to properly conduct teardrop approaches.
Observe how to properly control the speed of the AV using the dash / hold feature.
Observe how to properly enter LOIT mode and navigate AV.
Observe how to properly enter HOME mode.
Observe how to properly enter NAV mode.
Observe how to properly conduct practice approaches.
Observe how to properly land the AV from ALT mode by manually initiating AUTOLAND.
Observe how to properly recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: ACAD Events 1301-1326.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1305	0.5	*	B	D	L	1 RQ-20

Goal: Conduct Basic Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Conduct timed turns.
Conduct box patterns.
Conduct orbits.
Conduct teardrop approaches.
Control the speed of the AV using the dash / hold feature.
Enter LOIT mode and navigate AV.
Enter HOME mode.
Enter NAV mode.
Conduct practice approaches.
Land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully complete at least four timed turns.
Successfully complete at least two box patterns.
Successfully complete at least two orbits.
Successfully complete at least two teardrop approaches.
Successfully control the speed of the AV using the dash / hold feature.
Successfully enter LOIT mode and navigate AV.
Successfully enter HOME mode.
Successfully enter NAV mode.
Successfully complete at least two practice approaches.
Successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Hand Launch.

Prerequisite: RQ20-1300.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1310 0.4 * B D L 1 RQ-20

Goal: Conduct Flight Mode Familiarization and MO Assisted Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from the launcher.
Change flight mode when AV is above all obstacles.
Enter LOIT, HOME, or NAV mode and use all speed submenus (Long, Slow, Far, and Fast).
Enter NAV mode and fly at least one complete orbit of diamond default.
In NAV mode, the VO will redirect AV to specified way points / orbit points.
In NAV mode, maneuver the payload and slave the payload to system waypoints.
In NAV mode, the MO will redirect AV to specified way points / orbit points.
On the RSTA laptop, the MO will change coordinate format from MGRS to LAT / LONG and back to MGRS.
On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode.
On the RSTA laptop, the MO will use Mission Management Tool to change waypoint / orbit point location and AV orbit at orbit point from clockwise to counterclockwise.
Bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from the launcher (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully Enter LOIT, HOME, or NAV mode and cycle through all speed submenus (Long, Slow, Far, and Fast).
Successfully enter NAV mode and fly at least one complete orbit of diamond default.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode.
Successfully maneuver the payload and slave the payload to at least two system waypoints in NAV mode.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode (MO).
Successfully change coordinate format from MGRS to LAT / LONG and back to MGRS on the RSTA laptop (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode (MO).
Successfully use Mission Management Tool on the RSTA laptop to change waypoint / orbit point location and AV orbit at orbit point from clockwise to counterclockwise (MO).
Successfully bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher.

Prerequisite: RQ20-1305.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1315 0.4 * B D L 1 RQ-20

Goal: Conduct Target Acquisition Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from the launcher.
Change flight mode when AV is above all obstacles.
Use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Navigate around target using ALT mode.
Navigate around target using LOIT mode.
Navigate around target using NAV mode.
Using the VO Hand Controller, use the Screen Capture Button to take pictures.
Using the VO Hand Controller, use the range and bearing tool to measure the distance between two objects, two locations, or a combination an object and a location.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target.
On the RSTA laptop, the MO will leapfrog diamond waypoints to allow AV to search and navigate along a linear feature.
On the RSTA laptop, the MO will track stationary and moving targets using the AV Tracker.
On the RSTA laptop, the MO will capture images using the SD Image Capture Tool.
On the RSTA laptop, the MO will capture images using the HD Image Capture Tool.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from the launcher (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest.
Successfully navigate around target in ALT mode.
Successfully navigate around target in LOIT mode.
Successfully navigate around target in NAV mode.
Successfully use the Screen Capture Button on the VO Hand Controller, to take at least four pictures.

Successfully use the VO Hand Controller to measure the distance between two objects, two locations, or a combination of an object and a location using the Range and Bearing Tool.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the target (MO).
Successfully leapfrog at least five diamond waypoints on the RSTA laptop to allow AV to search and navigate along a linear feature (MO).
Successfully track one stationary target and one moving target on the RSTA laptop using the AV Tracker (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool (MO).
Successfully capture at least two images on the RSTA laptop, using the HD Image Capture Tool (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the FalconView GUI on the RSTA laptop (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher.

Prerequisite: RQ20-1310.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1320	0.3	*	B	D	L	1 RQ-20

Goal: Conduct Alternate Launch and Recovery Techniques

Requirement: IAW the references, checklists, ETF, given a functional RQ-20, and given an appropriate water landing site and/or cargo net, the student will

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from a moving vehicle (boat or ground vehicle) with appropriate safety controls implemented to prevent injury and / or equipment damage.
Change flight mode when AV is above all obstacles.
Landing Option 01: Land the AV in a body of water, if able (i.e. if a body of water is available to land the AV in and the recovery of the AV can be done in a safely and timely manner). The landing can be executed from either NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
Landing Option 02: Land the AV in a cargo net or similar trapping device to limit impact and potential damage to AV, if able (i.e. if a cargo net or similar trapping device is available and able to be set up in the training area in such a manner that it can be used safely and in a timely manner). The landing can be executed from either NAV Mode using the E to L approach (Commanding

AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from a moving vehicle (boat or ground vehicle) with appropriate safety controls implemented to prevent injury and / or equipment damage (MO).
Successfully Change flight mode when AV is above all obstacles.
If executing Landing Option 01: Successfully land the AV in a body of water, if able. The landing can be executed from either NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
If executing Landing Option 02: Land the AV in a cargo net or similar trapping device to limit impact and potential damage to AV, if able. The landing can be executed from either NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller and MO RSTA Laptop with FalconView.

Launch Method: Any launch method.

Prerequisite: RQ20-1315.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1325	0.3	*	B		D	L	1 RQ-20

Goal: Conduct Target Offset Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from the launcher or mobile launch.
Change flight mode when AV is above all obstacles.
Use AV Payload to identify Target Areas of Interest (TAIs) or items of interest.
On the RSTA laptop, the MO will activate Pushpins to show images captured using the VO Hand Controller, the SD Image Capture, and the HD Image Capture tools.
Using the VO Hand Controller, use the Screen Capture Button to take pictures to create a TAI for the AV to hold on using Pushpins.
On the RSTA laptop, the MO will capture images using the SD Image Capture and the HD Image Capture tools to create a TAI for the AV to hold on using Pushpins.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the FalconView GUI using the drag and drop feature in order to maintain contact with the TAI while maintaining a strategic offset so as not to compromise the target under surveillance.

On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode to support maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from the launcher or mobile launch (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest.
Successfully activate and use Pushpins on the RSTA laptop, to show images captured using the VO Hand Controller, the SD Image Capture, and the HD Image Capture tools (MO).
Successfully use the Screen Capture Button on the VO Hand Controller, to take at least two pictures (Red Pushpins) to create a TAI for the AV to hold on using Pushpins.
Successfully capture at least one image using the SD Image Capture Tool (Red Pushpin) and capture at least one image using the HD Image Capture Tool (Blue Pushpin) on the RSTA laptop to create a TAI for the AV to hold on using Pushpins (MO).
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the TAI while maintaining a strategic offset so as not to compromise the target under surveillance (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode to support maintaining a strategic offset so as not to compromise the target under surveillance (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in (MO).
Successfully land the AV in NAV mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1320.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1330	0.5	*	B	D	L	1 RQ-20

Goal: Conduct Mobile Operations from a Moving Vehicle.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Assemble and setup the GCS in mobile configuration (vehicle).
Plan and load mission information on the RSTA laptop.
On the RSTA laptop, the MO will configure the GCS in "Follow Mode". ("HOME" waypoint slaved to GPS).
Assemble and stage the AV.
MO will, launch the AV in MAN mode from the launcher or mobile launch.
Change flight mode when AV is above all obstacles.
NAV to Home or enter HOME mode or park the AV at a pre-briefed orbit point while entering vehicle (if not already inside the vehicle).
Track a moving vehicle from a stationary vehicle (manual/AV Tracker).
Track a moving vehicle from a moving vehicle (manual/AV Tracker).
From the RSTA Laptop, the MO will slave Waypoints / Orbit Points to the Home Point (which is slaved to the GPS). Monitor these Waypoints / Orbit Points as they maintain their preset offset from Home.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS in mobile configuration (vehicle).
Successfully plan and load mission information on the RSTA laptop.
Successfully configure the GCS in "Follow Mode". ("HOME" waypoint slaved to GPS) on the RSTA laptop (MO).
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from the launcher or mobile launch (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully NAV to Home or enter HOME mode or park the AV at a pre-briefed orbit point while entering vehicle (if not already inside the vehicle).
Successfully track a moving vehicle from a stationary vehicle (manual/AV Tracker).
Successfully track a moving vehicle from a moving vehicle (manual/AV Tracker).
Successfully slave Waypoints / Orbit Points to the Home Point (which is slaved to the GPS) by ensuring the slaved Waypoint / Orbit Points maintain their preset offset from Home on the RSTA Laptop (MO).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1320.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1335	0.3	*	B		N	L	1 RQ-20

Goal: Conduct Night Flight 01.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:
Assemble and setup the GCS at night.
Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode at night.
Change flight mode when AV is above all obstacles at night.
Track a linear feature at night.
Conduct reconnaissance of a point feature at night.
Use the IR Illuminator at night.
Detect orientation of AV visually using beacons at night.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:
Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV at night.
Successfully launch the AV in MAN mode from the launcher or mobile at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully track a linear target at night.
Successfully conduct reconnaissance of a point target at night.
Successfully use the IR Illuminator at night.
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1320.

Range Training Area. Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1340	0.3	*	B	N	L	1 RQ-20

Goal: Conduct Night Flight 02.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:
Assemble and setup the GCS at night.
Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode from the launcher or mobile launch at night.
Change flight mode when AV is above all obstacles at night.
Use AV Payload to identify a Target Areas of Interest (TAIs) or items of interest at night.

On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the FalconView GUI using the drag and drop feature in order to maintain contact with the TAI or item of interest at night.
On the RSTA laptop, the MO will capture images using the SD Image Capture and / or the HD Image Capture tools at night.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB at night.
On the RSTA laptop, the MO will process imagery from the current mission at night.
Detect orientation of AV visually using beacons at night.
Land the AV from ALT mode by manually initiating AUTOLAND at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from the launcher or mobile launch at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI on the RSTA laptop using the drag and drop feature in order to maintain contact with the TAI or item of interest at night (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool and / or using the HD Image Capture Tool at night (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the Falcon View GUI on the RSTA laptop at night (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in at night (MO).
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV from ALT mode by manually initiating AUTOLAND at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1335

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1345 0.4 * B (N) L 1 RQ-20

Goal: Conduct AV Hand-Offs Between Two Ground Control Stations

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

GCS 01 (Stationary Site)

Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.

Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from the launcher or mobile launch.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02).
Standby in RVT configuration.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Note: This event can be conducted from a either a stationary location or a mobile configuration depending on training area and equipment available.
Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Once AV is airborne connect to AV in RVT configuration.
While in RVT configuration, the MO will pull the flight plan from the AV to the RSTA laptop.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01).
Standby in RVT configuration until AV is landed.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

GCS 01 (Stationary Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensuring that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the system.
Successfully launch the AV in MAN mode from the launcher or mobile launch (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT configuration.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.

Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully connect to AV in RVT configuration once AV is airborne.
Successfully pull the flight plan from the AV to the RSTA laptop while in RVT configuration (MO).
Successfully conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01) at the planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01) at the planned hand-off point.
Successfully standby in RVT configuration until AV is landed.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration:

GCS 01 (Stationary Site): RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.
GCS 02 (Stationary or Mobile Site): GCS with VO Hand Controller and MO RSTA Laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1320, RQ20-1340 (if event conducted at night).

Range Training Area. Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

RQ20-1350 0.3 * B D L 1 RQ-20

Goal: Conduct Low Level (LL) flight operations and landing by Single Operator with the aid of an assistant.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

SUAS-O (Student VO)

Discuss with the Single Operator the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.

Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
Conduct Low Level (LL) flying in ALT mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Conduct Low Level (LL) flying in MAN mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Conduct a Low-Level VO initiated AUTOLAND between 3’ and 6’ AGL.
Recover the AV and render it safe.
Inspect equipment prior to pack out and not all discrepancies.

Single Operator w/aid of an assistant (Filling Single Operator with assistant / MO Duties)

Note: The Single Operator with assistant can be the instructor (if no other student is available), another student in the course (preferred), or an actual untrained person (if available due to circumstance).
Receive mission brief from SUAS-O.
Secure the launch site.
Transport equipment.
Hold AV for Pre-Flight Checks.
Provide airspace surveillance.
Launch the AV in MAN mode from the launcher or mobile launch.
Monitor the RSTA laptop.
Recover equipment.
Pack out and transport equipment.

Performance Standard IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

SUAS-O (Student VO)

Discuss with the Single Operator the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Low Level (LL) flying in ALT mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Successfully conduct Low Level (LL) flying in MAN mode beginning at 100’ AGL and stepping down to between 20’ and 30’ AGL.
Successfully conduct a Low-Level VO initiated AUTOLAND between 3’ and 6’ AGL.
Successfully recover the AV and render it safe.
Successfully inspect equipment prior to pack out and not all discrepancies.

Single Operator with assistant (Filling Single Operator with assistant / MO Duties)

Successfully receive mission brief from SUAS-O.
Successfully secure the launch site.
Successfully transport equipment.
Successfully hold AV for Pre-Flight Checks.
Successfully provide airspace surveillance.
Successfully launch AV in MAN mode from the launcher or mobile launch.
Successfully monitor the RSTA laptop.
Successfully recover equipment.
Successfully pack out and transport equipment.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1310.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight

RQ20-1355	0.5	*	B	(N)	L	1 RQ-20

Goal: Conduct Area / Point / Zone Reconnaissance.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode from the launcher or mobile launch.
Change flight mode when AV is above all obstacles.
Use AV Payload to identify a Target Area of Interest (TAI) or items of interest.
Once a TAI or an item of interest is identified, the MO will manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target while maintaining a strategic offset so as not to compromise the target under surveillance.
On the RSTA laptop, the MO will capture images of the TAI or item of interest using the SD Image Capture and / or the HD Image Capture tools.
On the RSTA laptop, the MO will process imagery from the current mission.
Navigate the AV heads up to bring the AV into the wind to prepare for a High-Level landing to a confined area.
Command the AV to an altitude for High-Level AUTOLAND NLT 800’ AGL.
Land the AV by manually initiating AUTOLAND Land within a confined area (20 meters x 20 meters) from High Altitude.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-20, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode from the launcher or mobile launch (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature in order to maintain contact with the target while maintaining a strategic offset so as not to compromise the TAI or an item of interest under surveillance (MO).
Successfully capture four images of the TAI or item of interest using the SD image capture and / or the HD Image capture tools on the RSTA laptop (MO).
Successfully process two imagery items from the current mission on the RSTA laptop (MO).
Successfully navigate the AV heads up to bring the AV into the wind and prepare for a High-Level landing to a confined area.
Successfully command the AV to an altitude for High-Level AUTOLAND NLT 800’ AGL.
Successfully manually land the AV by within a confined area (20 meters x 20 meters) from High Altitude.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA laptop with FalconView.

Launch Method: Launcher or Mobile Launch.

Prerequisite: RQ20-1325. RQ20-1340 (if event conducted at night).

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight

RQ20-1399	0.5	*	B	(N)	L	1 RQ-20

Goal: Conduct Certification Flight on RQ-20.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-20, the student will:

Conduct full mission brief.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
MO will, launch the AV in MAN mode from the launcher or mobile launch.
Change flight mode when AV is above all obstacles.
Navigate the AV in NAV mode to preprogrammed waypoints and / or orbit points.
Conduct area reconnaissance.
Conduct point reconnaissance.
Use the AV Payload to identify a Target Area of Interest (TAI) or items of interest.
On the RSTA laptop, the MO will capture images of the TAI or item of interest using the SD Image Capture and / or the HD Image Capture tools.
On the RSTA laptop, the MO will process imagery from the current mission.
Respond accurately and precisely to simulated emergency conditions.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe

Performance Standard. IAW the references, checklists, ETF, and given a functional RQ-20, without assistance from the instructor, the student will demonstrate the ability to:

Successfully conduct full mission brief.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control for conduct of flight operations (Call is simulated with the instructor).
Successfully launch the AV in MAN mode from the launcher or mobile launch (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully navigate the AV in NAV mode to four preprogrammed waypoints and/or orbit points.
Successfully conduct area reconnaissance on an area.
Successfully conduct point reconnaissance on a specified item.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest at night.
Successfully capture four images of the TAI or item of interest using the SD image capture and / or the HD Image capture tools on the RSTA laptop (MO).
Successfully process two imagery items from the current mission on the RSTA laptop (MO).

Successfully respond accurately and precisely to four simulated emergency conditions.
Successfully use Land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV Disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-20 with I-25 Gimbal Payload or I-45 Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: Launcher or Mobile Launch

Prerequisite: RQ20-1300, RQ20-1305, RQ20-1310, RQ20-1315, RQ20-1320, RQ20-1325, RQ20-1330, RQ20-1335, RQ20-1340, RQ20-1345, RQ20-1350, RQ20-1355.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.4 NANO VTOL (PD-100/200) CORE Skill Introduction

Purpose: To provide NANO VTOL (PD-100/200) entry-level instruction and develop expertise in the basic operation of the SUAS.

CORE Skill Introduction Overview

NVTOL PD	
ACAD-1401	Directives and Instructions
ACAD-1402	Personnel Designation
ACAD-1403	Basic Aerodynamics
ACAD-1404	Prohibited Activities
ACAD-1405	Airspace Management
ACAD-1406	System Description
ACAD-1407	Controls and Indicators
ACAD-1408	Setup, Preflight, Launch, and Landing
ACAD-1409	Postflight Maintenance and Troubleshooting
ACAD-1410	Mission Planning
ACAD-1411	Flight Log
ACAD-1412	Incident Reporting
ACAD-1413	Emergency Procedures

CORE INTRODUCTION STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
NVTL -1400	0.3	*	B	D	NVTOL PD	1	Instructor Demonstration Flight

NVTL -1405	0.2	*	B	D	NVTOL PD	1	Basic Heads Up Flight.
NVTL-1410	0.2	*	B	D	NVTOL PD	1	Basic Heads Down Flight
NVTL -1415	0.3	*	B	D	NVTOL PD	1	Basic Reconnaissance Mission
NVTL -1420	0.3	*	B	D	NVTOL PD	1	Basic Reconnaissance Mission Using Waypoints
NVTL -1425	0.3	*	B	D	NVTOL PD	1	Advanced Flight Operations
NVTL -1430	0.3	*	B	D	NVTOL PD	1	Precision Flight Operations
NVTL-1435	0.3	*	B	N	NVTOL PD	1	Night Flight
NVTL-1440	0.3	*	B	(N)	NVTOL PD	1	Indoor Flight
NVTL -1499	0.3	*	B	(N)	NVTOL PD	1	Certification Flight

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

NVTL-1400 0.3 * B D L 1 NVTOL PD

Goal: Conduct Instructor Demonstration Flight of the NANO VTOL SUAS.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will observe the instructor demonstrate:

How to setup the system.
How to utilize the Base Station, the Hand Controller, and Display Unit functions.
How to utilize system modes.
How to utilize Mission Management Tool.
How to select and activate an AV.
How to launch the AV.
How to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
How to conduct box patterns utilizing momentary control input (press and hold).
How to conduct box patterns utilizing continuous action input (short click controls).
How to conduct box patterns utilizing both momentary control and continuous action inputs.
How to enter Navigation mode and fly to a programmed waypoint.
How to bring the AV to home using manual controls.
How to land the AV by bringing it to the ground in manual control.
How to utilize the Kill Function to end flight.
How to recover the AV and render it safe.
How to end the mission on the Base Station.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Observe how to properly setup the system.
Observe how to properly utilize the Base Station, the Hand Controller, Display Unit functions.

Observe how to properly utilize system modes.
Observe how to properly utilize Mission Management Tool.
Observe how to select and activate an AV.
Observe how to properly launch the AV.
Observe how to properly conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
Observe how to properly conduct box patterns utilizing momentary control input (press and hold).
Observe how to properly conduct box patterns utilizing continuous action input (short click controls).
Observe how to properly conduct box patterns utilizing both momentary control and continuous action inputs.
Observe how to properly enter Navigation mode and fly to a programmed waypoint.
Observe how to properly bring the AV to home using manual controls.
Observe how to properly land the AV by bringing it to the ground in manual control.
Observe how to properly utilize the Kill Function to end flight.
Observe how to properly recover the AV and render it safe.
Observe how to properly end the mission on the Base Station.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: ACAD Events 1401-1413.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1405 0.2 * B D L 1 NVTOL PD

Goal: Conduct Basic Heads Up Flight.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Setup the system.
Select and activate an AV.
Conduct preflight actions to prepare for launch.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads up.
Conduct box patterns utilizing momentary control input (press and hold) while heads up.
Conduct box patterns utilizing continuous action input (short click controls) while heads up.
Conduct box patterns utilizing both momentary control and continuous action inputs while heads up.
Climb the AV until the VO is unable to hear / see the AV (take into consideration the environmental conditions).
Bring the AV to home using manual controls.
Land the AV by bringing it to the ground in manual control.
Utilize the Kill Function to end flight.
Recover the AV and render it safe.
End the mission on the Base Station.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system.

Successfully select and activate an AV.
Successfully conduct preflight actions to prepare for launch.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads up.
Successfully complete one box pattern utilizing momentary control input (press and hold) while heads up.
Successfully complete one box pattern utilizing continuous action input (short click controls) while heads up.
Successfully complete one box pattern utilizing both momentary control and continuous action inputs while heads up.
Successfully climb the AV until the VO is unable to hear / see the AV (take into consideration the environmental conditions).
Successfully bring the AV to home using manual controls.
Successfully land the AV by bringing it to the ground in manual control.
Successfully utilize the Kill Function to end flight.
Successfully recover the AV and render it safe.
Successfully end the mission on the Base Station.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1400.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight

NVTL-1410	0.2	*	B	D	L	1 NVTOL PD

Goal: Conduct Basic Heads Down Flight.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:
Setup the system.
Select and activate an AV.
Conduct preflight actions to prepare for launch.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads down.
Conduct box patterns utilizing momentary control input (press and hold) while heads down.
Conduct box patterns utilizing continuous action input (short click controls) while heads down.
Conduct box patterns utilizing both momentary control and continuous action inputs while heads down.
Utilize the payload to change look angles and zoom levels to assist in navigation.
Bring the AV to a safe location at least 10 meters from home using manual controls.
Land the AV at the safe location at least 10 meters from home by bringing it to the ground in manual control.
Utilize the Kill Function to end flight.
Utilize the GUI to navigate to the AV.
Utilize the Beep UAV function to locate the AV.
Utilize the Blink UAV function to locate the AV.
Recover the AV and render it safe.

End the mission on the Base Station.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system.
Successfully select and activate an AV.
Successfully conduct preflight actions to prepare for launch.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads down.
Successfully complete one box pattern utilizing momentary control input (press and hold) while heads down.
Successfully complete one box pattern utilizing continuous action input (short click controls) while heads down.
Successfully complete one box pattern utilizing both momentary control and continuous action inputs while heads down.
Successfully utilize the payload to change look angles and zoom levels to assist in navigation.
Successfully bring the AV to a safe location at least 10 meters from home using manual controls.
Successfully land the AV at the safe location at least 10 meters from home by bringing it to the ground in manual control.
Successfully utilize the Kill Function to end flight.
Successfully utilize the GUI to navigate to the AV.
Successfully utilize the Beep UAV function to locate the AV.
Successfully utilize the Blink UAV function to locate the AV.
Successfully recover the AV and render it safe.
Successfully end the mission on the Base Station.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1405.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1415 0.3 * B D L 1 NVTOL PD

Goal: Conduct Basic Reconnaissance Mission.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Setup the system.
Select and activate an AV.
Conduct preflight actions to prepare for launch.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Gain familiarization with the menus.
Navigate heads down to an item / target.
Conduct a thorough reconnaissance of the item / target by inspecting all sides and aspects of item / target using all cameras.
Take snapshots of the item / target and review them real time.
Create a waypoint in flight.

Displace from the waypoint and use navigation mode to return to it.
Bring the AV to home using navigation mode.
Recover AV using air grab.
Utilize the Kill Function to end flight.
Render the AV Safe.
End the mission on the Base Station.
Review the video and the snapshots from mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system.
Successfully select and activate an AV.
Successfully conduct preflight actions to prepare for launch.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully gain familiarization with the menus.
Successfully navigate heads down to one item / target specified by the Instructor.
Successfully conduct a thorough reconnaissance of the item / target by inspecting all sides and aspects of item / target using all cameras.
Successfully take two snapshots of the item / target and review them real time.
Successfully create one waypoint in flight.
Successfully displace from the waypoint and use navigation mode to return to it.
Successfully bring the AV to home using navigation mode.
Successfully recover AV using air grab.
Successfully utilize the Kill Function to end flight.
Successfully render the AV Safe.
Successfully end the mission on the Base Station.
Successfully review the video and the snapshots from mission.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1410.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1420 0.3 * B D L 1 NVTOL PD

Goal: Conduct Basic Reconnaissance Mission Using Waypoints.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Setup the system.
Create a new Mission Plan, using a map / image of the objective area and a compass and / or GPS. The mission should have a minimum of three waypoints in the Mission Plan with each waypoint utilizing a different waypoint action.
Edit at least one waypoint in the Mission Plan after the mission plan is created.
Select and activate an AV.
Conduct preflight actions to prepare for launch.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Select appropriate Mission Plan and use waypoints to conduct the preplanned reconnaissance mission.
Take snapshots of items / targets at the waypoints and review them real time.

Utilize the Return Home and Land function, ensuring the AV is clear of all obstacles en route.
Utilize the Kill Function to end flight
Recover the AV and render it safe.
End the mission on the Base Station.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system.
Successfully create one Mission Plan, using a map / image of the objective area and a compass and / or GPS. The mission should have at least three waypoints in the Mission Plan. Each waypoint will utilizing a different waypoint action.
Successfully edit at least one waypoint in the Mission Plan after the mission plan is created.
Successfully select and activate an AV.
Successfully conduct preflight actions to prepare for launch.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully select appropriate Mission Plan and use waypoints to conduct the preplanned reconnaissance mission.
Successfully take at least one snapshot of an item / target at each waypoints and review the snapshot in real time.
Successfully utilize the Return Home and Land function, ensuring the AV is clear of all obstacles en route.
Successfully utilize the Kill Function to end flight
Successfully recover the AV and render it safe.
Successfully end the mission on the Base Station.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1415.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1425 0.3 * B D L 1 NVTOL PD

Goal: Conduct Advanced Flight Operations.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Setup the system.
Select and activate an AV.
Conduct preflight actions to prepare for launch.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Navigate heads down to an item / target and stage the AV in a horizontally close position.
Conduct a thorough close range reconnaissance of the horizontally close item / target.
Navigate heads down to an item / target and stage the AV in a vertically close position.
Conduct a thorough close range reconnaissance of the vertically close item / target.
Create a waypoint in flight utilizing waypoint actions to ensure target offset from the current AV location.
Displace from the waypoint and use navigation mode to return to it and observe the waypoint action.
Bring the AV to a safe location using manual controls.
Land the AV at the safe location by bringing it to the ground in manual control.

Utilize the Kill Function to end flight.
The Instructor will pick up the AV and move it at least 10 meters from its last location without the VO's knowledge of the new location.
Utilize the GUI to navigate to the AV.
Utilize the Beep UAV function to locate the AV.
Utilize the Blink UAV function to locate the AV.
Recover the AV and render it safe.
End the mission on the Base Station.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system.
Successfully select and activate an AV.
Successfully conduct preflight actions to prepare for launch.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully navigate heads down to an item / target and stage the AV in a horizontally close position.
Successfully conduct a thorough close range reconnaissance of the horizontally close item / target.
Successfully navigate heads down to an item / target and stage the AV in a vertically close position.
Successfully conduct a thorough close range reconnaissance of the vertically close item / target.
Successfully create a waypoint in flight utilizing waypoint actions to ensure target offset from the current AV location.
Successfully displace from the waypoint and use navigation mode to return to it and observe the waypoint action.
Successfully bring the AV to a safe location using manual controls.
Successfully land the AV at the safe by bringing it to the ground in manual control.
Successfully utilize the Kill Function to end flight.
Successfully allow the Instructor to pick up the AV and move it at least 10 meters from its last location without the VO's knowledge of the new location.
Successfully utilize the GUI to navigate to the AV.
Successfully utilize the Beep UAV function to locate the AV.
Successfully utilize the Blink UAV function to locate the AV.
Successfully recover the AV and render it safe.
Successfully end the mission on the Base Station.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1420.
Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1430 0.3 * B D L 1 NVTOL PD

Goal: Conduct Precision Flight Operations.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:
Setup the system.

Select and activate an AV.
Conduct preflight actions to prepare for launch.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Activate the navigation mode and select Home as the active waypoint.
Move about launch site, noting how the AV follows the GCS and remains positioned relative to the GCS.
Conduct heads up maneuvers around and near a specified obstacle(s) within LOS of the launch and recovery site.
Conduct heads down maneuvers around and near a specified obstacle(s) within LOS of the launch and recovery site.
Bring the AV to a safe location using manual controls.
Land the AV at the safe location by bringing it to the ground in manual control.
Utilize the Kill Function to end flight.
The Instructor will pick up the AV and move it at least 10 meters from its last location without the VO's knowledge of the new location.
End the mission on the Base Station.
Locate the AV using the Find UAV function.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system.
Successfully select and activate an AV.
Successfully conduct preflight actions to prepare for launch.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully activate the navigation mode and select Home as the active waypoint.
Successfully move about launch site, noting how the AV follows the GCS and remains positioned relative to the GCS.
Successfully conduct heads up maneuvers around and near a specified obstacle(s) within LOS of the launch and recovery site.
Successfully conduct heads down maneuvers around and near a specified obstacle(s) within LOS of the launch and recovery site.
Successfully bring the AV to a safe location using manual controls.
Successfully land the AV at the safe location by bringing it to the ground in manual control.
Successfully utilize the Kill Function to end flight.
Successfully allow the Instructor to pick up the AV and move it at least 10 meters from its last location without the VO's knowledge of the new location.
Successfully end the mission on the Base Station.
Successfully locate the AV using the Find UAV function.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1425.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1435	0.3	*	B	N	L	1 NVTOL PD

Goal: Conduct Night Flight.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Setup the system at night.
Select and activate an AV at night.
Conduct preflight actions to prepare for launch at night.
Launch the AV, being conscious of obstacles and taking actions to clear them at night.
Navigate AV at a safe altitude to a specified item / target at night.
Safely descend the AV and conduct close reconnaissance of item / target using all five thermal camera modes at night.
Take snapshots of an item / target and review them real time at night.
Create a waypoint in flight at night.
Displace from the waypoint and use navigation mode to return to it at night.
Move AV to a safe location over ground at least 10 meters from the Base Station and land it at night.
Locate AV using the Beep UAV and Blink UAV functions to aid in finding AV at night.
Recover the AV and render it safe at night.
End the mission on the Base Station at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system at night.
Successfully select and activate an AV at night.
Successfully conduct preflight actions to prepare for launch at night.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them at night.
Successfully navigate AV at a safe altitude to a specified item / target at night.
Successfully descend the AV and conduct close reconnaissance of item / target using all five thermal camera modes at night.
Successfully take at least two snapshots of item / target and review them real time at night.
Successfully create a waypoint in flight at night.
Successfully displace from the waypoint and use navigation mode to return to it at night.
Successfully move AV to a safe location over ground at least 10 meters from the Base Station and land it at night.
Successfully locate AV using the Beep UAV and Blink UAV functions to aid in finding AV at night.
Successfully recover the AV and render it safe at night.
Successfully end the mission on the Base Station at night.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Night Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1430.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

NVTL-1440 0.3 * B (N) L 1 NVTOL PD

Goal: Conduct Indoor Flight.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Setup the system indoors.
Select and activate an AV in doors.
Select and enable the GPS Denied mode indoors.
Conduct preflight actions to prepare for launch in GPS Denied mode indoors.
Launch the AV, being conscious of obstacles and taking actions to clear them indoors.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while indoors.
Navigate AV at a safe altitude to a specified item / target indoors.
Safely descend the AV and conduct close reconnaissance of item / target using all cameras indoors.
Take snapshots of item / target and review them real time indoors.
Bring the AV to home indoors.
Recover AV using air grab indoors.
Utilize the Kill Function to end flight indoors.
Render the AV Safe indoors.
End the mission on the Base Station indoors.
Review the video and the snapshots from mission indoors.

Performance Standard: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will demonstrate the ability to:

Successfully setup the system indoors.
Successfully select and activate an AV in doors.
Successfully select and enable the GPS Denied mode indoors.
Successfully conduct preflight actions to prepare for launch in GPS Denied mode indoors.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them indoors.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while indoors.
Successfully navigate AV at a safe altitude to a specified item / target indoors.
Successfully descend the AV and conduct close reconnaissance of item / target using all cameras indoors.
Successfully take at least two snapshots of item / target and review them real time indoors.
Successfully bring the AV to home indoors.
Successfully recover AV using air grab indoors.
Successfully utilize the Kill Function to end flight indoors.
Successfully render the AV Safe indoors.
Successfully end the mission on the Base Station indoors.
Successfully review the video and the snapshots from mission indoors.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1430, NVTL-1435 if conducted at night

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.
3. Indoor facility

NVTL-1499 0.3 * B (N) L 1 NVTOL PD

Goal: Conduct Certification Flight on PD-100/200.

Requirement: IAW the references, checklists, ETF, and given a functional NVTL SUAS, the student will:

Conduct full mission brief.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Setup the system.
Select and activate an AV.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Conduct a basic reconnaissance on a point and / or an area.
Identify a Target Area of Interest (TAI) or items of interest.
Safely descend the AV and conduct close reconnaissance of item / target using all cameras.
Take snapshots of item / target and review them real time.
Respond accurately and precisely to simulated emergency conditions.
Bring the AV to home either manually or using the Return Home and Land function.
Recover the AV using air grab.
Utilize the Kill Function to end flight.
Render the AV Safe.
End the mission on the Base Station.
Review the video and the snapshots from mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional PD-100/200, without assistance from the instructor, the student will demonstrate the ability to:

Successfully conduct full mission brief.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Successfully setup the system.
Successfully select and activate an AV.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully conduct a basic reconnaissance on a point and / or an area.
Successfully identify at least one Target Area of Interest (TAI) or one item of interest
Successfully descend the AV and conduct close reconnaissance of item / target using all cameras.
Successfully take at least two snapshots of an item / a target and review them real time.
Successfully respond accurately and precisely to four simulated emergency conditions.
Successfully bring the AV to home either manually or using the Return Home and Land function.
Successfully recover the AV using air grab.
Successfully utilize the Kill Function to end flight.
Successfully render the AV Safe.
Successfully end the mission on the Base Station.
Successfully review the video and the snapshots from mission.

Instructor. IQT-I

Initial System Condition: AV in Docking Bay.

System Configuration: NVTL SUAS with Day Payload or Night Payload, Base Station with VO Hand Controller.

Launch Method: Hand Launch.

Prerequisite: NVTL-1400, NVTL-1405, NVTL-1410, NVTL-1415, NVTL-1420, NVTL-1425, NVTL-1430, NVTL-1435, and NVTL-1440.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.5 MICRO VTOL (MVTOL) CORE Skill Introduction

Purpose: To provide MVTOL entry-level instruction and develop expertise in the basic operation of the SUAS.

CORE Skill Introduction Overview

MVTOL Academics	
ACAD-1501	Directives and Instructions
ACAD-1502	Personnel Designation
ACAD-1503	Basic Aerodynamics
ACAD-1504	Prohibited Activities
ACAD-1505	Airspace Management
ACAD-1506	System Description
ACAD-1507	Controls and Indicators
ACAD-1508	Setup, Preflight, Launch, and Landing
ACAD-1509	Postflight Maintenance and Troubleshooting
ACAD-1510	Mission Planning
ACAD-1511	Flight Log
ACAD-1512	Incident Reporting
ACAD-1513	Emergency Procedures

CORE INTRODUCTION STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
MVTL-1500	0.3	*	B	D	MVTL	1	Instructor Demonstration Flight
MVTL-1505	0.2	*	B	D	MVTL	1	Basic Heads Up Flight
MVTL-1510	0.2	*	B	D	MVTL	1	Basic Heads Down Flight
MVTL-1515	0.3	*	B	D	MVTL	1	Heads Up Precision Flight
MVTL-1520	0.3	*	B	D	MVTL	1	Heads Down Precision Flight
MVTL-1525	0.3	*	B	D	MVTL	1	Track GCS and Max Range Flight
MVTL-1530	0.2	*	B	D	MVTL	1	Enhanced/Alternate Payload Operations
MVTL-1535	0.2	*	B	N	MVTL	1	Night Flight
MVTL-1599	0.3	*	B	(N)	MVTL	1	Certification Flight

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

MVTL-1500 0.3 * B D L 1 MVTOL

Goal: Conduct Instructor Demonstration Flight of the Micro VTOL SUAS.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will observe the instructor demonstrate:

How to setup the GCS.

How to assemble and stage the AV.
How to utilize the GCS Hand Controller functions.
How to conduct preflight checks and prepare for launch.
How to activate system modes.
How to launch the AV.
How to conduct basic flight maneuvers in all six axes of motion (slide: fore / aft, slide: left / right, yaw: left / right, altitude: climb / descend).
How to conduct box patterns utilizing only lateral control input (left joystick).
How to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners.
How to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners.
How to utilize the camera function on the 3-camera pod.
How to bring the AV home using joystick inputs.
How to land the AV by bringing it to the ground using joystick inputs.
How to land the AV by killing the motors when less than 1 Ft AGL.
How to launch the vehicle from the ground.
How to perform an air grab recovery.
How the AV performs at end of AV Battery Life (Battery Fall Off)
How to recover the AV and render it safe.
How to end the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Observe how to setup the GCS.
Observe how to assemble and stage the AV.
Observe how to utilize the GCS Hand Controller functions.
Observe how to conduct preflight checks and prepare for launch.
Observe how to activate system modes.
Observe how to launch the AV.
Observe how to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
Observe how to conduct box patterns utilizing only lateral control input (left joystick).
Observe how to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners.
Observe how to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners.
Observe how to utilize the camera function on the 3 camera pod.
Observe how to bring the AV home using joystick inputs.
Observe how to land the AV by bringing it to the ground using joystick inputs.
Observe how to land the AV by killing the motors when less than 1 Ft AGL.
Observe how to launch the vehicle from the ground.
Observe how to perform an air grab recovery.
Observe how the AV performs at end of AV Battery Life (Battery Fall Off)
Observe how to recover the AV and render it safe.
Observe how to end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: ACAD Events 1501-1514.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1505 0.2 * B D L 1 MVTOL

Goal: Conduct Basic Heads Up Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Setup the GCS.
Assemble and stage the AV.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads up.
Conduct box patterns utilizing only lateral control input (left joystick) while heads up.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners while heads up.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners while heads up.
Climb the AV until the VO is unable to hear / see the AV (take into consideration the environmental conditions) while heads up.
Bring the AV home using joystick inputs while heads up.
Bringing the AV to the ground using joystick inputs while heads up.
Land the AV by killing the motors when less than 1 Ft AGL while heads up.
Recover the AV and render it safe.
End the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads up.
Successfully complete one box pattern utilizing only lateral control input (left joystick) while heads up.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners while heads up.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners while heads up.
Successfully climb the AV until the VO is unable to hear / see the AV (take into consideration the environmental conditions) while heads up.
Successfully bring the AV home using joystick inputs while heads up.
Successfully bringing the AV to the ground using joystick inputs while heads up.
Successfully land the AV by killing the motors when less than 1 Ft AGL while heads up.
Successfully recover the AV and render it safe.
Successfully end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1500.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1510 0.2 * B D L 1 MVTOL

Goal: Conduct Basic Heads Down Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Setup the GCS.
Assemble and stage the AV.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads down.
Conduct box patterns utilizing only lateral control input (left joystick) while heads down.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners while heads down.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners while heads down.
Climb the AV until the VO is unable to hear / see the AV (take into consideration the environmental conditions) while heads down.
Utilize the payload to change look angles to assist in navigation while heads down.
Gain familiarization with all menu items and menu function items on the GCS.
Bring the AV home using the home button while heads down.
Bring the AV to a safe location at least 10 meters from home using joystick inputs while heads down.
Land the AV at the safe location at least 10 meters from home by bringing it to the ground in using joystick inputs while heads down.
Land the AV by killing the motors when less than 1 Ft AGL while heads down.
Utilize the GUI to navigate to the AV.
Recover the AV and render it safe.
End the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) while heads down.
Successfully complete one box pattern utilizing only lateral control input (left joystick) while heads down.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners while heads down.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners while heads down.
Successfully climb the AV until the VO is unable to hear / see the AV (take into consideration the environmental conditions) while heads down.

Successfully utilize the payload to change look angles to assist in navigation while heads down.
Successfully gain familiarization with all menu items and menu function items on the GCS.
Successfully bring the AV home using the home button while heads down.
Successfully bring the AV to a safe location at least 10 meters from home using joystick inputs while heads down.
Successfully land the AV at the safe location at least 10 meters from home by bringing it to the ground in using joystick inputs while heads down.
Successfully land the AV by killing the motors when less than 1 Ft AGL while heads down.
Successfully utilize the GUI to navigate to the AV.
Successfully recover the AV and render it safe.
Successfully end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1505.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1515 0.3 * B D L 1 MVTOL

Goal: Conduct Heads Up Precision Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Setup the GCS.
Assemble and stage the AV.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Fly AV to a specified obstacle or set of obstacles while heads up.
Maneuver the AV in close proximity to the obstacle or set of obstacles in order to simulate close reconnaissance of specified items / targets of interest while heads up.
Bring the AV home using the joysticks while heads up.
Bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Render the AV safe.
End the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully fly AV to a specified obstacle or set of obstacles while heads up.
Successfully maneuver the AV in close proximity (within 2 meters) to an obstacle or a set obstacle in order to simulate close reconnaissance of specified items / targets of interest while heads up.
Successfully bring the AV home using the joysticks while heads up.

Successfully bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Successfully execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Successfully render the AV safe.
Successfully end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1510.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1520 0.3 * B D L 1 MVTOL

Goal: Conduct Heads Down Precision Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Setup the GCS.
Assemble and stage the AV.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Fly AV to a specified obstacle or set of obstacles while heads down.
Maneuver the AV in close proximity to the obstacle or set of obstacles in order to simulate close reconnaissance of specified items / targets of interest while heads down.
Bring the AV home using the joysticks while heads down.
Bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Render the AV safe.
End the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully fly AV to a specified obstacle or set of obstacles while heads down.
Successfully maneuver the AV in close proximity (within 2 meters) to an obstacle or a set obstacle in order to simulate close reconnaissance of specified items / targets of interest while heads down.
Successfully bring the AV home using the joysticks while heads down.
Successfully bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Successfully execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Successfully render the AV safe.

Successfully end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1515.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1525 0.3 * B D L 1 MVTOL

Goal: Conduct Flight Using Track Mode and Max Range Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Setup the GCS.
Assemble and stage the AV.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Enable Track Mode.
Move about the training area, noting how the AV follows the GCS and remains positioned relative to the GCS.
Utilize the joysticks to create an offset from the GCS.
Move about the training area, noting how the AV maintains its offset from the GCS and will maintain a new offset if repositioned.
Disable Track Mode.
Fly the AV to its maximum range (may vary), taking into consideration altitude and line of sight to optimize the system's performance.
Recover the AV from a loss of link situation due to exceeding maximum range and utilizing Home Mode.
Recover the AV from a loss of link situation due to a power loss (Power loss is created by the GCS being turned off) by the use of the Rescue Mode button combination.
Recover the AV from a loss of link situation due to a power loss (Power loss is created by the GCS being turned off) by selecting Rescue Mode from the GCS menu.
Bring the AV home using Home Mode.
Bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Render the AV safe.
End the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.

Successfully enable Track Mode.
Successfully move about the training area, noting how the AV follows the GCS and remains positioned relative to the GCS.
Successfully utilize the joysticks to create an offset from the GCS.
Successfully move about the training area, noting how the AV maintains its offset from the GCS and will maintain a new offset if repositioned.
Successfully disable Track Mode.
Successfully fly the AV to its maximum range (may vary), taking into consideration altitude and line of sight to optimize the system's performance.
Successfully recover the AV from a loss of link situation due to exceeding maximum range and utilizing Home Mode.
Successfully recover the AV from a loss of link situation due to a power loss (Power loss is created by the GCS being turned off) by the use of the Rescue Mode button combination.
Successfully recover the AV from a loss of link situation due to a power loss (Power loss is created by the GCS being turned off) by selecting Rescue Mode from the GCS menu.
Successfully bring the AV home using Home Mode.
Successfully bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Successfully execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Successfully render the AV safe.
Successfully end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1520.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1530 0.2 * B D L 1 MVTOL

Goal: Conduct Enhanced/Alternate Payload Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:
Setup the GCS.
Assemble and stage the AV with the enhanced/alternate.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Utilize all the Enhanced/alternate payload polarities.
Utilize the Enhanced/alternate payload gimbal.
Fly AV to a specified target or set of targets while heads down using the Tactical Standoff Payload.
Maneuver the AV in close proximity to the target or set of targets in order to simulate close reconnaissance of specified items / targets of interest while heads down using the Tactical Standoff Payload.
Bring the AV home using the joysticks while heads down using the Tactical Standoff Payload.

Bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Render the AV safe.
End the mission on the GCS.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS.
Successfully assemble and stage the AV with the Tactical Standoff Payload.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully utilize all the Enhanced/alternate payload polarities.
Successfully utilize the Enhanced/alternate payload gimbal.
Successfully fly AV to a specified target or set of targets while heads down using the Tactical Standoff Payload.
Successfully maneuver the AV in close proximity (within 2 meters) to the target or set of targets in order to simulate close reconnaissance of specified items / targets of interest while heads down using the Tactical Standoff Payload.
Successfully bring the AV home using the joysticks while heads down using the Tactical Standoff Payload.
Successfully bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Successfully execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Successfully render the AV safe.
Successfully end the mission on the GCS.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery and enhanced/alternate EO/IR payload (if so configured), GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1525.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1535 0.2 * B N L 1 MVTOL

Goal: Conduct Night Flight.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Setup the GCS at night.
Assemble and stage the AV with the Enhanced/alternate payload at night.
Conduct preflight checks and prepare for launch at night.
Activate system modes at night.
Launch the AV, being conscious of obstacles and taking actions to clear them at night.
Activate the AV Navigation Lights at night.
Utilize all the Enhanced/alternate payload polarities at night.
Utilize the Enhanced/alternate payload gimbal at night.

Fly AV to a specified target or set of targets while heads down using the Enhanced/alternate payload at night.
Maneuver the AV in close proximity to the target or set of targets in order to simulate close reconnaissance of specified items / targets of interest while heads down using the Enhanced/alternate payload at night.
Bring the AV home using the joysticks while heads down using the Enhanced/alternate payload at night.
Bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO at night.
Execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length at night.
Render the AV safe at night.
End the mission on the GCS at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will demonstrate the ability to:

Successfully setup the GCS at night.
Successfully assemble and stage the AV with the Enhanced/alternate payload at night.
Successfully conduct preflight checks and prepare for launch at night.
Successfully activate system modes at night.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them at night.
Successfully activate the AV Navigation Lights at night.
Successfully utilize all the Enhanced/alternate payload polarities at night.
Successfully utilize the Enhanced/alternate payload gimbal at night.
Successfully fly AV to a specified target or set of targets while heads down using the Enhanced/alternate payload at night.
Successfully maneuver the AV in close proximity (within 2 meters) to the target or set of targets in order to simulate close reconnaissance of specified items / targets of interest while heads down using the Enhanced/alternate payload at night.
Successfully bring the AV home using the joysticks while heads down using the Enhanced/alternate payload at night.
Successfully bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO at night.
Successfully execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length at night.
Successfully render the AV safe at night.
Successfully end the mission on the GCS at night.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery (Enhanced/Alternate payload optional, GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1530.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

MVTL-1599 0.3 * B (N) L 1 MVTOL

Goal: Conduct Certification Flight on MVTL SUAS.

Requirement: IAW the references, checklists, ETF, and given a functional MVTL SUAS, the student will:

Conduct full mission brief.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Setup the GCS.
Assemble and stage the AV.
Conduct preflight checks and prepare for launch.
Activate system modes.
Launch the AV, being conscious of obstacles and taking actions to clear them.
Conduct a basic reconnaissance on a point and / or an area.
Identify a Target Area of Interest (TAI) or items of interest.
Safely descend the AV and conduct close reconnaissance of item / target using all cameras.
Respond accurately and precisely to simulated emergency conditions.
Bring the AV to home either by using joysticks or using the Home Mode.
Bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Render the AV safe.
End the mission on the GCS.
Review the video from mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional PD-100/200, without assistance from the instructor, the student will demonstrate the ability to:

Successfully conduct full mission brief.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully conduct preflight checks and prepare for launch.
Successfully activate system modes.
Successfully launch the AV, being conscious of obstacles and taking actions to clear them.
Successfully conduct a basic reconnaissance on a point and / or an area.
Successfully identify a Target Area of Interest (TAI) or items of interest.
Successfully descend the AV and conduct close reconnaissance of item / target using all cameras.
Successfully respond accurately and precisely to four simulated emergency conditions.
Successfully bring the AV to home either by using joysticks or using the Home Mode.
Successfully bring the AV to close proximity to the VO to prepare for an air grab, ensuring that the AV is aligned so that the camera is pointed away from the VO.
Successfully execute an air grab (if MVTL can be safely grabbed) of the AV and kill the motors while maintaining the AV at arm's length.
Successfully render the AV safe.
Successfully end the mission on the GCS.
Successfully review the video from mission.

Instructor. IQT-I or AF

Initial System Condition: AV powered down and GCS powered down.

System Configuration: MVTL SUAS with fully charged flight battery (enhanced/alternate payload is optional), GCS Hand Controller fully charged battery.

Launch Method: Hand Launch.

Prerequisite: MVTL-1500, MVTL-1505, MVTL-1510, MVTL-1515, MVTL-1520, MVTL-1525, MVTL-1530, and MVTL-1535.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.6 Vertical Takeoff and Land (VTOL)/ VTOL SKY RAIDER (SRDR) CORE Skill Introduction

Purpose: To develop core skills and build experience in the basic operation of VTOL and VTOL SKY RAIDER (SRDR) VTOL SUAS.

CORE Skill Introduction Overview

VTOL/ VTOL SRDR ACADEMICS	
ACAD-1601	Directives and Instructions
ACAD-1602	Personnel Designation
ACAD-1603	Basic Aerodynamics
ACAD-1604	Prohibited Activities
ACAD-1605	Airspace Management
ACAD-1606	System Description
ACAD-1607	Controls and Indicators
ACAD-1608	Setup, Preflight, Launch, and Landing
ACAD-1609	Postflight Maintenance and Troubleshooting
ACAD-1610	Mission Planning
ACAD-1611	Flight Log
ACAD-1612	Incident Reporting
ACAD-1613	Emergency Procedures

CORE INTRODUCTION STAGE FLIGHTS (VTOL)							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
VTOL-1600	0.3	*	B	D	VTOL	1	Instructor GUI Demonstration Flight
VTOL-1605	0.3	*	B	D	VTOL	1	Basic GUI Flight
VTOL-1610	0.3	*	B	D	VTOL	1	Instructor System Hand Controller Demonstration Flight
VTOL-1615	0.3	*	B	D	VTOL	1	Basic System Hand Controller Flight
VTOL-1620	0.4	*	B	D	VTOL	1	In-depth GUI Flight
VTOL-1630	0.3	*	B	D	VTOL	1	Basic EO/IR Payload Operations Flight
VTOL-1632	0.3	*	B	D	VTOL	1	Basic 30X Zoom EO Payload Operations Flight
VTOL-1640	0.3	*	B	N	VTOL	1	Night Flight
VTOL-1650	0.3	*	B	D	VTOL	1	Instructor AIR / Multi UAV Demonstration Flight

VTOL-1652	0.3	*	B	D	VTOL	1	Basic AIR flight
VTOL-1654	0.3	*	B	D	VTOL	1	Basic Multi UAV flight
VTOL-1699	0.3	*	B	(N)	VTOL	1	Certification Flight

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

VTOL-1600 0.3 * B D L 1 VTOL

Goal: Conduct Instructor Demonstration Flight of the VTOL SUAS.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will observe the instructor demonstrate:

How to setup the Base Station.
How to setup the GCS.
How to assemble and stage the AV.
How to utilize Mission planning tool.
How to select and activate an AV.
How to launch the AV.
How to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
How to control the AV speed setting.
How to enter all of the GUI functions and settings menus.
How to enter Navigation mode and fly a programmed mission.
How to edit the mission plan while in flight.
How to utilize the camera controls.
How to review snapshots in real time.
How to bring the AV home using Home mode.
How to land the AV by using the Land Feature.
How to recover the AV and render it safe.
How to review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Observe how to setup the Base Station.
Observe how to setup the GCS.
Observe how to assemble and stage the AV.
Observe how to utilize Mission planning tool.
Observe how to select and activate an AV.
Observe how to launch the AV.
Observe how to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
Observe how to control the AV speed setting.
Observe how to utilize all of the GUI functions and settings menus.
Observe how to enter Navigation mode and fly a programmed mission.
Observe how to edit the mission plan while in flight.
Observe how to utilize the camera controls.

Observe how to review snapshots in real time.
Observe how to bring the AV to home using Home mode.
Observe how to land the AV by using the Land Feature.
Observe how to recover the AV and render it safe.
Observe how to review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable.

Launch Method: Ground Launch.

Prerequisite: ACAD Events 1601-1614.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1605 0.3 * B D L 1 VTOL

Goal: Conduct Basic GUI Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) utilizing the stylus to control AV flight.
Conduct basic flight controls by utilizing the stylus to drop points on the map while in regular flight.
Climb the AV until the VO is unable to hear / see the AV to find acoustic / visual limits of the AV.
Control the AV speed setting.
Bring the AV home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) utilizing the stylus to control AV flight.
Successfully conduct basic flight controls by utilizing the stylus to drop points on the map while in regular flight.
Successfully climb the AV until the VO is unable to hear / see the AV to find acoustic/visual limits of the AV.
Successfully control the AV speed setting.
Successfully bring the AV home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable.

Launch Method: Ground Launch.

Prerequisite: VTOL-1600.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1610	0.3	*	B	D	L	1 VTOL

Goal: Conduct Instructor System Hand Controller Demonstration Flight of the VTOL SUAS.
Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will observe the instructor demonstrate:

How to setup the Base Station.
How to setup the GCS with the System Hand Controller.
How to assemble and stage the AV.
How to select and activate an AV.
How to launch the AV using the System Hand Controller.
How to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller.
How to conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller.
How to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller.
How to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller.
How to control the AV speed setting using the System Hand Controller.
How to utilize the camera controls using the System Hand Controller.
How to bring the AV home using System Hand Controller inputs.
How to land the AV by bringing it to the ground using System Hand Controller inputs.
How to land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Observe how to setup the Base Station.
Observe how to setup the GCS with the System Hand Controller.
Observe how to assemble and stage the AV.
Observe how to select and activate an AV.
Observe how to launch the AV using the System Hand Controller.
Observe how to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller.
Observe how to conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller.
Observe how to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller.

Observe how to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller.
Observe how to control the AV speed setting using the System Hand Controller.
Observe how to utilize the camera controls using the System Hand Controller.
Observe how to bring the AV home using System Hand Controller inputs.
Observe how to land the AV by bringing it to the ground using System Hand Controller inputs.
Observe how to land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
Observe how to recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: VTOL-1605

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight

VTOL-1615	0.3	*	B	D	L	1 VTOL

Goal: Conduct Basic System Hand Controller Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Setup the Base Station.
Setup the GCS with the System Hand Controller.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV using the System Hand Controller.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads up.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads down.
Conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller while heads up.
Conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller while heads down.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads up.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads down.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads up.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads down.
Control the AV speed setting using the System Hand Controller.
Utilize the camera controls using the System Hand Controller.
Bring the AV home using System Hand Controller inputs.
Land the AV by bringing it to the ground using System Hand Controller inputs.

Land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Successfully setup the Base Station.
Successfully setup the GCS with the System Hand Controller.
Successfully assemble and stage the AV.
Successfully elect and activate an AV.
Successfully launch the AV using the System Hand Controller.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads up.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads down.
Successfully complete one box pattern utilizing only lateral control input (left joystick) using the System Hand Controller while heads up.
Successfully complete one box pattern utilizing only lateral control input (left joystick) using the System Hand Controller while heads down.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads up.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads down.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads up.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads down.
Successfully control the AV speed setting using the System Hand Controller.
Successfully utilize the camera controls using the System Hand Controller.
Successfully bring the AV home using System Hand Controller inputs.
Successfully land the AV by bringing it to the ground using System Hand Controller inputs.
Successfully land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: VTOL-1610

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1620	0.4	*	B	D	L	1 VTOL

Goal: Conduct In-depth GUI Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Setup the Base Station.

Setup the GCS.
Assemble and stage the AV.
Utilize Mission planning tool and create a mission plan prior to takeoff.
Select and activate an AV.
Launch the AV.
Gain familiarity with all of the GUI functions and settings menus.
Enter Navigation mode and fly a programmed mission.
Pause and resume the AV's flight of the mission plan.
Reroute the AV while it is flying the mission plan.
Edit the mission plan while in flight, labeling known items.
Reposition Home position.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.
Review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully utilize Mission planning tool and create a mission plan with at least four waypoints, one point of interest, one camera aim point, one no fly zone, and one perimeter prior to takeoff.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully gain familiarity with all of the GUI functions and settings menus.
Successfully enter Navigation mode and fly to at least four way points and to at least one point of interest in the programmed mission.
Successfully pause the mission at least once and resume the mission at least once while the AV is flying the mission plan.
Successfully reroute the AV while it is flying the mission plan to at least one way points and to at least one point of interest in the mission plan.
Successfully edit the mission plan while in flight by entering the Mission planning tool and adding one waypoint, deleting one-way point, changing the grid for one way point or point of interest, and labeling at least one waypoint or point of interest.
Successfully reposition Home position.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.
Successfully review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: VTOL-1615.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1630	0.3	*	B		D	L	1 VTOL

Goal: Conduct Basic EO / IR Payload Operations Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV.
Designate a specific object of interest as a target.
Perform reconnaissance of the target using the EO camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Perform reconnaissance of the target using the IR camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Take a snapshot of the target, preview it, and download it to the GCS.
Perform reconnaissance on a target using Auto Grid.
Use the Live Maps function to create Live Tiles on the GUI.
Clear all the Live Tiles from the GUI.
Use the EO camera to locate moving objects using MTI and MTT functions.
Use the IR camera to locate moving objects using MTI and MTT functions.
Use the MTT function with either the EO or IR camera to lock on to an object and observe bearing and range.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully designate a specific object of interest as a target.
Successfully perform reconnaissance of the target using the EO camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Successfully perform reconnaissance of the target using the IR camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Successfully take at least one snapshot of the target, preview it, and download it to the GCS.
Successfully perform reconnaissance on a target using Auto Grid.
Successfully use the Live Maps function to create Live Tiles on the GUI.
Successfully clear all the Live Tiles from the GUI.
Successfully use the EO camera to locate moving objects using MTI and MTT functions.
Successfully use the IR camera to locate moving objects using MTI and MTT functions.
Successfully use the MTT function with either the EO or IR camera to lock on to an object and observe bearing and range.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: VTOL-1620.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1632 0.3 * B D L 1 VTOL

Goal: Conduct Advanced Payload Operations Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV.
Designate a specific object of interest as a target.
Perform reconnaissance of the target using the 30x Zoom camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Take HD images of the target using the ZoomSnap, preview it, and download it to the GCS.
Perform reconnaissance on a target using Auto Grid with Auto Snaps enabled.
Use the Live Maps function to create Live Tiles on the GUI.
Clear all the Live Tiles from the GUI.
Use the 30x Zoom camera to locate moving objects using MTI and MTT functions.
Use the MTT function to lock on to an object and observe bearing and range.
Use the video measure meant tool to measure the distance between two objects, two locations, or a combination an object and a location.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully designate a specific object of interest as a target.
Successfully perform reconnaissance of the target using the 30x Zoom camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Successfully take at least one HD image of the target using the ZoomSnap, preview it, and download it to the GCS.
Successfully perform reconnaissance on a target using Auto Grid with Auto Snaps enabled.
Successfully use the Live Maps function to create Live Tiles on the GUI.
Successfully clear all the Live Tiles from the GUI.
Successfully use the 30x Zoom camera to locate moving objects using MTI and MTT functions.
Successfully use the MTT function to lock on to an object and observe bearing and range.
Successfully use the video measure meant tool to measure to measure the distance between two objects, two locations, or a combination an object and a location.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with Advanced Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: VTOL-1620.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1640	0.3	*	B	N	L	1 VTOL

Goal: Conduct Night Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Setup the Base Station at night.
Setup the GCS at night.
Assemble and stage the AV at night.
Utilize Mission planning tool and create a mission plan prior to takeoff at night.
Select and activate an AV at night.
Launch the AV at night.
Enter Navigation mode and fly a programmed mission at night.
Conduct basic reconnaissance on a point and / or an area at night.
Identify a Target Area of Interest (TAI) or items of interest at night.
Take a snapshot of the target, preview it, and download it to the GCS at night.
Locate moving objects using MTI and MTT functions at night.
Use the MTT function to lock on to an object and observe bearing and range at night.
Bring the AV to home using Home mode at night.
Land the AV by using the Land Feature at night.
Recover the AV and render it safe at night.
Review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Successfully setup the Base Station at night.
Successfully setup the GCS at night.
Successfully assemble and stage the AV at night.
Successfully utilize Mission planning tool and create a mission plan with at least four waypoints, one point of interest, one camera aim point, one no fly zone, and one perimeter prior to takeoff at night.
Successfully select and activate an AV at night.
Successfully launch the AV at night.
Successfully enter Navigation mode and fly to at least four way points and to at least one point of interest in the programmed mission at night.
Successfully conduct basic reconnaissance on a point and / or an area at night.
Successfully identify at least one Target Area of Interest (TAI) or at least one item of interest at night.
Successfully take at least one snapshot of the target, preview it, and download it to the GCS at night.
Successfully locate moving objects using MTI and MTT functions at night.
Successfully use the MTT function to lock on to an object and observe bearing and range at night.
Successfully bring the AV to home using Home mode at night.
Successfully land the AV by using the Land Feature at night.
Successfully recover the AV and render it safe at night.
Successfully review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: VTOL-1630.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1650 0.3 * B D L 1 VTOL

Goal: Conduct Instructor Automatic In-air Replacement (AIR) / Multi UAV Demonstration Flight of the VTOL SUAS.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will observe the instructor demonstrate:

How to setup the Base Station.
How to setup the GCS.
How to assemble and stage the two AVs.
How to utilize Mission planning tool and create a mission plan prior to takeoff. .
How to select and activate AV 01.
How to launch the AV 01.
How to select and plan an AIR of AV 01 with AV 02.
How to launch AV 02 to replace AV 01.
How to execute AIR while maintaining visual on the designated target throughout.
How to bring AV 01 to home using AIR mode.
How to land AV 01 using AIR mode.
How to replace AV Battery in AV 01 and prepare for a second flight.
How to launch AV 01 and execute programmed mission plan.
How to re-task AV 02 and execute preprogrammed mission plan.
How to ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
How to bring AV 02 to home using Home mode.
How to land AV 02 by using the Land Feature.
How to bring AV 01 to home using Home mode.
How to land AV 01 by using the Land Feature.
How to recover both AVs and render them both safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Observe how to setup the Base Station.
Observe how to setup the GCS.
Observe how to assemble and stage the two AVs.
Observe how to utilize Mission planning tool and create a mission plan prior to takeoff. .
Observe how to select and activate AV 01.
Observe how to launch the AV 01.
Observe how to select and plan an AIR of AV 01 with AV 02.
Observe how to launch AV 02 to replace AV 01.
Observe how to execute AIR while maintaining visual on the designated target throughout.
Observe how to bring AV 01 to home using AIR mode.
Observe how to land AV 01 using AIR mode.
Observe how to replace AV Battery in AV 01 and prepare for a second flight.
Observe how to launch AV 01 and execute programmed mission plan.
Observe how to re-task AV 02 and execute preprogrammed mission plan.
Observe how to ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
Observe how to bring AV 02 to home using Home mode.
Observe how to land AV 02 by using the Land Feature.
Observe how to bring AV 01 to home using Home mode.
Observe how to land AV 01 by using the Land Feature.
Observe how to recover both AVs and render them both safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: AV 01: VTOL SUAS with EO/IR Payload, AV 02: VTOL SUAS with Advanced payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: VTOL-1630 & 1632.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1652 0.3 * B D L 1 VTOL

Goal: Conduct Automatic In-air Replacement (AIR) Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will observe the instructor demonstrate:

Setup the Base Station.
Setup the GCS.
Assemble and stage the two AVs.
Utilize the Mission planning tool and create a mission plan prior to takeoff.
Select and activate AV 01.
Launch the AV 01.
Select and plan an AIR of AV 01 with AV 02.
Launch AV 02 to replace AV 01.
Execute AIR while maintaining visual on the designated target throughout.
Bring AV 01 to home using AIR mode.
Land AV 01 using AIR mode.
Bring AV 02 to home using Home mode.
Land AV 02 by using the Land Feature.
Recover both AVs and render them both safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the two AVs.
Successfully utilize the Mission planning tool and create a mission plan prior to takeoff.
Successfully select and activate AV 01.
Successfully launch the AV 01.
Successfully select and plan an AIR of AV 01 with AV 02.
Successfully launch AV 02 to replace AV 01.
Successfully execute AIR while maintaining visual on the designated target throughout.
Successfully bring AV 01 to home using AIR mode.
Successfully land AV 01 using AIR mode.
Successfully bring AV 02 to home using Home mode.
Successfully land AV 02 by using the Land Feature.
Successfully recover both AVs and render them both safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: AV 01: VTOL SUAS with EO/IR Payload, AV 02: VTOL SUAS with Advanced payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: VTOL-1650.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1654 0.3 * B D L 1 VTOL

Goal: Conduct Multi UAV Flight.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will observe the instructor demonstrate:

Setup the Base Station.
Setup the GCS.
Assemble and stage the two AVs.
Utilize the Mission planning tool and create a mission plan prior to takeoff.
Select and activate AV 01.
Launch AV 01.
Task AV 01 to execute programmed mission plan.
Select and activate AV 02.
Launch AV 02.
Task AV 02 to execute preprogrammed mission plan.
Ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
Bring AV 01 to home using Home mode.
Land AV 01 by using the Land Feature.
Bring AV 02 to home using Home mode.
Land AV 02 by using the Land Feature.
Recover both AVs and render them both safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:

Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the two AVs.
Successfully utilize the Mission planning tool and create a mission plan prior to takeoff.
Successfully select and activate AV 01.
Successfully launch AV 01.
Successfully task AV 01 to execute programmed mission plan.
Successfully select and activate AV 02.
Successfully launch AV 02.
Successfully task AV 02 to execute preprogrammed mission plan.
Successfully ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
Successfully bring AV 01 to home using Home mode.
Successfully land AV 01 by using the Land Feature.
Successfully bring AV 02 to home using Home mode.
Successfully land AV 02 by using the Land Feature.
Successfully recover both AVs and render them both safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: AV 01: VTOL SUAS with EO/IR Payload, AV 02: VTOL SUAS with Advanced payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: VTOL-1650.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

VTOL-1699 0.3 * B (N) L 1 VTOL

Goal: Conduct Certification Flight on a VTOL SUAS.

Requirement: IAW the references, checklists, ETF, and given a functional VTOL SUAS, the student will:
Conduct full mission brief.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Utilize Mission planning tool and create a mission plan prior to takeoff.
Select and activate an AV.
Launch the AV.
Enter Navigation mode and fly a programmed mission.
Conduct basic reconnaissance on a point and / or an area.
Identify a Target Area of Interest (TAI) or items of interest.
Take a snapshot of the target, preview it, and download it to the GCS.
Locate moving objects using MTI and MTT functions.
Use the MTT function to lock on to an object and observe bearing and range.
Respond accurately and precisely to simulated emergency conditions.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.
Review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional VTOL SUAS, without assistance from the instructor, the student will demonstrate the ability to:
Successfully conduct full mission brief.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully utilize Mission planning tool and create a mission plan prior to takeoff.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully enter Navigation mode and fly a programmed mission.
Successfully conduct basic reconnaissance on a point and / or an area.
Successfully identify a Target Area of Interest (TAI) or items of interest.
Successfully take a snapshot of the target, preview it, and download it to the GCS.
Successfully locate moving objects using MTI and MTT functions.
Successfully use the MTT function to lock on to an object and observe bearing and range.
Successfully respond accurately and precisely to simulated emergency conditions.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.
Successfully review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: VTOL SUAS with EO/IR Payload or Advanced payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: VTOL-1600, VTOL-1605, VTOL-1610, VTOL-1615, VTOL-1620, VTOL-1630, VTOL-1632, VTOL-1640, VTOL-1650, VTOL-1652, and VTOL-1654.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.7 Vertical Takeoff and Land (VTOL) R80 SKY RAIDER (SRDR) CORE Skill Introduction

Purpose: To develop core skills and build experience in the basic operation of the SKY RAIDER (SRDR) VTOL SUAS.

CORE Skill Introduction Overview

VTOL SRDR CORE INTRODUCTION STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
SRDR-1700	0.3	*	B	D	VTOL SRDR	1	Instructor GUI Demonstration Flight
SRDR-1705	0.3	*	B	D	VTOL SRDR	1	Basic GUI Flight
SRDR-1710	0.3	*	B	D	VTOL SRDR	1	Instructor System Hand Controller Demonstration Flight
SRDR-1715	0.3	*	B	D	VTOL SRDR	1	Basic System Hand Controller Flight
SRDR-1720	0.3	*	B	D	VTOL SRDR	1	In-depth GUI Flight
SRDR-1730	0.3	*	B	D	VTOL SRDR	1	Basic EO/IR Payload Operations Flight
SRDR-1732	0.3	*	B	D	VTOL SRDR	1	Basic 30X Zoom EO Payload Operations Flight
SRDR-1734	0.3	*	B	D	VTOL SRDR	1	Basic Forward / Navigation Camera Flight
SRDR-1736	0.3	*	B	D	VTOL SRDR	1	Basic Drop Payload Operations Flight
SRDR-1740	0.3	*	B	N	VTOL SRDR	1	Night Flight 01: EO/IR Payload
SRDR-1745	0.3	*	B	N	VTOL SRDR	1	Night Flight 02: Color Night Payload
SRDR-1750	0.3	*	B	(N)	VTOL SRDR	1	Instructor AIR / Multi UAV Demonstration Flight
SRDR-1752	0.3	*	B	D	VTOL SRDR	1	Basic AIR flight
SRDR-1754	0.3	*	B	D	VTOL SRDR	1	Basic Multi UAV flight
SRDR-1799	0.3	*	B	(N)	VTOL SRDR	1	Certification Flight

Prerequisites.

1. ACAD Stage complete (1600-1614).
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

SRDR-1700	0.3	*	B	D	L	1 VTOL SRDR

Goal: Conduct Instructor Demonstration Flight of the R80D.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will observe the instructor demonstrate:

How to setup the Base Station.
How to setup the GCS.
How to assemble and stage the AV.
How to utilize Mission planning tool.
How to select and activate an AV.
How to launch the AV.
How to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
How to control the AV speed setting.
How to enter all of the GUI functions and settings menus.
How to enter Navigation mode and fly a programmed mission.
How to edit the mission plan while in flight.
How to utilize the camera controls.
How to review snapshots in real time.
How to bring the AV home using Home mode.
How to land the AV by using the Land Feature.
How to recover the AV and render it safe.
How to review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Observe how to setup the Base Station.
Observe how to setup the GCS.
Observe how to assemble and stage the AV.
Observe how to utilize Mission planning tool.
Observe how to select and activate an AV.
Observe how to launch the AV.
Observe how to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend).
Observe how to control the AV speed setting.
Observe how to utilize all of the GUI functions and settings menus.
Observe how to enter Navigation mode and fly a programmed mission.
Observe how to edit the mission plan while in flight.
Observe how to utilize the camera controls.
Observe how to review snapshots in real time.
Observe how to bring the AV home using Home mode.
Observe how to land the AV by using the Land Feature.
Observe how to recover the AV and render it safe.
Observe how to review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable.

Launch Method: Ground Launch.

Prerequisite: ACAD Events 1600-1614.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1705 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Basic GUI Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) utilizing the stylus to control AV flight.
Conduct basic flight controls by utilizing the stylus to drop points on the map while in regular flight.
Climb the AV until the VO is unable to hear / see the AV to find acoustic / visual limits of the AV.
Control the AV speed setting.
Bring the AV home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) utilizing the stylus to control AV flight.
Successfully conduct basic flight controls by utilizing the stylus to drop points on the map while in regular flight.
Successfully climb the AV until the VO is unable to hear / see the AV to find acoustic / visual limits of the AV.
Successfully control the AV speed setting.
Successfully bring the AV home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable.

Launch Method: Ground Launch.

Prerequisite: SRDR-1700.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1710 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Instructor System Hand Controller Demonstration Flight of the R80D.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will observe the instructor demonstrate:

How to setup the Base Station.
How to setup the GCS with the System Hand Controller.
How to assemble and stage the AV.
How to select and activate an AV.
How to launch the AV using the System Hand Controller.
How to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller.
How to conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller.
How to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller.
How to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller.
How to control the AV speed setting using the System Hand Controller.
How to utilize the camera controls using the System Hand Controller.
How to bring the AV home using System Hand Controller inputs.
How to land the AV by bringing it to the ground using System Hand Controller inputs.
How to land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Observe how to setup the Base Station.
Observe how to setup the GCS with the System Hand Controller.
Observe how to assemble and stage the AV.
Observe how to select and activate an AV.
Observe how to launch the AV using the System Hand Controller.
Observe how to conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller.
Observe how to conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller.
Observe how to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller.
Observe how to conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller.
Observe how to control the AV speed setting using the System Hand Controller.
Observe how to utilize the camera controls using the System Hand Controller.
Observe how to bring the AV home using System Hand Controller inputs.
Observe how to land the AV by bringing it to the ground using System Hand Controller inputs.
Observe how to land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
Observe how to recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1705

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1715 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Basic System Hand Controller Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Setup the Base Station.
Setup the GCS with the System Hand Controller.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV using the System Hand Controller.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads up.
Conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads down.
Conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller while heads up.
Conduct box patterns utilizing only lateral control input (left joystick) using the System Hand Controller while heads down.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads up.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads down.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads up.
Conduct box patterns utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads down.
Control the AV speed setting using the System Hand Controller.
Utilize the camera controls using the System Hand Controller.
Bring the AV home using System Hand Controller inputs.
Land the AV by bringing it to the ground using System Hand Controller inputs.
Land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Successfully setup the Base Station.
Successfully setup the GCS with the System Hand Controller.
Successfully assemble and stage the AV.
Successfully elect and activate an AV.
Successfully launch the AV using the System Hand Controller.
Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads up.

Successfully conduct basic flight maneuvers in all six axes of motion (slide: fore/aft, slide: left/right, yaw: left/right, altitude: climb/descend) using the System Hand Controller while heads down.
Successfully complete one box pattern utilizing only lateral control input (left joystick) using the System Hand Controller while heads up.
Successfully complete one box pattern utilizing only lateral control input (left joystick) using the System Hand Controller while heads down.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads up.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control stopping and turning at the corners using the System Hand Controller while heads down.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads up.
Successfully complete one box pattern utilizing both lateral (left joystick) and yaw (right joystick) control utilizing continuous action by conducting coordinated turns at the corners using the System Hand Controller while heads down.
Successfully control the AV speed setting using the System Hand Controller.
Successfully utilize the camera controls using the System Hand Controller.
Successfully bring the AV home using System Hand Controller inputs.
Successfully land the AV by bringing it to the ground using System Hand Controller inputs.
Successfully land the AV by killing the motors when the AV in on the ground using the System Hand Controller.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1710

Range Training Area: Minimum requirements:
Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1720	0.3	*	B	D	L	1 VTOL SRDR

Goal: Conduct In-depth GUI Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Utilize Mission planning tool and create a mission plan prior to takeoff.
Select and activate an AV.
Launch the AV.
Gain familiarity with all of the GUI functions and settings menus.
Enter Navigation mode and fly a programmed mission.
Pause and resume the AV's flight of the mission plan.
Reroute the AV while it is flying the mission plan.
Edit the mission plan while in flight, labeling known items.
Reposition Home position.
Bring the AV to home using Home mode.

Land the AV by using the Land Feature.
Recover the AV and render it safe.
Review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully utilize Mission planning tool and create a mission plan with at least four waypoints, one point of interest, one camera aim point, one no fly zone, and one perimeter prior to takeoff.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully gain familiarity with all of the GUI functions and settings menus.
Successfully enter Navigation mode and fly to at least four way points and to at least one point of interest in the programmed mission.
Successfully pause the mission at least once and resume the mission at least once while the AV is flying the mission plan.
Successfully reroute the AV while it is flying the mission plan to at least one way points and to at least one point of interest in the mission plan.
Successfully edit the mission plan while in flight by entering the Mission planning tool and adding one waypoint, deleting one way point, changing the grid for one way point or point of interest, and labeling at least one waypoint or point of interest.
Successfully reposition Home position.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.
Successfully review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: SRDR-1715.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1730 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Basic EO / IR Payload Operations Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV.
Designate a specific object of interest as a target.
Perform reconnaissance of the target using the EO camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Perform reconnaissance of the target using the IR camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Take a snapshot of the target, preview it, and download it to the GCS.

Perform reconnaissance on a target using Auto Grid with Auto Snaps enabled.
Use the Live Maps function to create Live Tiles on the GUI.
Clear all the Live Tiles from the GUI.
Use the EO camera to locate moving objects using MTI and MTT functions.
Use the IR camera to locate moving objects using MTI and MTT functions.
Use the MTT function with either the EO or IR camera to lock on to an object and observe bearing and range.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully designate a specific object of interest as a target.
Successfully perform reconnaissance of the target using the EO camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Successfully perform reconnaissance of the target using the IR camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Successfully take at least one snapshot of the target, preview it, and download it to the GCS.
Successfully perform reconnaissance on a target using Auto Grid with Auto Snaps enabled.
Successfully use the Live Maps function to create Live Tiles on the GUI.
Successfully clear all the Live Tiles from the GUI.
Successfully use the EO camera to locate moving objects using MTI and MTT functions.
Successfully use the IR camera to locate moving objects using MTI and MTT functions.
Successfully use the MTT function with either the EO or IR camera to lock on to an object and observe bearing and range.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1720.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1732 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Basic 30x Zoom EO Payload Operations Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Select and activate an AV.
Launch the AV.

Designate a specific object of interest as a target.
Perform reconnaissance of the target using the 30x Zoom camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Take HD images of the target using the ZoomSnap, preview it, and download it to the GCS.
Perform reconnaissance on a target using Auto Grid with Auto Snaps enabled.
Use the Live Maps function to create Live Tiles on the GUI.
Clear all the Live Tiles from the GUI.
Use the 30x Zoom camera to locate moving objects using MTI and MTT functions.
Use the MTT function to lock on to an object and observe bearing and range.
Use the video measure meant tool to measure the distance between two objects, two locations, or a combination an object and a location.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully designate a specific object of interest as a target.
Successfully perform reconnaissance of the target using the 30x Zoom camera, utilizing manual pan / tilt and using the touchscreen with the stylus.
Successfully take at least one HD image of the target using the ZoomSnap, preview it, and download it to the GCS.
Successfully perform reconnaissance on a target using Auto Grid with Auto Snaps enabled.
Successfully use the Live Maps function to create Live Tiles on the GUI.
Successfully clear all the Live Tiles from the GUI.
Successfully use the 30x Zoom camera to locate moving objects using MTI and MTT functions.
Successfully use the MTT function to lock on to an object and observe bearing and range.
Successfully use the video measure meant tool to measure to measure the distance between two objects, two locations, or a combination an object and a location.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with 30x Zoom Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1720.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1734	0.3	*	B		D	L	1 VTOL SRDR

Goal: Conduct Basic Forward and Navigation Camera Flight Operations.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station.
Setup the GCS.

Assemble and stage the AV.
Select and activate an AV.
Launch the AV.
Navigate the AV to a desired location using the Forward Camera.
Transition to the Navigation Cameras when in vicinity of the desired location.
Using the Navigation Cameras position the AV directly over the desired location.
Using the Navigation Cameras bring the AV to 10 ft AGL maintaining position over the desired location.
Return the AV to Minimum Safe Altitude.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully navigate the AV to a desired location using the Forward Camera.
Successfully transition to the Navigation Cameras when in vicinity of the desired location.
Successfully use the Navigation Cameras to position the AV directly over the desired location.
Successfully use the Navigation Cameras to bring the AV to 10 ft AGL maintaining position over the desired location.
Successfully return the AV to Minimum Safe Altitude.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with Drop Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1720.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1736 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Basic Drop Payload Operations Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV with an item to drop at a target location.
Select and activate an AV.
Launch the AV.
Navigate the AV to a desired location using the Forward Camera.
Transition to the Navigation Cameras when in vicinity of the desired location.
Using the Navigation Cameras position the AV directly over the desired location.
Using the Navigation Cameras bring the AV to 10 ft AGL maintaining position over the desired location.

When the AV is at 10 ft AGL over the desired location, release the item from the drop payload using the release interface on the GUI.
Return AV to Minimum Safe Altitude.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully navigate the AV to a desired location using the Forward Camera.
Successfully transition to the Navigation Cameras when in vicinity of the desired location.
Successfully use the Navigation Cameras to position the AV directly over the desired location.
Successfully use the Navigation Cameras to bring the AV to 10 ft AGL maintaining position over the desired location.
Successfully release the item from the drop payload using the release interface on the GUI when the AV is at 10 ft AGL over the desired location.
Successfully return AV to Minimum Safe Altitude.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with Drop Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1720.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1740	0.3	*	B	N	L	1 VTOL SRDR

Goal: Conduct Night Flight 01 with EO/IR Payload.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station at night.
Setup the GCS at night.
Assemble and stage the AV at night.
Utilize Mission planning tool and create a mission plan prior to takeoff at night.
Select and activate an AV at night.
Launch the AV at night.
Enter Navigation mode and fly a programmed mission at night.
Conduct basic reconnaissance on a point and / or an area at night.
Identify a Target Area of Interest (TAI) or items of interest at night.
Take a snapshot of the target, preview it, and download it to the GCS at night.
Locate moving objects using MTI and MTT functions at night.
Use the MTT function to lock on to an object and observe bearing and range at night.
Bring the AV to home using Home mode at night.
Land the AV by using the Land Feature at night.

Recover the AV and render it safe at night.
Review mission video and snapshots post mission at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station at night.
Successfully setup the GCS at night.
Successfully assemble and stage the AV at night.
Successfully utilize Mission planning tool and create a mission plan with at least four waypoints, one point of interest, one camera aim point, one no fly zone, and one perimeter prior to takeoff at night.
Successfully select and activate an AV at night.
Successfully launch the AV at night.
Successfully enter Navigation mode and fly to at least four way points and to at least one point of interest in the programmed mission at night.
Successfully conduct basic reconnaissance on a point and / or an area at night.
Successfully identify at least one Target Area of Interest (TAI) or at least one item of interest at night.
Successfully take at least one snapshot of the target, preview it, and download it to the GCS at night.
Successfully locate moving objects using MTI and MTT functions at night.
Successfully use the MTT function to lock on to an object and observe bearing and range at night.
Successfully bring the AV to home using Home mode at night.
Successfully land the AV by using the Land Feature at night.
Successfully recover the AV and render it safe at night.
Successfully review mission video and snapshots post mission at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1730.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1745 0.3 * B N L 1 VTOL SRDR

Goal: Conduct Night Flight 02.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Setup the Base Station at night.
Setup the GCS at night.
Assemble and stage the AV at night.
Utilize mission planning tool and create a mission plan prior to takeoff at night.
Select and activate an AV at night.
Launch the AV at night.
Enter Navigation mode and fly a programmed mission at night.
Conduct basic reconnaissance on a point and / or an area at night.
Identify a Target Area of Interest (TAI) or items of interest at night.
Take a snapshot of the target, preview it, and download it to the GCS at night.
Locate moving objects using MTI and MTT functions at night.
Use the MTT function to lock on to an object and observe bearing and range at night.

Bring the AV to home using Home mode at night.
Land the AV by using the Land Feature at night.
Recover the AV and render it safe at night.
Review mission video and snapshots post mission at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station at night.
Successfully setup the GCS at night.
Successfully assemble and stage the AV at night.
Successfully utilize mission planning tool and create a mission plan with at least four waypoints, one point of interest, one camera aim point, one no fly zone, and one perimeter prior to takeoff at night.
Successfully select and activate an AV at night.
Successfully launch the AV at night.
Successfully enter Navigation mode and fly to at least four way points and to at least one point of interest in the programmed mission at night.
Successfully conduct basic reconnaissance on a point and / or an area at night.
Successfully identify at least one Target Area of Interest (TAI) or at least one item of interest at night.
Successfully take at least one snapshot of the target, preview it, and download it to the GCS at night.
Successfully locate moving objects using MTI and MTT functions at night.
Successfully use the MTT function to lock on to an object and observe bearing and range at night.
Successfully bring the AV to home using Home mode at night.
Successfully land the AV by using the Land Feature at night.
Successfully recover the AV and render it safe at night.
Successfully review mission video and snapshots post mission at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with Night Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller.

Launch Method: Ground Launch.

Prerequisite: SRDR-1730.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1750 0.3 * B (N) L 1 VTOL SRDR

Goal: Conduct Instructor Automatic In-air Replacement (AIR) / Multi UAV Demonstration Flight of the R80D.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will observe the instructor demonstrate:
How to setup the Base Station.
How to setup the GCS.
How to assemble and stage the two AVs.
How to utilize mission planning tool and create a mission plan prior to takeoff. .
How to select and activate AV 01.
How to launch the AV 01.
How to select and plan an AIR of AV 01 with AV 02.
How to launch AV 02 to replace AV 01.
How to execute AIR while maintaining visual on the designated target throughout.

How to bring AV 01 to home using AIR mode.
How to land AV 01 using AIR mode.
How to replace AV Battery in AV 01 and prepare for a second flight.
How to launch AV 01 and execute programmed mission plan.
How to re-task AV 02 and execute preprogrammed mission plan.
How to ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
How to bring AV 02 to home using Home mode.
How to land AV 02 by using the Land Feature.
How to bring AV 01 to home using Home mode.
How to land AV 01 by using the Land Feature.
How to recover both AVs and render them both safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:

Observe how to setup the Base Station.
Observe how to setup the GCS.
Observe how to assemble and stage the two AVs.
Observe how to utilize mission planning tool and create a mission plan prior to takeoff.
Observe how to select and activate AV 01.
Observe how to launch the AV 01.
Observe how to select and plan an AIR of AV 01 with AV 02.
Observe how to launch AV 02 to replace AV 01.
Observe how to execute AIR while maintaining visual on the designated target throughout.
Observe how to bring AV 01 to home using AIR mode.
Observe how to land AV 01 using AIR mode.
Observe how to replace AV Battery in AV 01 and prepare for a second flight.
Observe how to launch AV 01 and execute programmed mission plan.
Observe how to re-task AV 02 and execute preprogrammed mission plan.
Observe how to ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
Observe how to bring AV 02 to home using Home mode.
Observe how to land AV 02 by using the Land Feature.
Observe how to bring AV 01 to home using Home mode.
Observe how to land AV 01 by using the Land Feature.
Observe how to recover both AVs and render them both safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: AV 01: SKY RAIDER with EO/IR Payload, AV 02: SKY RAIDER with 30x Zoom Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: SRDR-1730 & 1732.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1752	0.3	*	B	D	L	1 VTOL SRDR

Goal: Conduct Automatic In-air Replacement (AIR) Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will observe the instructor demonstrate:

Setup the Base Station.

Setup the GCS.
Assemble and stage the two AVs.
Utilize the mission planning tool and create a mission plan prior to takeoff.
Select and activate AV 01.
Launch the AV 01.
Select and plan an AIR of AV 01 with AV 02.
Launch AV 02 to replace AV 01.
Execute AIR while maintaining visual on the designated target throughout.
Bring AV 01 to home using AIR mode.
Land AV 01 using AIR mode.
Bring AV 02 to home using Home mode.
Land AV 02 by using the Land Feature.
Recover both AVs and render them both safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the two AVs.
Successfully utilize the mission planning tool and create a mission plan prior to takeoff.
Successfully select and activate AV 01.
Successfully launch the AV 01.
Successfully select and plan an AIR of AV 01 with AV 02.
Successfully launch AV 02 to replace AV 01.
Successfully execute AIR while maintaining visual on the designated target throughout.
Successfully bring AV 01 to home using AIR mode.
Successfully land AV 01 using AIR mode.
Successfully bring AV 02 to home using Home mode.
Successfully land AV 02 by using the Land Feature.
Successfully recover both AVs and render them both safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: AV 01: SKY RAIDER with EO/IR Payload, AV 02: SKY RAIDER with 30x Zoom Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: SRDR-1750.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1754 0.3 * B D L 1 VTOL SRDR

Goal: Conduct Multi UAV Flight.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will observe the instructor demonstrate:
Setup the Base Station.
Setup the GCS.
Assemble and stage the two AVs.
Utilize the mission planning tool and create a mission plan prior to takeoff.
Select and activate AV 01.
Launch AV 01.
Task AV 01 to execute programmed mission plan.

Select and activate AV 02.
Launch AV 02.
Task AV 02 to execute preprogrammed mission plan.
Ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
Bring AV 01 to home using Home mode.
Land AV 01 by using the Land Feature.
Bring AV 02 to home using Home mode.
Land AV 02 by using the Land Feature.
Recover both AVs and render them both safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the two AVs.
Successfully utilize the mission planning tool and create a mission plan prior to takeoff.
Successfully select and activate AV 01.
Successfully launch AV 01.
Successfully task AV 01 to execute programmed mission plan.
Successfully select and activate AV 02.
Successfully launch AV 02.
Successfully task AV 02 to execute preprogrammed mission plan.
Successfully ensure that AV 01 and AV 02 are safely deconflicted through both manual and autonomous flight,
Successfully bring AV 01 to home using Home mode.
Successfully land AV 01 by using the Land Feature.
Successfully bring AV 02 to home using Home mode.
Successfully land AV 02 by using the Land Feature.
Successfully recover both AVs and render them both safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: AV 01: SKY RAIDER with EO/IR Payload, AV 02: SKY RAIDER with 30x Zoom Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: SRDR-1750.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

SRDR-1799 0.3 * B (N) L 1 VTOL SRDR

Goal: Conduct Certification Flight on R80D.

Requirement: IAW the references, checklists, ETF, and given a functional R80D, the student will:
Conduct full mission brief.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Setup the Base Station.
Setup the GCS.
Assemble and stage the AV.
Utilize mission planning tool and create a mission plan prior to takeoff.
Select and activate an AV.
Launch the AV.

Enter Navigation mode and fly a programmed mission.
Conduct basic reconnaissance on a point and / or an area.
Identify a Target Area of Interest (TAI) or items of interest.
Take a snapshot of the target, preview it, and download it to the GCS.
Locate moving objects using MTI and MTT functions.
Use the MTT function to lock on to an object and observe bearing and range.
Respond accurately and precisely to simulated emergency conditions.
Bring the AV to home using Home mode.
Land the AV by using the Land Feature.
Recover the AV and render it safe.
Review mission video and snapshots post mission.

Performance Standard: IAW the references, checklists, ETF, and given a functional R80D, without assistance from the instructor, the student will demonstrate the ability to:

Successfully conduct full mission brief.
Successfully coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Successfully setup the Base Station.
Successfully setup the GCS.
Successfully assemble and stage the AV.
Successfully utilize mission planning tool and create a mission plan prior to takeoff.
Successfully select and activate an AV.
Successfully launch the AV.
Successfully enter Navigation mode and fly a programmed mission.
Successfully conduct basic reconnaissance on a point and / or an area.
Successfully identify a Target Area of Interest (TAI) or items of interest.
Successfully take a snapshot of the target, preview it, and download it to the GCS.
Successfully locate moving objects using MTI and MTT functions.
Successfully use the MTT function to lock on to an object and observe bearing and range.
Successfully espond accurately and precisely to simulated emergency conditions.
Successfully bring the AV to home using Home mode.
Successfully land the AV by using the Land Feature.
Successfully recover the AV and render it safe.
Successfully review mission video and snapshots post mission.

Instructor. IQT-I

Initial System Condition: AV disassembled, Base Station powered down, and GCS powered down.

System Configuration: SKY RAIDER with EO/IR Payload or 30x Zoom Payload, Base Station, and GCS Tablet with OPSEC Ethernet cable and System Hand Controller (Optional).

Launch Method: Ground Launch.

Prerequisite: SRDR-1700, SRDR-1705, SRDR-1710, SRDR-1715, SRDR-1720, SRDR-1730, SRDR-1732, SRDR-1734, SRDR-1736, SRDR-1740, SRDR-1745, SRDR-1750, SRDR-1752, and SRDR-1754.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.8 Long Range / Long Endurance (LR/LE) CORE Skill Introduction

Purpose: To develop core skills and build experience in the basic operation of a LR/LESUAS.

LR/LE STALKER XE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
LR/LE-1800	0.4	*	B	D	STLKR XE	1	Basic Demonstration Flight
LR/LE-1805	0.4	*	B	D	STLKR XE	1	Basic Flight
LR/LE-1810	0.4	*	B	D	STLKR XE	1	Flight Mode Familiarization
LR/LE-1815	0.4	*	B	D	STLKR XE	1	Target Acquisition Flight
LR/LE-1820	0.4	*	B	D	STLKR XE	1	Drop Payload Demonstration Flight
LR/LE-1825	0.4	*	B	D	STLKR XE	1	Drop Payload Flight
LR/LE-1830	0.4	*	B	D	STLKR XE	1	Multi UAV Demonstration Flight
LR/LE-1835	0.4	*	B	D	STLKR XE	1	Multi UAV Flight
LR/LE-1840	0.4	*	B	D	STLKR XE	1	Target Offset Flight
LR/LE-1845	0.4	*	B	D	STLKR XE	1	AV Hand Offs
LR/LE-1850	0.4	*	B	D	STLKR XE	1	Mobile Operations from a Moving Vehicle
LR/LE-1855	0.4	*	B	D	STLKR XE	1	Alternate Launch Methods
LR/LE-1860	0.4	*	B	D	STLKR XE	1	VTOL Demonstration Flight
LR/LE-1865	0.4	*	B	D	STLKR XE	1	Basic VTOL Flight
LR/LE-1870	0.4	*	B	N	STLKR XE	1	Basic Night Flight
LR/LE-1875	0.4	*	B	N	STLKR XE	1	Basic VTOL Night Flight
LR/LE-1880	0.4	*	B	D	STLKR XE	1	Area / Point / Zone Reconnaissance Flight
LR/LE-1899	0.4	*	B	(N)	STLKR XE	1	Certification Flight

Prerequisites.
1. ACAD Stage complete
2. BUQ-1 and BUQ-2 Qualification

References:
1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

LR/LE-1800 0.4 * B D L 1 STLKR XE

Goal: Conduct Instructor Demonstration Flight of the STLKR XE.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will observe the instructor demonstrate:

How to setup the GCS.
How to plan and load mission information on the mission laptop.
How to assemble and stage the AV.
How to launch the Media Client Software.
How to launch the AV using the bungee launcher.
How to utilize the mission laptop to execute basic flight controls while in autonomous flight.
How to utilize the mission laptop to execute basic flight controls while in U Drive.
How to conduct practice approaches and utilize the abort landing feature.
How to land the AV autonomously using either the PRI or ALT landing pattern.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Observe how to setup the GCS.
Observe how plan and load mission information on the mission laptop.
Observe how to assemble and stage the AV.
Observe how to launch the Media Client Software.
Observe how to launch the AV using the bungee launcher.
Observe how to utilize the mission laptop to execute basic flight controls while in autonomous flight.
Observe how to utilize the mission laptop to execute basic flight controls while in U Drive.
Observe how to conduct practice approaches and utilize the abort landing feature.
Observe how to land the AV autonomously using either the PRI or ALT landing pattern.
Observe how to recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: ACAD Events 1000-1027.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1805 0.4 * B D L 1 STLKR XE

Goal: Conduct Basic Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
MO will launch the AV using the bungee launcher.
Utilize the mission laptop to execute basic flight controls while in autonomous flight.
Utilize the mission laptop to execute basic flight controls while in U Drive.
Utilize the mission laptop to conduct basic payload controls.
Conduct practice approaches and utilize the abort landing feature.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher (MO).
Successfully utilize the mission laptop to execute basic flight controls while in autonomous flight.
Successfully utilize the mission laptop to execute basic flight controls while in U Drive.
Successfully utilize the mission laptop to conduct basic payload controls.
Successfully conduct practice approaches and utilize the abort landing feature.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1800.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1810	0.4	*	B	D	L	1 STLKR XE

Goal: Conduct Flight Mode Familiarization Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
MO will, launch the AV using the bungee launcher.
Utilize the mission laptop to utilize the orbit here now control.
Utilize the mission laptop to edit the mission and sync the new mission to the AV.
Utilize the mission laptop to generate a Sensor Point of Interest (SPOI).
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher (MO).
Successfully utilize the mission laptop to utilize the orbit here now control.
Successfully utilize the mission laptop to edit the mission and sync the new mission to the AV.
Successfully utilize the mission laptop to generate a Sensor Point of Interest (SPOI).
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1805.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1815 0.4 * B D L 1 STLKR XE

Goal: Conduct Target Acquisition Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
MO will, launch the AV using the bungee launcher.
Use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Utilize the mission laptop to edit the mission based on the TAI or item of interest and sync the new mission to the AV.
Utilize the mission laptop to take pictures of the TAI or item of interest.
Utilize the mission laptop to track stationary and moving targets.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher (MO).
Successfully use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Successfully utilize the mission laptop to edit the mission based on the TAI or item of interest and sync the new mission to the AV.
Successfully utilize the mission laptop to take pictures of the TAI or item of interest.
Successfully utilize the mission laptop to track stationary and moving targets.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1810.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1820 0.4 * B D L 1 STLKR XE

Goal: Conduct Instructor Demonstration of Drop Payload Flight of the STLKR XE.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will observe the instructor demonstrate:

How to setup the GCS.
How to plan and load mission information on the mission laptop.
How to assemble and stage the AV.
How to launch the Media Client Software.
How to launch the AV using the bungee launcher.
How to utilize the mission laptop to coordinate drop on target.
How to land the AV autonomously using either the PRI or ALT landing pattern.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Observe how to setup the GCS.
Observe how plan and load mission information on the mission laptop.
Observe how to assemble and stage the AV.
Observe how to launch the Media Client Software.
Observe how to launch the AV using the bungee launcher.
Observe how to utilize the mission laptop to coordinate drop on target.
Observe how to land the AV autonomously using either the PRI or ALT landing pattern.
Observe how to recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, Drop Payload Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1815

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1825 0.4 * B D L 1 STLKR XE

Goal: Conduct Drop Payload Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
MO will, launch the AV using the bungee launcher.
Utilize the mission laptop to coordinate drop on target.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher (MO).
Successfully utilize the mission laptop to coordinate drop on target.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, Drop Payload Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1820

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1830	0.4	*	B	D	L	1 STLKR XE

Goal: Conduct Instructor Demonstration of Multi UAV Flight of the STLKR XE.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will observe the instructor demonstrate:
How to setup the GCS.
How to plan and load mission information on the mission laptop.
How to assemble and stage two AVs.
How to launch the Media Client Software.
How to launch AV 01 using the bungee launcher.
How to establish AV 01 in the mission flight plan.
How to launch AV 02 using the bungee launcher.
How to establish AV 02 in the mission flight plan.
How to ensure that AV 01 and AV 02 are safely deconflicted through both autonomous flight and U Drive.
How to land the AV 01 autonomously using either the PRI or ALT landing pattern.
How to land the AV 02 autonomously using either the PRI or ALT landing pattern.
How to recover both AVs and render them safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Observe how to setup the GCS.
Observe how to plan and load mission information on the mission laptop.
Observe how to assemble and stage two AVs.
Observe how to launch the Media Client Software.
Observe how to launch AV 01 using the bungee launcher.
Observe how to establish AV 01 in the mission flight plan.
Observe how to launch AV 02 using the bungee launcher.
Observe how to establish AV 02 in the mission flight plan.
Observe how to ensure that AV 01 and AV 02 are safely deconflicted through both autonomous flight and U Drive.
Observe how to land the AV 01 autonomously using either the PRI or ALT landing pattern.
Observe how to land the AV 02 autonomously using either the PRI or ALT landing pattern.

Observe how to recover both AVs and render them safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: AV 01: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, AV 02: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and Mid-Range GCS Radio.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1815

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1835	0.4	*	B	D	L	1 STLKR XE

Goal: Conduct Multi UAV Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage two AVs.
Launch the Media Client Software.
Launch AV 01 using the bungee launcher.
Establish AV 01 in the mission flight plan.
Launch AV 02 using the bungee launcher.
Establish AV 02 in the mission flight plan.
Ensure that AV 01 and AV 02 are safely deconflicted through both autonomous flight and U Drive.
Land the AV 01 autonomously using either the PRI or ALT landing pattern.
Land the AV 02 autonomously using either the PRI or ALT landing pattern.
Recover both AVs and render them safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage two AVs.
Successfully launch the Media Client Software.
Successfully launch AV 01 using the bungee launcher.
Successfully establish AV 01 in the mission flight plan.
Successfully launch AV 02 using the bungee launcher.
Successfully establish AV 02 in the mission flight plan.
Successfully ensure that AV 01 and AV 02 are safely deconflicted through both autonomous flight and U Drive.
Successfully land the AV 01 autonomously using either the PRI or ALT landing pattern.
Successfully land the AV 02 autonomously using either the PRI or ALT landing pattern.
Successfully recover both AVs and render them safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: AV 01: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, AV 02: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and Mid-Range GCS Radio.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1830

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1840 0.4 * B D L 1 STLKR XE

Goal: Conduct Target Offset Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
MO will, launch the AV using the bungee launcher.
Use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Utilize the mission laptop to generate a Sensor Point of Interest (SPOI).
Utilize the mission laptop to edit the mission based on the SPOI in order to maintain contact with the TAI or item of interest while maintaining a strategic offset so as not to compromise the target under surveillance and sync the new mission to the AV.
Utilize the mission laptop to take pictures of the TAI or item of interest.
Utilize the mission laptop to track stationary and moving targets.
Utilize the mission laptop to process imagery from the current mission.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher (MO).
Successfully use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.
Successfully utilize the mission laptop to generate a Sensor Point of Interest (SPOI).
Successfully utilize the mission laptop to edit the mission based on the SPOI in order to maintain contact with the TAI or item of interest while maintaining a strategic offset so as not to compromise the target under surveillance and sync the new mission to the AV.
Successfully utilize the mission laptop to take pictures of the TAI or item of interest.
Successfully utilize the mission laptop to track stationary and moving targets.
Successfully utilize the mission laptop to process imagery from the current mission.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and Long-Range GCS Radio.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1815

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1845	0.4	*	B	D	L	1 STLKR XE

Goal: Conduct AV Hand-Offs Between Two Ground Control Stations.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

GCS 01 (Stationary Site)

Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, GCS Radio frequency, and general mission parameters).
Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
MO will, launch the AV using the bungee launcher.
Establish the AV in the mission plan.
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02).
Standby in RVT configuration.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02).
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Note: This event can be conducted from a either a stationary location or a mobile configuration depending on training area and equipment available.
Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Once AV is airborne connect to AV in RVT configuration.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01).
Standby in RVT configuration until AV is landed.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

GCS 01 (Stationary Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, GCS Radio frequency, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher (MO).
Successfully establish the AV in the mission plan.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02) at planned hand-off point.
Successfully standby in RVT configuration.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02) at planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02) at planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02) at planned hand-off point.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully connect to AV in RVT configuration once AV is airborne.
Successfully conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01) at planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01) at planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01) at planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01) at planned hand-off point.
Successfully standby in RVT configuration until AV is landed.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration:

GCS 01 (Stationary Site): STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and Mid-Range GCS Radio.

GCS 02 (Stationary or Mobile Site): GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1815

Range Training Area. Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1850 0.4 * B D L 1 STLKR XE

Goal: Conduct mobile operations from a moving vehicle.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS in mobile configuration (vehicle).
Plan and load mission information on the mission laptop. From the Settings Menu select Enable Chase GCS Mode. The software will use ground tracks and orbits to allow the aircraft to chase the GCS.
Configure the GCS for mobile operations using the magnetic mount antennas. Use the mag mount GPS antennas. In the Settings menu select "Edit GCS GPS Settings and select Mobile Mag Mount GPS."
Assemble and stage the AV.
Launch the Media Client Software.
MO will, launch the AV using the bungee launcher.
Establish the AV on flight plan.
Track a moving vehicle from a stationary vehicle.
Track a moving vehicle from a moving vehicle.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will demonstrate the ability to:

Successfully assemble and setup the GCS in mobile configuration (vehicle).
Successfully plan and load mission information on the mission laptop. From the Settings Menu select Enable Chase GCS Mode. The software will use ground tracks and orbits to allow the aircraft to chase the GCS.
Successfully configure the GCS for mobile operations using the magnetic mount antennas. Use the mag mount GPS antennas. In the Settings menu select "Edit GCS GPS Settings and select Mobile Mag Mount GPS."
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher.
Successfully establish the AV on flight plan.
Successfully track a moving vehicle from a stationary vehicle.
Successfully track a moving vehicle from a moving vehicle.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1815

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1855 0.4 * B D L 1 STLKR XE

Goal: Conduct flight using alternate launch method.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Assemble the pneumatic launcher.
Launch the Media Client Software.
During launch wizard, select "Rail Launch" in the Arm / Launch window.
MO will, launch the AV using pneumatic launcher.
Utilize the mission laptop to execute basic flight controls while in autonomous flight.
Utilize the mission laptop to conduct basic payload controls.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will demonstrate the ability to:
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully assemble the pneumatic launcher.
Successfully launch the Media Client Software.
Successfully select "Rail Launch" in the Arm / Launch window of the launch wizard.
Successfully launch the AV using pneumatic launcher.
Successfully utilize the mission laptop to execute basic flight controls while in autonomous flight.
Successfully utilize the mission laptop to conduct basic payload controls.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Pneumatic launch.

Prerequisite: LR/LE-1815.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1860 0.4 * B D L 1 STLKR XE

Goal: Conduct Instructor VTOL Demonstration Flight of the STLKR XE.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will observe the instructor demonstrate:
How to setup the GCS.
How to plan and load mission information on the mission laptop.
How to assemble and stage the AV in the VTOL configuration.
How to launch the Media Client Software.
How to launch the AV using the VTOL capability.
How to transition to forward flight and standard mission operations.
How to conduct practice approaches and utilize the abort landing feature.

How to land the AV autonomously in VTOL mode using either the PRI or ALT landing pattern.
How to recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will observe how to:

Successfully setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV in the VTOL configuration.
Successfully launch the Media Client Software.
Successfully launch the AV using the VTOL capability.
Successfully transition to forward flight and standard mission operations.
Successfully conduct practice approaches and utilize the abort landing feature.
Successfully land the AV autonomously in VTOL mode using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE with VTOL kit installed, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: VTOL Launch.

Prerequisite: LR/LE-1815.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1865 0.4 * B D L 1 STLKR XE

Goal: Conduct basic VTOL flight of the STLKR XE.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV in the VTOL configuration.
Launch the Media Client Software.
Launch the AV using the VTOL capability.
Transition to forward flight and standard mission operations.
Conduct practice approaches and utilize the abort landing feature.
Land the AV autonomously in VTOL mode using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Successfully setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV in the VTOL configuration.
Successfully launch the Media Client Software.
Successfully launch the AV using the VTOL capability.
Successfully transition to forward flight and standard mission operations.
Successfully conduct practice approaches and utilize the abort landing feature.
Successfully land the AV autonomously in VTOL mode using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE with VTOL kit installed, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: VTOL Launch.

Prerequisite: LR/LE-1860.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1870	0.4	*	B	N	L	1 STLKR XE

Goal: Conduct Basic Night Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Assemble and setup the GCS at night.
Plan and load mission information on the mission laptop at night.
Assemble and stage the AV at night.
Launch the Media Client Software at night.
MO will, launch the AV using the bungee launcher at night.
Utilize the mission laptop to execute basic flight controls while in autonomous flight at night.
Utilize the mission laptop to execute basic flight controls while in U Drive at night.
Utilize the mission laptop to conduct basic payload controls at night.
Land the AV autonomously using either the PRI or ALT landing pattern at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will demonstrate the ability to:

Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the mission laptop at night.
Successfully assemble and stage the AV at night.
Successfully launch the Media Client Software at night.
Successfully launch the AV using the bungee launcher at night.
Successfully utilize the mission laptop to execute basic flight controls while in autonomous flight at night.
Successfully utilize the mission laptop to execute basic flight controls while in U Drive at night.
Successfully utilize the mission laptop to conduct basic payload controls at night.
Successfully land the AV autonomously using either the PRI or ALT landing pattern at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO/IR or IR payload, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1815.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1875 0.4 * B N L 1 STLKR XE

Goal: Conduct basic VTOL flight of the STLKR XE at night.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Setup the GCS at night.
Plan and load mission information on the mission laptop at night.
Assemble and stage the AV in the VTOL configuration at night.
Launch the Media Client Software at night.
Launch the AV using the VTOL capability at night.
Transition to forward flight and standard mission operations at night.
Conduct practice approaches and utilize the abort landing feature at night.
Land the AV autonomously in VTOL mode using either the PRI or ALT landing pattern at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Successfully setup the GCS at night.
Successfully plan and load mission information on the mission laptop at night.
Successfully assemble and stage the AV in the VTOL configuration at night.
Successfully launch the Media Client Software at night.
Successfully launch the AV using the VTOL capability at night.
Successfully transition to forward flight and standard mission operations at night.
Successfully conduct practice approaches and utilize the abort landing feature at night.
Successfully land the AV autonomously in VTOL mode using either the PRI or ALT landing pattern at night.
Successfully recover the AV and render it safe at night.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE with VTOL kit installed, EO/IR or IR payload, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: VTOL Launch.

Prerequisite: LR/LE-1860 & 1870.

Range Training Area: Minimum requirements:
1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1880 0.4 * B D L 1 STLKR XE

Goal: Conduct Area / Point / Zone Reconnaissance Flight.

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:
Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Launch the Media Client Software.
Launch the AV using the bungee launcher.
Establish AV on flight plan.
Use AV Payload to identify a Target Area of Interest (TAI) or items of interest.

Utilize the mission laptop to edit the mission based on the TAI or item of interest and sync the new mission to the AV.
Once a TAI or an item of interest is identified, the MO will manipulate the mission control software/flight plan and/or utilize target track as necessary to maintain contact with the target. Use SPOIs as required.
On the mission laptop, the MO will capture and export still images of the TAI or item of interest using the media client software.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully launch the Media Client Software.
Successfully launch the AV using the bungee launcher.
Successfully establish AV on flight plan
Successfully use AV Payload to identify a Target Area of Interest (TAI) or items of interest.
Utilize the mission laptop to edit the mission based on the TAI or item of interest and sync the new mission to the AV.
Successfully manipulate the mission control software/flight plan and/or utilize target track as necessary to maintain contact with the target once a TAI or an item of interest is identified. Use SPOIs as required.
Successfully capture and export still images of the TAI or item of interest using the media client software on the mission laptop.
Successfully land the AV autonomously using either the PRI or ALT landing pattern.
Successfully recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, EO Type 980 Imager Pod, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1845.

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

LR/LE-1899 0.4 * B (N) L 1 STLKR XE

Goal: Conduct Certification Flight on STLKR XE

Requirement: IAW the references, checklists, ETF, and given a functional STLKR XE, the student will:

Conduct full mission brief.
Assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Assemble and stage the AV.
Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Launch the AV using the bungee launcher
Utilize the mission laptop to edit the mission based on the TAI or item of interest and sync the new mission to the AV.

Conduct area reconnaissance.
Conduct point reconnaissance.
Use the AV Payload to identify a Target Area of Interest (TAI) or items of interest.
Manipulate the mission control software/flight plan and/or utilize target track as necessary to maintain contact with the target once a TAI or an item of interest is identified. Use SPOIs as required.
On the mission laptop, the MO will capture and export still images of the TAI or item of interest using the media client software.
Respond accurately and precisely to simulated emergency conditions.
Land the AV autonomously using either the PRI or ALT landing pattern.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, without assistance from the instructor, the student will demonstrate the ability to:

Successfully conduct full mission brief.
Successfully assemble and setup the GCS.
Plan and load mission information on the mission laptop.
Successfully assemble and stage the AV.
Successfully Coordinate with Airspace Control Authority (ACA) or Range Control (simulate with call to instructor) for conduct of flight operations.
Successfully Launch the AV using the bungee launcher
Successfully Utilize the mission laptop to edit the mission based on the TAI or item of interest and sync the new mission to the AV.
Successfully conduct area reconnaissance.
Successfully Conduct point reconnaissance.
Successfully Use the AV Payload to identify a Target Area of Interest (TAI) or items of interest.
Successfully manipulate the mission control software/flight plan and/or utilize target track as necessary to maintain contact with the target once a TAI or an item of interest is identified, the MO. Use SPOIs as required.
Successfully On the mission laptop, the MO will capture and export still images of the TAI or item of interest using the media client software.
Successfully Respond accurately and precisely to simulated emergency conditions.
Successfully Land the AV autonomously using either the PRI or ALT landing pattern.
Successfully Recover the AV and render it safe.

Instructor. IQT-I

Initial System Condition: AV disassembled, GCS powered down, and Radio Off

System Configuration: STLKR XE in baseline FW Configuration, any FMV payload, GCS Computer with VO Hand Controller, and GCS Radio with Whip Antennas or Mag-Mount Antennas.

Launch Method: Bungee Launch.

Prerequisite: LR/LE-1800,1805,1810,1815,1820,1825,1835,1840,1845,1850,1855,1860,1865,1870,1875,1880

Range Training Area: Minimum requirements:

1. Launch / Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Note: Tall obstacles may obstruct LOS during flight.

2.7.9 Non-POR VTOL (NPOR) CORE Skill Introduction

Non-Program of Record (NPOR) SUAS. Per the SUAS Marine Corps Bulletin (3710) 18 Apr 2017, NPOR systems are not acquired or funded through the Program Objective Memorandum (POM) process. These FW or RW systems are normally Commercial Off The Shelf (COTS) systems that may be purchased with unit funds. This category of system also includes emerging or interim solutions rapidly fielded via Urgent Universal Needs Statements (U-UNS),

to use for a Contingency or to fill a capability gap which have not yet become fully vetted or formally acquired as POR systems.

Purpose: To develop core skills and build experience in the basic operation of a Non-POR VTOL SUAS.

Non-POR VTOL (NPOR) STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
NPOR -1900	0.3	*	B	D	NPOR	1	Conduct a demonstration flight using NPOR
NPOR -1905	0.3	*	B	D	NPOR	1	Conduct heads up flight using an NPOR
NPOR -1910	0.3	*	B	D	NPOR	1	Conduct heads down flight, primary flight mode using an NPOR
NPOR -1915	0.3	*	B	D	NPOR	1	Conduct maximum range flight using an NPOR
NPOR -1920	0.3	*	B	(N)	NPOR	1	Conduct flight using alternate flight modes and special features using the NPOR
NPOR -1925	0.3	*	B	(N)	NPOR	1	Conduct payload operations using an NPOR
NPOR -1930	0.3	*	B	(N)	NPOR	1	Conduct an airborne recon mission using an NPOR
NPOR-1979	0.3	*	B	(N)	NPOR	1	Conduct Certification Flight on NPOR

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 Qualification

References:

1. CJSUAS-E 3255.01_ Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

NPOR -1900 0.3 * B D L 1 NPOR

Goal. Conduct a demonstration flight using an NPOR.

Requirement. Given a functional NPOR system, instructor will complete demonstration flight using all system flight modes IAW the system references and checklists. Since the NPORNPOR may not have a simulator mode the demonstration flight is an essential step in developing an understanding of the operation and capabilities of the system before attempting live flight.

Instructor will demonstrate:
System assembly, power up and staging.
Walkthrough all functions, modes, and system/flight operations.
Low battery warnings and battery falloff
Launch sequence.
Basic mission profiles and camera/payload operations.
GPS denied operations.
Loss of Link procedures
AV recovery and landing (all landing modes applicable).
Mission review and video playback (as applicable).
Student will observe demonstration flight and ask questions.

Performance Standard. N/A.

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery.

Prerequisite: ACAD Events 1000-1027

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1905	0.3	*	B	D	L	1 NPOR

Goal. Conduct heads up flight using an NPOR.

Requirement. Conduct flight operations with the NPOR while looking up at the AV (heads up flight). IAW the system references, applicable checklists, ETF, and given a functional NPOR system the student will:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Conduct heads up basic flight maneuvers in all four axes of motion (slide fore/aft, slide left/right, yaw (rotate) left/right, up/down.
Climb until unable to hear/see AV to find acoustic/visual limits of the NPOR.
Conduct coordinated turns combining forward/turning and yaw controls.
Conduct practice approaches to initial (50 ft AGL/10m in front of operator) and final landing profile specific to the NPOR AV.
Land AV.
Recover AV and render it safe.

Performance Standard. Conduct initial heads up flight and basic flight maneuvers IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up the GCS.
Assemble and conduct preflight and prelaunch checks on AV.
Launch AV with assistance.
Conduct LL flight, box patterns, coordinated turns and other maneuvers as directed. Hard deck for this phase of instruction is 20 ft AGL.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using primary landing mode (e.g. Autoland).
Recover AV and render it safe.

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery.

Prerequisite. NPOR 1900.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1910 0.3 * B D L 1 NPOR

Goal. Conduct heads down flight in primary flight mode using an NPOR.

Requirement. Conduct flight operations with the NPOR while looking up at the AV GCS (heads down flight). With instructor guidance and IAW the system references, applicable checklists, ETF, and given a functional NPOR system the student will:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Perform basic heads down maneuvers as directed by IQT-I to understand all on-screen GCS data graphics.
Position the AV (as directed) at a specific point in space (range/bearing/altitude) and a specific camera direction by maneuvering heads down.
Gain familiarization with all in-flight selectable AV and payload menu options.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Performance Standard. Conduct heads down flight IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up GCS.
Conduct preflight and prelaunch checks on AV.
Launch AV to clear obstacles.
Perform basic heads down maneuvers as directed.
Demonstrate working knowledge of all on-screen GCS data graphics.
Demonstrate familiarization with all in-flight selectable AV and payload menu options.
Bring AV to a specific point in space using only heads down flight.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery.

Prerequisite. NPOR 1905.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

2. VTOL SUAS

a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1915 0.3 * B D L 1 NPOR

Goal. Conduct maximum range flight using an NPOR.

Requirement. Operate the NPOR AV to its maximum range (within constraints of available airspace) IAW the system references and applicable checklists. Given a functional NPOR system the student will:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Fly AV to its maximum achievable range as directed without exceeding the airspace/range boundaries. Use available system controls to optimize signal and image quality while performing surveillance at maximum range.
Execute Loss of Link (LOL) procedures. At maximum range, the Instructor will attempt to initiate a loss of C2 link condition by blocking / masking / shielding the C2 antenna(s) IOT demonstrate the NPOR's LOL recovery profile.
Regain control of AV from the LOL profile.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Performance Standard. Conduct a maximum range flight IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up GCS.
Assemble and conduct preflight and prelaunch checks on AV.
Launch AV to clear obstacles.
Fly AV to its maximum range, using altitude and LOS considerations as well as any available system controls to optimize system performance.
Recover the AV from a LOL situation.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery.

Prerequisite. NPOR 1910.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS

a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

2. VTOL SUAS

a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1920 0.3 * B (N) L 1 NPOR

Goal. Conduct flight using alternate flight modes and special features using an NPOR.

Requirement. Operate NPOR in all normal and special flight modes (e.g. Auto, terrain recognition, and GPS denied modes) and utilize all non-payload flight-related special features (e.g. Target tracking, proximity sensing, and default search pattern). Prior to conducting this flight, the Instructor shall review each flight mode/feature that will be included in the flight profile with the student. This event can be conducted at night for NPOR systems appropriately configured with night payloads and lighting. IAW the system references, applicable checklists, ETF, and given a functional NPOR system the student will:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Operate NPOR in all available flight modes (within constraints of available airspace and spectrum).
Use all NPOR non-payload flight-related special features (within constraints of available airspace and spectrum).
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Performance Standard. Utilize all flight modes and non-payload flight-related special features IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up GCS.
Assemble and conduct preflight checks of AV.
Conduct prelaunch checks and launch AV.
Operate AV using all available flight mode when directed by the IQT-I.
Utilize all non-payload special features as directed by the IQT-I.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery (night payload configuration for night missions).

Prerequisite. NPOR 1915.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1925 0.3 * B (N) L 1 NPOR

Goal. Conduct payload operations using an NPOR.

Requirement. Use all available payload modes and adjustment options. This event can be conducted at night for NPOR systems appropriately configured with night payloads and lighting. IAW the system references, applicable checklists, ETF, and given a functional NPOR system the student will:

Set up the GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Conduct reconnaissance on a variety of targets of opportunity, as directed, while emphasizing use of and control of the payload in all modes (e.g. day, night, filters, etc.) and settings (i.e. zoom levels, aperture settings, stabilization modes, target tracking modes, etc.)
Track a moving target using optimal payload mode/setting.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Performance Standard. Use all available payload modes and adjustment options IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up GCS.
Configure AV and conduct preflight checks.
Conduct prelaunch checks and launch AV to clear obstacles.
Conduct surveillance on a specific target, as directed, using all payload modes.
Use applicable AV modes/settings and the payload to track a moving target.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery (night payload for night missions).

Prerequisite. NPOR 1920.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1930 0.3 * B (N) L 1 NPOR

Goal. Conduct an airborne recon mission using an NPOR.

Requirement. Prior to launch the IQT-I will provide the student with a detailed description of the mission to be flown with an emphasis on flight modes and special features to be used, payload parameters, and desired collection

products. IAW the system references, applicable checklists, ETF, and given a functional NPOR system the student will:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Conduct an airborne reconnaissance mission as directed by the instructor.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Performance Standard. Conduct a simulated tactical airborne reconnaissance mission IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Use flight modes, special features, and payload options as directed to conduct an airborne reconnaissance mission IOT obtain specified intelligence products as directed.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery.

Prerequisite. NPOR 1925.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

NPOR -1979	0.3	*	B	(N)	L	1 NPOR

Goal. Certification flight for NPOR.
Requirement. Prior to launch the IQT-I will provide the student with a detailed description of the mission to be flown with an emphasis on flight modes and special features to be used, payload parameters, and desired collection products. IAW the system references, applicable checklists, ETF, and given a functional NPOR system the student will:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Conduct an airborne reconnaissance mission as directed by the instructor.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).

Recover AV and render it safe.

Performance Standard. Conduct a simulated tactical airborne reconnaissance mission IAW the references, checklists, and ETF. The student will demonstrate the ability to:

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Use flight modes, special features, and payload options as directed to conduct an airborne reconnaissance mission IOT obtain specified intelligence products as directed.
Bring the AV to a safe initial point for landing (50 ft AGL, 10m in front of operator, AV pointed away from operator (so control inputs and AV reactions are identical vs. reverse).
Land the AV using any landing mode (e.g. Auto or manual).
Recover AV and render it safe.

Instructor. IQT-I

Initial System Condition. NPOR system packed in its transport case/box.

System Configuration. Standard day payload with battery.

Prerequisite. NPOR 1930.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.8 CORE PHASE (2000)

Purpose. To retain entry-level skills acquired during the IQT phase and to begin applying those skills to advanced mission sets and tactical scenarios in order for an SUAS-O to be able to employ the systems in an operational environment.

General. This phase is intended to provide the operator with the skills necessary begin to integrate the SUAS operations into the tactical environment.

CORE PHASE		
STAGE	PARAGRAPH	PAGE NUMBER
COMMON SUAS SKILLS (CSS)	2.9.1	2-137
SUAS FIRES SKILLS (SFS)	2.9.2	2-152

2.9 CORE PHASE STAGES

2.9.1 COMMON SUAS SKILLS (CSS) STAGE

Purpose. To maintain/regain currency/proficiency on any SUAS; to introduce SUAS-Os to additional employment tactics, techniques, and procedures (TTPs).

General. Proficiency periods associated with certain events are intended to reinforce operator skills, build experienced SUAS operators, and prevent atrophy of learned skills due to lack of use reducing the likelihood of injury or damage to equipment.

COMMON SUAS SKILLS STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
CSS-2000	*	*	B,R	*	*	*	Introduction to local area flying operations using any SUAS
CSS-2005	0.4	60	B,R	(N)	Any SUAS	1	Demonstrate normal flight procedures within the local area and safely execute emergency procedures.
CSS-2010	0.4	90	B,R	D	Any SUAS	1	Flight Mode Familiarization and MO Assisted Flight
CSS-2015	0.4	*	B,R	(N)	Any SUAS	1	Refine reconnaissance techniques in a tactical scenario using any SUAS
CSS-2020	0.4	90	B,R	D	Any SUAS	1	Target Acquisition Flight
CSS-2025	0.4	*	B	(N)	Any SUAS	1	Conduct overwatch and security operations ISO a fixed position using any SUAS
CSS-2030	0.4	*	B	(N)	Any SUAS	1	Track mobile targets in a tactical environment using any SUAS
CSS-2035	0.4	*	B	(N)	Any SUAS	1	Conduct overwatch of friendly mobile operations using any SUAS
CSS-2040	0.3	180	B,R	N	Any SUAS	1	Night Flight 01
CSS-2045	0.4	*	B	(N)	Any SUAS	1	AV Hand-Offs
CSS-2050	0.3	*	B	D	Any SUAS	1	Operate AV as a Single Operator with assistant Conducting a Low Level (LL) Flight / LL Landing

Admin Notes.

(1) For a SUAS-O to be considered "full mission ready" (able to fly without instructor oversight within their unit) that individual must be simultaneously proficient in all CSS Stage events for the specific SUAS they are working to be "full mission read" for. If a SUASO loses proficiency in an event see Appendix E.

(2) For each CSS event, recommend the conduct of pre-mission planning utilizing mission analysis (METT-TC).

(3) Additional tasks within each event are provided as supplemental skills to be practiced in conjunction with the main event requirements in order to provide scenario depth and greater exposure for the SUAS-O.

Prerequisites. SUAS-O Designated, 1000 Phase complete.

CSS-2000 * * B,R * G *

Goal. Introduction to local area flying operations.

Requirement. The SUAS-O will receive the information required to safely and effectively operate within the confines of the assigned operational area. Instruction shall include the following:

Ensure student has an ITR and Flight Log properly constructed and maintained per the references.
Provide detailed review of all Local Airspace (including SUAS) and SUAS training areas.
Provide detailed review of procedures for reserving training areas and airspace.
Provide a detailed review of all applicable controlling agencies and entities (tactical and administrative) for conducting SUAS operations in the local flying area.
Introduce how to assist unit personnel with SUAS spectrum deconfliction.
Introduce the student to the unit spectrum manager.
Provide a detailed review of all local SOPs, orders, policies and regulations that govern local SUAS flight operations.
Provide an overview of local unit procedures for storage, handling, and accounting for SUAS equipment.
Provide an overview of local supply points and procedures for replacing/repairing broken/missing system parts.
Provide a detailed review of local procedures for planning, conducting, and logging SUAS flight operations.
Provide a detailed review of procedures required in the event of a lost or damaged SUAS.
Provide an overview of incident and mishap reporting procedures.
Demonstrate how to access local and Service websites related to the performance of SUAS-O duties.

Instructor. SUAS-E

Initial System Condition. N/A

System Configuration. N/A

Launch Method: As appropriate.

Prerequisite: Be a designated SUAS-O in SUAS in which being trained

CSS-2005	0.4	60	B,R		(N)	L	1 (Any SUAS)

Goal. Local area normal procedures and emergency procedures flight.

Requirement. Demonstrate comprehensive knowledge and understanding of Applicable Operator's Manuals, SOP's, and local course rules.

Set up GCS.
Assemble and conduct preflight checks on AV.
Conduct prelaunch checks and launch AV to clear obstacles.
Provide detailed review of all Local Airspace (including SUAS) and SUAS training areas.
Provide a detailed review of all applicable controlling agencies and entities (tactical and administrative) for conducting SUAS operations in the local flying area.
Provide a detailed review of all local SOPs, orders, policies and regulations that govern local SUAS flight operations.
Provide an overview of local unit procedures for storage, handling, and accounting for SUAS equipment.
Provide a detailed review of local procedures for planning, conducting, and logging SUAS flight operations.
Provide a detailed review of procedures required in the event of a lost or damaged SUAS.
Provide an overview of incident and mishap reporting procedures.
Demonstrate how to access local and Service websites related to the performance of SUAS-O duties.
Properly execute simulated emergency procedures
Recover the AV and render it safe

Performance Standard. The SUAS-O shall demonstrate the ability to fully understand and complete all required items of this event and to coordinate and conduct safe SUAS operations.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2010	0.4	90	B,R		D	L	1 (Any SUAS)

Goal: Conduct Flight Mode Familiarization and MO Assisted Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Enter LOIT, HOME, or NAV mode and use all speed submenus (Long, Slow, Far, and Fast).
Enter NAV mode and fly at least one complete orbit of diamond default.
In NAV mode, the VO will redirect AV to specified way points / orbit points.
In NAV mode, maneuver the payload and slave the payload to system waypoints.
In NAV mode, the MO will redirect AV to specified way points / orbit points.
On the RSTA laptop, the MO will change coordinate format from MGRS to LAT / LONG and back to MGRS.
On the RSTA laptop, the MO will use Mission Altitude Control to adjust waypoint altitudes while AV is in NAV mode.
On the RSTA laptop, the MO will use Mission Management Tool to change waypoint / orbit point location and AV orbit at orbit point from clockwise to counterclockwise.
Bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully Enter LOIT, HOME, or NAV mode and cycle through all speed submenus (Long, Slow, Far, and Fast).
Successfully enter NAV mode and fly at least one complete orbit of diamond default.

Successfully redirect AV to at least two specified way points / orbit points in NAV mode.
Successfully maneuver the payload and slave the payload to at least two system waypoints in NAV mode.
Successfully redirect AV to at least two specified way points / orbit points in NAV mode (MO).
Successfully change coordinate format from MGRS to LAT / LONG and back to MGRS on the RSTA laptop (MO).
Successfully use Mission Altitude Control Tool on the RSTA laptop to adjust waypoint altitudes while AV is in NAV mode (MO).
Successfully use Mission Management Tool on the RSTA laptop to change waypoint / orbit point location and AV orbit at orbit point from clockwise to counterclockwise (MO).
Successfully bring AV to HOME waypoint (in NAV Mode, not HOME mode).
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing).
Successfully recover the AV and render it safe.

Instructor. SUAS-E

Initial System Condition: AV disassembled, GCS powered down, and FalconView closed.

System Configuration: RQ-12A with Micro Gimbal Payload, GCS with VO Hand Controller, and MO RSTA Laptop with FalconView.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2015	0.4	*	B,R	(N)	L	1 (Any SUAS)

Goal. Refine reconnaissance techniques in a tactical scenario using any SUAS.

Profile. Select tactical launch site to support mission and provide optimal positioning for launch/recovery of the AV and security for the SUAS crew. During the mission the SUAS-O shall conduct Route, Area, and Point Reconnaissance. During the reconnaissance mission the focus should be on the quality of the products and the live video feed. Unit evaluator shall provide specific information and operational requirements for video/still imagery products required. Use of system-specific features and sensors to enhance reconnaissance effectiveness (e.g. S&T tool, enhanced zoom payload, use of IR during daytime) should be maximized.

Consideration and discussion should be given to a situation where the AV has been engaged by hostile fire. A downed AV event can be simulated, and appropriate responses to a downed AV can be rehearsed and refined as necessary. Discussion should also be given to situations involving an AV damaged by enemy fire or an AV experiencing RF or GPS jamming which could potentially result in a loss of AV.
The area reconnaissance shall be flown within a defined boundary (specified during the mission brief) with a specific objective. The point reconnaissance mission shall be flown using covert techniques to prevent acoustic and visual detection of the AV. SUAS crew should take notes and collect during the mission for later exploitation. At the conclusion of the flight, imagery and video

shall be processed for dissemination; dissemination methods shall be discussed with the unit evaluator.

Optional Goals.

Obtain required resources to conduct training (i.e., range, frequencies, system checkout, etc.)
Remote site launch and forward control of vehicle from a concealed position.
Conduct notional actions (e.g., reports and simulated EPs, as noted in CSS-2000).
Report mobile target status in real time.
Simulate a loss of AV due to RF jamming, GPS jamming, or enemy fire.
Simulate damage to the AV from enemy fire, or GPS jamming/RF jamming that does not result in immediate loss of AV.
Coordinate to provide external downlink to RVT(s)/VDL.

Requirement. Unit SUAS-E will provide the SUAS-O with a tactical scenario tailored to the specific range/operating area in use. SUAS-O shall plan and execute entire mission. IAW the references, checklists, and ETF, the SUAS-O will:

Select and install AV payload that best supports the environmental conditions and types of targets anticipated during the mission.
Plan mission IAW briefed parameters.
Conduct route reconnaissance of a linear feature.
Conduct area reconnaissance of defined NAIs or TAIs.
Conduct point reconnaissance using covert flight techniques.
Download and process imagery.
Disseminate captured video/still imagery.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2020	0.4	90	B,R	D	L	1 (Any SUAS)

Goal: Conduct Target Acquisition Flight.

Requirement: IAW the references, checklists, ETF, and given a functional RQ-12A, the student will:

Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Use the AV Payload to identify Target Areas of Interest (TAI) or items of interest.

Navigate around target using ALT mode.
Navigate around target using LOIT mode.
Navigate around target using NAV mode.
Using the VO Hand Controller, use the photo capture button to take pictures.
Using the VO Hand Controller, use the range and bearing tool to measure the distance between two objects, two locations, or a combination an object and a location.
On the RSTA laptop, the MO will manipulate waypoints and / or orbit points in the FalconView GUI using the drag and drop feature in order to maintain contact with the target.
On the RSTA laptop, the MO will leapfrog diamond waypoints to allow AV to search and navigate along a linear feature.
On the RSTA laptop, the MO will track stationary and moving targets using the AV Screener/Tracker.
On the RSTA laptop, the MO will capture images using the SD Image Capture Tool.
On the RSTA laptop, the MO will capture images using the HD Image Capture Tool.
On the RSTA laptop, the MO will pull, then delete captured images from the HUB.
On the RSTA laptop, the MO will process imagery from the current mission.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

Performance Standard: IAW the references, checklists, ETF, and given a functional RQ-12A. The student will demonstrate the ability to:

Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully identify two TAIs, two items of interest, or a combination of one TAI and one item of interest.
Successfully navigate around target in ALT mode.
Successfully navigate around target in LOIT mode.
Successfully navigate around target in NAV mode.
Successfully use the photo capture button on the VO Hand Controller, to take at least four pictures.
Successfully use the VO Hand Controller to measure the distance between two objects, two locations, or a combination of an object and a location using the Range and Bearing Tool.
Successfully manipulate waypoints and / or orbit points in the Falcon View GUI using the drag and drop feature on the RSTA laptop, in order to maintain contact with the target (MO).
Successfully leapfrog at least five diamond waypoints on the RSTA laptop to allow AV to search and navigate along a linear feature (MO).
Successfully track one stationary target and one moving target on the RSTA laptop using the AV Screener/Tracker (MO).
Successfully capture at least two images on the RSTA laptop, using the SD Image Capture Tool (MO).
Successfully capture at least two images on the RSTA laptop, using the HD Image Capture Tool (MO).
Successfully pull images from the HUB and then delete captured images from the HUB using the Falcon View GUI on the RSTA laptop (MO).
Successfully process at least one imagery item from the current mission on the RSTA laptop by opening the image, saving it as a JPEG, and then exporting it from the folder it is saved in.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Successfully recover the AV and render it safe

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2025	0.4	*	B	(N)	L	1 (Any SUAS)

Goal. Conduct overwatch and security operations in support of a fixed position using any SUAS.

Profile. The SUAS crew shall use SUAS to provide overwatch and security of their own fixed site. Site should simulate a small forward operating base or site with limited access and launch/recovery areas. Site should have some nearby vertical obstacles, if possible, such as trees or structures that will limit launch and recovery options. Mission preparation should include an IPB analysis of potential vulnerabilities, areas of interest, and visual dead space surrounding the launch site. The mission should prioritize areas within the enemy's effective weapons range per the scenario. Mission discussion and preparation should also include actions upon contact. Actions upon contact with SUAS are highly dependent on unit METL and mission specifics, but considerations include (but are not limited to): movement to a safe holding area or landing; mechanism/coordination to shift sensors to a specific point of interest or target; link up with a QRF; deconfliction with IDF or incoming airborne assets; launch of an additional asset or return of UAS for a battery swap.

During pre-mission planning, consideration should be given to potential IDF POO, enemy defilade or hidden fighting positions, ambush sites, denial of access for key avenues of approach, forward observation points for enemy observers, and infiltration routes for sappers, etc. Mission plan should follow a realistic flight path to provide imagery/video reconnaissance of those key areas and avenues identified during IPB. Precision landing techniques are critical to limit exposure of the SUAS crew to hostile fire and potential loss of AV.

Optional Goals.

Obtain required resources to conduct training (i.e., range, frequencies, system checkout, etc.)
Remote site launch and forward control of vehicle from a major hub (hub and spoke operations).
Conduct notional actions like reports and simulated EPs, as noted in CSS-2000).
Conduct actions upon contact scenario.
Coordinate to provide external downlink to RVT(s)/VDL.

Requirement. Unit SUAS-E will provide the SUAS-O with a tactical scenario tailored to the specific range/operating area in use. The SUAS-O shall plan and execute entire mission and guidance from the unit evaluator. Try blending or expanding scenario to transition into CSS-2005 during the same training session (Shall fly a 0.4 time minimum for each event). IAW the references, checklists, and ETF, the SUAS-O will:

Select and install AV payload that best supports the environmental conditions and the types of targets anticipated during the mission. IR payload can be used during daytime.
Plan mission IAW briefed parameters.
Conduct site security and overwatch per mission plan and brief.

Download and process imagery.
Capture imagery from mission video and save.

Performance Standard. Conduct overwatch and security operations in support of a fixed position IAW the references, checklists, and ETF. The SUAS-O will demonstrate the ability to complete all items in the event requirement without assistance from the unit evaluator. Landing shall be accomplished within the confines of the operating base as defined by the instructor prior to launch. The AV will be recovered and rendered safe.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2030	0.4	*	B	(N)	L	1 (Any SUAS)

Goal. Track mobile targets in a tactical environment using any SUAS.

Profile. The SUAS-O shall use SUAS to track mobile targets. Scenario shall provide the opportunity to track both vehicles and personnel. Scenario shall include at least one target transition – when a target changes mode of transportation or overhead cover situation. Some examples include but are not limited to:

A target vehicle disembarking and personnel getting out and departing on foot.
A target watercraft.
A foot mobile target getting into a vehicle.
A target vehicle pulling into a garage or a foot mobile target going into a building.
Multiple similar vehicles executing decoy and switch operations to throw off an observer.
An evading target on foot or in a vehicle that realizes he is under observation.
(Coordination and external support for this scenario are crucial.)

Optional Goals.

Obtain required resources to conduct training (i.e., range, frequencies, system checkout, etc.)
Maintain PID for a specified period of time.
Illuminate target with onboard IR pointer, if AV is so equipped.
Maintain continuous coverage with multiple AVs from a second a second site.
Report mobile target status in real time.
Coordinate to provide external downlink to RVT(s)/VDL.
Conduct notional actions like reports and simulated EPs, as noted in CSS-2000.

Requirement. Unit SUAS-E will provide the SUAS-O with a tactical scenario tailored to the specific range/operating area in use. SUAS-O shall understand the definition of PID and shall plan and execute entire mission with guidance from the unit evaluator. IAW the references, checklists, and ETF, the SUAS-O will:

Plan mission IAW briefed parameters.

Select and install AV payload that best supports the environmental conditions and the types of targets anticipated during the mission. IR payload can be used during the daytime.
Conduct surveillance operations on a mobile target(s) to maintain PID.
Download and process imagery.

Performance Standard. Track mobile targets IAW the references, checklists and ETF. SUAS-O will demonstrate the ability to:

Track a mobile target.
Maintain situational awareness.
Maneuver the AV efficiently to maintain contact with the target. In the event the target is lost, be able to reacquire the target in order to reestablish PID.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2035	0.4	*	B	(N)	L	1 (Any SUAS)

Goal. Conduct overwatch of friendly mobile operations using any SUAS.

Profile. The SUAS-O shall configure the system for mobile operations from a vehicle. A tactical vehicle is preferred, but a non-tactical vehicle can be used. Every attempt should be made to train using vehicles expected to be used in-theater in order to build comfort with the vehicle and to allow the SUAS crew to develop and/or reinforce crew coordination procedures. Profile should provide the SUAS-O an opportunity to operate the AV from a moving vehicle. Possible profiles might include:

Collocated overwatch of a foot mobile patrol. AV can be operated by SUAS-O collocated with the patrol.
Remote overwatch of a foot mobile patrol. AV can also be launched and operated from a HUB/FOB and circle overhead a patrol. In this scenario the SUAS crew remains at the HUB/FOB. The SUAS crew should have constant communication with a member of the patrol. The patrol receives imagery from the SUAS via VDL (if unit possesses).
Overwatch of a mechanized patrol. SUAS-O configures the vehicle for mobile operations.
Overwatch of an infill. SUAS crew coordinates with mission commander to provide overwatch of infill and integration into overall direct action plan. Consideration should be given to the element of surprise (acoustic signature of AV) and mission imagery requirements. Mobile operations can transition to fixed point security once the assault force is on the objective area.
Overwatch of an exfill. SUAS crew coordinates with the commander to provide overwatch of exfill route during actions to ensure IEDs and/or ambushes are not being emplaced while a

mission is on-going. AVs can be cycled, and multiple vehicles/GCSs can be used to support an objective area and route.
Use of IR illuminator (if AV is so equipped) to provide situational awareness to force personnel wearing NVDs.

Optional Goals.

Obtain required resources to conduct training (i.e., range, frequencies, system checkout, etc.).
Use IR illuminator *(if AV is so equipped)* in conjunction with aided mobile operations.
Conduct simultaneous SUAS operations.
Conduct notional actions (e.g., reports and simulated EPs, as noted in CSS-2000).
Report friendly patrol status in real time.
Coordinate to provide external downlink to RVT(s)/VDL.

Requirement. The SUAS can significantly enhance the security of a force by providing overhead persistent surveillance during mobile operations. Occasions for using the SUAS in support of overhead operations might include a foot-mobile patrol, vehicle patrol, infill, exfill, and time on objective area. SUAS-O shall plan and execute entire mission with guidance from the instructor. Try blending or expanding scenario to transition into CSS-2010 during the same training session (Shall fly a 0.5 minimum for each event). IAW the references, checklists, and ETF, the SUAS-O will:

Select AV payload that best supports the environmental conditions and types of targets anticipated during the mission. IR payload may be used during daytime.
Configure SUAS for mobile operations in a tactical or surrogate tactical vehicle.
Plan mission IAW briefed parameters.
Maintain position of AV relative to friendly forces as mission requirements dictate.
Conduct an actual or notional landing near the SUAS-O vehicle after SUAS-O vehicle has moved from origin point.
Download and process imagery.
Capture imagery from mission video and save.

Performance Standard. Conduct overwatch of friendly mobile operations IAW the references, checklists, and ETF. The SUAS-O will demonstrate the ability to:

Properly configure a mobile SUAS
Track a mobile target.
Maintain situational awareness.
Maneuver the AV efficiently to maintain contact with friendly forces while supporting the mission commander's mission requirements.
Maintain control of AV at all times, to allow recovery of the vehicle in the event the AV must land immediately (i.e., interloper aircraft), an emergency, or due to LOL.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2040 0.3 180 B,R N L 1 ANY SUAS
Goal: Conduct Night Flight 01.

Requirement: IAW the references, checklists, ETF, and given a functional SUAS, the student will:
Assemble and setup the GCS at night.
Plan and load mission information on the RSTA laptop at night.
Assemble and stage the AV at night.
MO will, launch the AV in MAN mode at night.
Change flight mode when AV is above all obstacles at night.
Track a linear feature at night.
Conduct reconnaissance of a point feature at night.
Use the IR Illuminator at night.
Detect orientation of AV visually using beacons at night.
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Recover the AV and render it safe at night.

Performance Standard: IAW the references, checklists, ETF, and given a functional SUAS. The student will demonstrate the ability to:
Successfully assemble and setup the GCS at night.
Successfully plan and load mission information on the RSTA laptop at night.
Successfully assemble and stage the AV at night.
Successfully launch the AV in MAN mode at night (MO).
Successfully Change flight mode when AV is above all obstacles at night.
Successfully track a linear target at night.
Successfully conduct reconnaissance of a point target at night.
Successfully use the IR Illuminator at night.
Successfully detect orientation of AV visually using beacons at night.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) at night.
Successfully recover the AV and render it safe at night.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:
1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2045	0.4	B	D	L	1 ANY SUAS

Goal: Conduct AV Hand-Offs Between Two Ground Control Stations

Requirement: IAW the references, checklists, ETF, and given a functional SUAS, the student will:

GCS 01 (Stationary Site)

Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
MO will, launch the AV in MAN mode.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02).
Standby in RVT configuration.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02).
Land the AV in NAV mode using the E to L approach (Command AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Note: This event can be conducted from a either a stationary location or a mobile configuration depending on training area and equipment available.
Review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Assemble and setup the GCS.
Once AV is airborne connect to AV in RVT configuration.
While in RVT configuration, the MO will pull the flight plan from the AV to the RSTA laptop.
At planned hand-off point, conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01).
Standby in RVT Configuration.
At planned hand-off point, conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01).
Conduct briefed mission profile.
At planned hand-off point, conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01).
Standby in RVT configuration until AV is landed.

Performance Standard: IAW the references, checklists, ETF, and given a functional SUAS, the student will demonstrate the ability to:

GCS 01 (Stationary Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensuring that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.

Successfully assemble and stage the system.
Successfully launch the AV in MAN mode (MO).
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT configuration.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 02 (Push to GCS 02) at the planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 02 (Receive from GCS 02) at the planned hand-off point.
Successfully land the AV in NAV Mode using the E to L approach (Commanding AUTOLAND once system initiated AUTOLAND occurs to ensure VO control during landing) or successfully land the AV from ALT mode by manually initiating AUTOLAND.
Recover the AV and render it safe.

GCS 02 (Stationary Site or Mobile Site)

Successfully review and discuss hand off procedures prior to conducting flight. (Ensure that both sites know the AV Number, AV Channel, and general mission parameters).
Successfully assemble and setup the GCS.
Successfully connect to AV in RVT configuration once AV is airborne.
Successfully pull the flight plan from the AV to the RSTA laptop while in RVT configuration (MO).
Successfully conduct Hand-Off Sequence 01 Part A with GCS 01 (Receive from GCS 01) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 01 Part B with GCS 01 (Push to GCS 01) at the planned hand-off point.
Successfully standby in RVT Configuration.
Successfully conduct Hand-Off Sequence 02 Part A with GCS 01 (Receive from GCS 01) at the planned hand-off point.
Successfully conduct briefed mission profile.
Successfully conduct Hand-Off Sequence 02 Part B with GCS 01 (Push to GCS 01) at the planned hand-off point.
Successfully standby in RVT configuration until AV is landed.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS

a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

CSS-2050 0.3 B D L 1 ANY SUAS

Goal: Conduct Flight Operations as a Single Operator with an assistant Conducting a Low Level (LL) flight / LL landing.

Requirement. IAW the references, checklists, ETF, and given a functional SUAS, the student will:

SUAS-O (Student VO)

Discuss with the Single Operator with assistant the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Assemble and setup the GCS.
Plan and load mission information on the RSTA laptop.
Assemble and stage the AV.
Change flight mode when AV is above all obstacles.
Conduct briefed mission profile.
Conduct Low Level (LL) flying in ALT mode beginning at 100' AGL and stepping down to between 20' and 30' AGL.
Conduct Low Level (LL) flying in MAN mode beginning at 100' AGL and stepping down to between 20' and 30' AGL.
Conduct a Low-Level VO initiated AUTOLAND between 3' and 6' AGL.
Recover the AV and render it safe.
Inspect equipment prior to pack out and note all discrepancies.

Single Operator with assistant (Filling Single Operator with assistant / MO Duties)

Note: The Single Operator with assistant can be the instructor (if no other student is available), another student in the course (preferred), or an actual untrained person (if available due to circumstance).
Receive mission brief from SUAS-O.
Secure the launch site.
Transport equipment.
Hold AV for Pre-Flight Checks.
Provide airspace surveillance.
Launch the AV in MAN mode.
Monitor the RSTA laptop.
Recover equipment.
Pack out and transport equipment.

Performance Standard: IAW the references, checklists, ETF, and given a functional SUAS, the student will demonstrate the ability to:

SUAS-O (Student VO)

Successfully discuss with the Single Operator with assistant the nature and purpose of the mission as well as provide what expectations there are for the Untrained Assistance and provide appropriate guidance prior to starting mission.
Successfully assemble and setup the GCS.
Successfully plan and load mission information on the RSTA laptop.
Successfully assemble and stage the AV.
Successfully Change flight mode when AV is above all obstacles.
Successfully conduct briefed mission profile.
Successfully conduct Low Level (LL) flying in ALT mode beginning at 100' AGL and stepping down to between 20' and 30' AGL.

Successfully conduct Low Level (LL) flying in MAN mode beginning at 100' AGL and stepping down to between 20' and 30' AGL.
Successfully conduct a Low-Level VO initiated AUTOLAND between 3' and 6' AGL.
Successfully recover the AV and render it safe.
Successfully inspect equipment prior to pack out and note all discrepancies.

Single Operator with assistant (Filling Single Operator with assistant / MO Duties)

Successfully receive mission brief from SUAS-O.
Successfully secure the launch site.
Successfully transport equipment.
Successfully hold AV for Pre-Flight Checks.
Successfully provide airspace surveillance.
Successfully launch AV in MAN mode.
Successfully monitor the RSTA laptop.
Successfully recover equipment.
Successfully pack out and transport equipment.

Instructor. SUAS-E

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Prerequisite: CSS-2000, Be a designated SUAS-O on SUAS in which being trained

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during

2.9.2 SUAS FIRES SKILLS (SFS) STAGE

Purpose. Generally, TTPs are not taught or emphasized during IQT. SFS events are meant to be conducted and maintained by SUASO's within units that have Mission Essential Tasks requiring them to apply/employ, control and direct fires (surface, aviation, naval surface).

General. Proficiency periods associated with certain events are intended to reinforce operator skills, build experienced SUAS operators, and prevent atrophy of learned skills due to lack of use reducing the likelihood of injury or damage to equipment.

SUAS FIRES SKILLS (SFS) Overview

SUAS FIRES SKILLS (SFS) STAGE FLIGHTS							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
SFS-2105	0.4	365	B. R	D	Any SUAS	1	Acquire PID and position of a target to support the development of a fire mission ISO a JTAC/FAC using any SUAS

SFS-2110	0.4	*	B, R	D	Any SUAS	1	Adjust Fire using any SUAS
SFS-2115	0.4	*	B, R	D	Any SUAS	1	Conduct BDA using any SUAS

Admin Notes.

(1) For a SUAS-O to be considered "full mission ready" for the execution of an event involving surface, aviation, naval surface fires (able to fly without instructor oversight within their unit) that individual must be proficient in all SFS events. If a SUAS-O loses proficiency in an event see Appendix E.

(2) For each SFS event, recommend the conduct of pre-mission planning utilizing mission analysis (METT-TC).

(3) Additional tasks within each event are provided as supplemental skills to be practiced in conjunction with the main event requirements in order to provide scenario depth and greater exposure for the SUAS-O.

Prerequisites. SUAS-O Designated, 1000 Phase complete, Current on all CSS Stage Events.

SFS-2105 0.4 365 B,R D L 1 (Any SUAS)

Goal. Acquire PID and position of a target to support the development of a fire mission ISO a JTAC/FAC using any SUAS.

Note: This event is best conducted in conjunction with a live fire event (e.g., EWTG TACP Shoot, unit FireEx, ITX, etc.) but may be conducted without live fires given a robust and detailed scenario from the unit evaluator or JTC/FAC.

Profile. Using the SUAS to gain and maintain positive identification (PID) of targets and, depending on the specific SUAS in use, generate either coordinates for a fire mission, or a fire mission to engage that target. Map correlation is critical – the coordinates generated from the SUAS must be correlated with a map to ensure they are accurate and relevant. The targeting process can be enhanced if the JTAC or FO can see the SUAS feed through the use of a video downlink device (VDL) or over the SUAS-O's shoulder. The JTAC or FO can direct the SUAS crew to position AV or SUAS payload to support the targeting process.

A. Live Fire Scenario. Integrate the SUAS into a live fire event using surface or aviation fires.

B. Simulated Scenario. Targeting can be simulated fairly easily in a non-live fire scenario. Considerations should be given to using a JTAC/Fires simulator to introduce the SUAS-O to fires concepts.

Optional Goals.

Use FalconView overlays and draw files to depict FSCMs and ACMs, as directed by the JTAC/FAC.
Downlink SUAS feed to JTAC or FAC if they are equipped with a VDL.
Conduct notional actions (e.g., reports and simulated EPs, as noted in CSS-2000).

Requirement. Under the direct supervision of a qualified and current JTAC/FAC JTAC/FAC and IAW the references, checklists, ETF, and given a functional SUAS, the SUAS-O shall employ the SUAS to acquire PID and position of a target to support the development of a fire mission.

Select AV payload that best supports the environmental conditions and the types of targets anticipated during the mission. IR payload can be used during the daytime.
Conduct target reconnaissance.
Assist JTAC/FAC in correlating video to map/FalconView.
Share target data with external agencies (e.g., JTAC, FAC) to feed a fire mission.
Download and process imagery.
Capture imagery from mission video and save.

Performance Standard. Use SUAS to support JTAC/FAC in the development of targets in preparation to deliver fires. The SUAS-O shall plan and execute entire mission with guidance from the SUAS-E under the direction of the JTAC/FAC. The SUAS-O will demonstrate ability to assist the JTAC/FAC with the following:

Integrate SUAS plan with fire support and airspace plans.

Find a target array and correlate it with a map and/or FalconView.
Derive a MGRS grid for a given target and refine that grid using a map and/or FalconView.
Interpret the SUAS feed from the AV at a given altitude.
Communicate and coordinate with the JTAC/FAC to effectively and efficiently develop targets in support of an active fires package.
Maintain situational awareness while:
Maneuvering AV to maintain contact with friendly forces.
Positioning AV to observe fires as required and complying with FSCMs, ACMs and remaining clear of incoming fires.

Instructor. SUAS-E (Must be current in all SFS events)

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Launch Method: As appropriate.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SFS-2110	0.4	*	B,R		D	L	1 (Any SUAS)

Goal. Adjust Fire using any SUAS.

Note: This event is best conducted in conjunction with a live fire event (e.g., EWTG TACP Shoot, unit FireEx, ITX, etc.) but may be conducted without live fires given a robust and detailed scenario from the unit evaluator or JTC/FAC.

Profile. Use the SUAS to observe and locate (e.g., determine a grid) the impact of fires (surface, naval gunfire, aviation) to assist the JTAC/FO in generating a correction. Physical placement of the SUAS during live fire operations is a key consideration. Judging distances for corrections via the SUAS display is also a learned skill set, particularly if the terrain or target set being viewed does not provide decent contrast and comparative elements. Lastly, high situational awareness of the SUAS position and its orientation both to the magnetic compass and relative to the target are critical in generating a correction. The adjustment process can be enhanced if the JTAC or FO can see the SUAS feed through the use of a VDL. If the JTAC or FO can directly view the SUAS feed he can make the corrections immediately. SUAS crew must be able to interpret the video scene for the JTAC or FO.

A. Live Fire Scenario. Integrate the SUAS into a live fire event using surface or aviation fires.
B. Simulated Scenario. Targeting and BDA can be simulated fairly easily in a non-live fire scenario. Corrections are more difficult but can be simulated as well. Considerations should be given to using a JTAC/Fires simulator to introduce the SUAS-O to fires concepts.

Optional Goals.

If the SUAS is so equipped, use FalconView overlays and draw files to depict FSCMs and ACMs, as directed by the JTAC/FAC.
Downlink SUAS feed to JTAC or FAC if they are equipped with a VDL.
Conduct notional actions (e.g., reports and simulated EPs, as noted in CSS-2000).

Requirement. Under the direct supervision of the JTAC/FAC and IAW the references, checklists, ETF, and given a functional SUAS, the SUAS-O shall employ the SUAS assist the JTAC/FO in the spotting of fires impacts and subsequent generation of a correction during a surface, naval gunfire, or aviation fire mission.

Select AV and AV payload that best supports the environmental conditions and types of targets anticipated during the mission. VTOL SUASs are particularly well suited to spotting and corrections as they can remain stationary giving a constant observer to target line (OTL). IR payload can be used during the daytime.
Assist JTAC/FAC in correlating video to map/FalconView.
Share target data with external agencies (e.g., JTAC, FAC) to feed a fire mission.
Use SUAS to observe impacts and effects of aviation, surface, or naval fires.
Assist JTAC/FAC in using the SUAS to provide data for generating corrections for aviation, surface, or naval fires. Deconflict AV from incoming fires and aircraft under direction of the JTAC/FAC.
Download and process imagery.
Capture imagery from mission video and save.

Performance Standard. Use SUAS to support JTAC/FAC in the terminal control of fires (surface, naval gunfire, aviation) IAW the references, checklists, and ETF. The SUAS-O shall plan and execute entire mission with guidance from the SUAS-E under the direction of the JTAC/FAC. The SUAS-O will demonstrate ability to assist the JTAC/FAC with the following:

Integrate SUAS plan with fire support plan.
Find a target array and correlate it with a map and/or FalconView.
Interpret the SUAS feed from the AV at a given altitude and provide distance corrections from the target for impacts.
Communicate and coordinate with the JTAC/FAC to effectively and efficiently develop corrections in support of an active fires package.
Maintain situational awareness while:
Maneuvering AV to maintain contact with friendly forces.
Positioning AV to observe fires as required and complying with FSCMs, ACMs and remaining clear of incoming fires.

Instructor. SUAS-E (Must be current in all SFS events)

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Prerequisite. MarineNet Forward Observer PC Simulation (FOPSUAS-EM) Course (J00FOP).

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SFS-2115	0.4	*	B,R		D	L	1 (Any SUAS)

Goal. Conduct battle damage assessment (BDA) using any SUAS.

Note: This event is best conducted in conjunction with a live fire event (e.g., EWTG TACP Shoot, unit FireEx, ITX, etc.) but may be conducted without live fires given a robust and detailed scenario from the unit evaluator or JTC/FAC.

Profile. Use the SUAS to collect BDA on a target set. SUAS crew must know what the condition of the target set was prior to engagement and be able to interpret the scene via the SUAS's full motion video (FMV) and still imagery (if SUAS can capture still images) in order to provide accurate and timely BDA. The process of gathering BDA can be greatly enhanced if the JTAC/FAC can see the SUAS feed through the use of a VDL or directly over the SUAS-O's shoulder.

A. Live Fire Scenario. Integrate the SUAS into a live fire event using surface or aviation fires.

B. Simulated Scenario. Targeting and BDA can be simulated fairly easily in a non-live fire scenario. Corrections are more difficult but can be simulated as well. Considerations should be given to using a JTAC/Fires simulator to introduce the SUAS-O to fires concepts.

Optional Goals

Use FalconView overlays and draw files to depict FSCMs and ACMs, as directed by the JTAC/FAC.
Downlink SUAS feed to JTAC or FAC if they are equipped with a VDL.
Conduct notional actions (e.g., reports and simulated EPs, as noted in CSS-2000).

Requirement. Under the direct supervision of the JTAC/FAC and IAW the references, checklists, ETF, and given a functional SUAS, the SUAS-O shall employ the SUAS to train to one or all of the terminal control / support skill sets with a focus on collecting Battle Damage Assessment (BDA).

Select AV payload that best supports the environmental conditions and the types of targets anticipated during the mission. IR payload can be used during the daytime.
Assist JTAC/FAC in correlating video to map/FalconView.
Share target data with external agencies (e.g., JTAC, FAC) to feed a fire mission.
Use SUAS to observe impacts and effects of aviation, surface, or naval fires.
Assist JTAC/FAC in using the SUAS to provide data for generating corrections for aviation, surface, or naval fires. Deconflict AV from incoming fires and aircraft under direction of the JTAC/FAC.
Use SUAS to assist JTAC/FAC in gathering BDA.
Download and process imagery.
Capture imagery from mission video and save.

Performance Standard. Use SUAS to support JTAC/FAC in the terminal control of fires (surface, naval gunfire, aviation) IAW the references, checklists, and ETF. The SUAS-O shall plan and execute entire mission with guidance from the SUAS-E under the direction of the JTAC/FAC. The SUAS-O will demonstrate ability to assist the JTAC/FAC with the following:

Integrate SUAS plan with fire support plan.
Find a target array and correlate it with a map and/or FalconView.
Derive a MGRS grid for a given target and refine that grid using a map and/or FalconView.
Interpret the SUAS feed from the AV at a given altitude and provide distance corrections from the target for impacts.
Communicate and coordinate with the JTAC/FAC to effectively and efficiently develop targeting, correction, and BDA in support of an active fires package.
Maintain situational awareness while:

a. Maneuvering AV to maintain contact with friendly forces.
b. Positioning AV to observe fires as required and complying with FSCMs, ACMs and remaining clear of incoming fires.

Instructor. SUAS-E (Must be current in all SFS events)

Initial System Condition. SUAS packed for transport to the field. SUAS crew should wear combat gear appropriate to the mission but at a minimum shall wear a helmet and body armor.

System Configuration. As appropriate for SUAS employed.

Prerequisite. MarineNet Forward Observer PC Simulation (FOPSUAS-EM) Course (J00FOP)

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.10 INSTRUCTOR TRAINING PHASE (5000)

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to instruct SUAS-O's in the skills necessary to successfully operate their assigned SUAS within their units per this Manual.

Note: Upon completion of the SUAS-E Course, the SUAS-O is certified as an SUAS Evaluator (SUAS-E) for the specific SUAS in which designated to operate. A certified SUAS-E is eligible for designation as such by the unit commanding officer.

Instructor Phase Overview

INSTRUCTOR TRAINING PHASE		
STAGE	**PARAGRAPH**	**PAGE NUMBER**
RQ-11B SUAS-E STAGE	2.11.1	2-157
RQ-12A SUAS-E STAGE	2.11.2	2-161
RQ-20 SUAS-E STAGE	2.11.3	2-164
STALKER XE	2.11.4	2-168
NVTL PD SUAS-E STAGE	2.11.5	2-171
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VTOL SUAS-E STAGE	2.11.7	2-178
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2.11 SMALL UNMANNED AIRCRAFT SYSTEMS (UAS) -EVALUATOR (SUAS-E) STAGES

SUAS EVALUATOR ACADEMIC/GROUND TRAINING

Purpose. The Instructor Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage. The SUAS Evaluator Ground Phase is a prerequisite for all stages of the SUAS-E syllabus and is composed of the following events:

1. Platform Specific Academics Review
2. Platform Specific Exam (Knowledge Test)
3. Platform Specific EP Exam

2.11.1 RQ-11B SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

RQ-11B Stage SUAS-E Overview

RQ-11B SUAS-E STAGE FLIGHTS							
EVENT	TIME	PROFICIENCY PERIOD	POI	COND	DEVICE	NUM	DESCRIPTION
SUASE-5020	0.4	*	B	D	RQ-11B	1	Observe how to instruct a live flight using RQ-11B
SUASE-5021	0.4	*	B	D	RQ-11B	1	Instruct a live flight using RQ-11B
SUASE-5022	0.4	*	B	D	RQ-11B	1	Observe an SUAS Evaluation using RQ-11B
SUASE-5023	0.4	*	B	D	RQ-11B	1	SUAS-E certification flight for RQ-11B
SUASE-5024	*	*	B	*	RQ-11B	*	SUAS-E Designation for RQ-11B

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 qualified

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

SUASE-5020 0.4 * B D L 1 RQ-11B

Goal. Observe how to instruct a live flight using RQ-11B.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:

Prepare to instruct an event.
Obtain required frequencies, range, airspace, and logistics support.
Obtain a Range OIC/Range Safety officer, as applicable.
Set up the training site for the flight event.

Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.

Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5021	0.4	*	B	D	L	1 RQ-11B

Goal. Instruct a live flight using specified RQ-11B

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:

Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5020.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5022	0.4	*	B	D	L	1 RQ-11B

Goal. Observe an SUAS Evaluation using specified RQ-11B.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.
During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.
After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:
Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5021.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5023	0.4	*	B	D	L	1 RQ-11B

Goal. SUAS-E certification flight on RQ-11B.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUAS-E-5024 * * B * * 1 RQ-11B

Goal. SUAS-E Designation for an RQ-11B.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.2 RQ-12A SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

RQ-12A Stage SUAS-E Overview

RQ-12A STAGE FLIGHTS							
SUASE-5030	0.4	*	B	D	RQ-12A	1	Observe how to instruct a live flight using RQ-12A
SUASE-5031	0.4	*	B	D	RQ-12A	1	Instruct a live flight using RQ-12A
SUASE-5032	0.4	*	B	D	RQ-12A	1	Observe an SUAS Evaluation using RQ-12A
SUASE-5033	0.4	*	B	D	RQ-12A	1	SUAS-E certification flight for RQ-12A
SUASE-5034	*	*	B	*	RQ-12A	*	SUAS-E Designation for RQ-12A

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 qualified

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. Local Unit SOPs.
4. Applicable Range SOP.

5. Applicable Operator's Manual.

SUASE-5030 0.4 * B D L 1 RQ-12A

Goal. Observe how to instruct a live flight using RQ-12A.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:
Prepare to instruct an event.
Obtain required frequencies, range, airspace, and logistics support.
Obtain a Range OIC/Range Safety officer, as applicable.
Set up the training site for the flight event.
Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:
1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5031 0.4 * B D L 1 RQ-12A

Goal. Instruct a live flight using specified RQ-12A

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:
Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.

Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5030.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5032 0.4 * B D L 1 RQ-12A

Goal. Observe an SUAS Evaluation using specified RQ-12A.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.
During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.
After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:
Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5031.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5033 0.4 * B D L 1 RQ-12A

Goal. SUAS-E certification flight on RQ-12A.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation, ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5032.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5034	*	*	B	*	*	1 RQ-12A

Goal. SUAS-E Designation for an RQ-12A.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.3 RQ-20 SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

RQ-20 Stage SUAS-E Overview

RQ-20 STAGE FLIGHTS							
SUASE-5040	0.5	*	B	D	RQ-20	1	Observe how to instruct a live flight using RQ-20
SUASE-5041	0.5	*	B	D	RQ-20	1	Instruct a live flight using RQ-20
SUASE-5042	0.5	*	B	D	RQ-20	1	Observe an SUAS Evaluation using RQ-20
SUASE-5043	0.5	*	B	D	RQ-20	1	SUAS-E certification flight for RQ-20
SUASE-5044	*	*	B	*	RQ-20	*	SUAS-E Designation for RQ-20

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 and BUQ-2 qualified

References:

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

SUASE-5040 0.5 * B D L 1 RQ-20

Goal. Observe how to instruct a live flight using RQ-20.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:
Prepare to instruct an event.
Obtain required frequencies, range, airspace, and logistics support.
Obtain a Range OIC/Range Safety officer, as applicable.
Set up the training site for the flight event.
Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5041 0.5 * B D L 1 RQ-20

Goal. Instruct a live flight using specified RQ-20

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:

Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5040.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5042 0.5 * B D L 1 RQ-20

Goal. Observe an SUAS Evaluation using specified RQ-20.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.
During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:
Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5041.

Range Training Area. Minimum requirements:
Fixed Wing SUAS
1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5043	0.5	*	B	D	L	1 RQ-20

Goal. SUAS-E certification flight on RQ-20.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:
Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation to ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5042.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5044 * * B * * 1 RQ-20

Goal. SUAS-E Designation for an RQ-20.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.4 LR/LE STLKR XE SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

LR/LE STLKR XE Stage SUAS-E Overview

STLKR XE SUAS-E STAGE FLIGHTS							
EVENT	TIME	PROFICIENCY PERIOD	POI	COND	DEVICE	NUM	DESCRIPTION
SUASE-5050	0.4	*	B	D	STLKR XE	1	Observe how to instruct a live flight using STLKR XE
SUASE-5051	0.4	*	B	D	STLKR XE	1	Instruct a live flight using STLKR XE
SUASE-5052	0.4	*	B	D	STLKR XE	1	Observe an SUAS Evaluation using STLKR XE
SUASE-5053	0.4	*	B	D	STLKR XE	1	SUAS-E certification flight for STLKR XE
SUASE-5054	*	*	B	*	STLKR XE	*	SUAS-E Designation for STLKR XE

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 and BUQ-2 qualified

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

SUASE-5050 0.4 * B D L 1 STLKR XE

Goal. Observe how to instruct a live flight using STLKR XE.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:
- Prepare to instruct an event.
- Obtain required frequencies, range, airspace, and logistics support.
- Obtain a Range OIC/Range Safety officer, as applicable.
- Set up the training site for the flight event.

Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:
1. Launch/Landing Zone (LZ) dimensions. Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions. A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5051 0.4 * B D L 1 STLKR XE

Goal. Instruct a live flight using specified STLKR XE

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:
Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.

Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5050.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5052 0.4 * B D L 1 STLKR XE

Goal. Observe an SUAS Evaluation using specified STLKR XE.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.

During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:

Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.

Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5051.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5053 0.4 * B D L 1 STLKR XE

Goal. SUAS-E certification flight on STLKR XE.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation, ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5052.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

SUAS-E-5054	*	*	B	*	*	1 STLKR XE

Goal. SUAS-E Designation for an STLKR XE.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.5 NVTL PD SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

NVTL PD SUAS-E Overview

NVTL PD STAGE FLIGHTS

SUASE-5060	0.3	*	B	D	NVTL PD	1	Observe how to instruct a live flight using NVTL PD
SUASE-5061	0.3	*	B	D	NVTL PD	1	Instruct a live flight using NVTL PD
SUASE-5062	0.3	*	B	D	NVTL PD	1	Observe an SUAS Evaluation using NVTL PD
SUASE-5063	0.3	*	B	D	NVTL PD	1	SUAS-E certification flight for NVTL PD
SUASE-5064	*	*	B	*	NVTL PD	*	SUAS-E Designation for NVTL PD

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 qualified

References:

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1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

SUASE-5060 0.3 * B D L 1 NVTL PD

Goal. Observe how to instruct a live flight using NVTL PD.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:

Prepare to instruct an event.
Obtain required frequencies, range, airspace, and logistics support.
Obtain a Range OIC/Range Safety officer, as applicable.
Set up the training site for the flight event.

Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions. Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions. A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5061 0.3 * B D L 1 NVTL PD

Goal. Instruct a live flight using specified NVTL PD.

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:

Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUASE 5060.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5062 0.3 * B D L 1 NVTL PD

Goal. Observe an SUAS Evaluation using specified NVTL PD.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.
During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:
Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUASE 5061.

Range Training Area. Minimum requirements:
1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5063 0.3 * B D L 1 NVTL PD

Goal. SUAS-E certification flight on NVTL PD.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:
Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation to ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5062.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5064 * * B * * NVTL PD

Goal. SUAS-E Designation for an NVTL PD.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.6 MVTOL SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

MVTOL IE SUAS-E Overview

MVTOL IE STAGE FLIGHTS							
SUASE-5070	0.3	*	B	D	MVTOL	1	Observe how to instruct a live flight using MVTOL IE
SUASE-5071	0.3	*	B	D	MVTOL	1	Instruct a live flight using MVTOL IE
SUASE-5072	0.3	*	B	D	MVTOL	1	Observe an SUAS Evaluation using MVTOL IE
SUASE-5073	0.3	*	B	D	MVTOL	1	SUAS-E certification flight for MVTOL IE
SUASE-5074	*	*	B	*	MVTOL	*	SUAS-E Designation for MVTOL IE

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 qualified

References:

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

SUASE-5070 0.3 * B D L 1 MVTOL

Goal. Observe how to instruct a live flight using MVTOL.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:
- Prepare to instruct an event.
- Obtain required frequencies, range, airspace, and logistics support.
- Obtain a Range OIC/Range Safety officer, as applicable.
- Set up the training site for the flight event.

Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I or AF

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:
1. Launch/Landing Zone (LZ) dimensions. Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions. A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5071 0.3 * B D L 1 MVTOL

Goal. Instruct a live flight using specified MVTOL.

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:
Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.

Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I or AF

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUASE 5070.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5072	0.3	*	B	D	L	1 MVTOL

Goal. Observe an SUAS Evaluation using specified MVTOL.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.

During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:

Characteristics, capabilities, and limitations of the SUAS being used to evaluate.

Contents of the applicable checklist.

Evaluation Guide.

Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.

Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I or AF

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUASE 5071.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5073	0.3	*	B	D	L	1 MVTOL

Goal. SUAS-E certification flight on MVTOL.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation to ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I or AF

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5072.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5074	*	*	B	*	*	1 MVTOL

Goal. SUAS-E Designation for an MVTOL.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.7 VTOL SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

VTOL SUAS-E Overview

VTOL STAGE FLIGHTS							
SUASE-5080	0.3	*	B	D	VTOL	1	Observe how to instruct a live flight using VTOL
SUASE-5081	0.3	*	B	D	VTOL	1	Instruct a live flight using VTOL
SUASE-5082	0.3	*	B	D	VTOL	1	Observe an SUAS Evaluation using VTOL
SUASE-5083	0.3	*	B	D	VTOL	1	SUAS-E certification flight for VTOL
SUASE-5084	*	*	B	*	VTOL	*	SUAS-E Designation for VTOL

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 qualified

References:

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals

SUASE-5080 0.3 * B D L 1 VTOL

Goal. Observe how to instruct a live flight using VTOL.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:
- Prepare to instruct an event.
- Obtain required frequencies, range, airspace, and logistics support.
- Obtain a Range OIC/Range Safety officer, as applicable.
- Set up the training site for the flight event.

Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions. Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions. A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5081 0.3 * B D L 1 VTOL

Goal. Instruct a live flight using specified VTOL.

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:

Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5080.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5082 0.3 * B D L 1 VTOL

Goal. Observe an SUAS Evaluation using specified VTOL.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.
During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:

Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5081.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5083 0.3 * B D L 1 VTOL

Goal. SUAS-E certification flight on VTOL.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation to ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5082.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5084 * * B * * 1 VTOL

Goal. SUAS-E Designation for a VTOL.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.8 VTOL SRDR SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS, currency training, and SUAS evaluations required per this Manual.

VTOL SRDR SUAS-E Overview

VTOL SRDR STAGE FLIGHTS							
SUASE-5090	0.3	*	B	D	VTOL SRDR	1	Observe how to instruct a live flight using VTOL SRDR
SUASE-5091	0.3	*	B	D	VTOL SRDR	1	Instruct a live flight using VTOL SRDR
SUASE-5092	0.3	*	B	D	VTOL SRDR	1	Observe an SUAS Evaluation using VTOL SRDR
SUASE-5093	0.3	*	B	D	VTOL SRDR	1	SUAS-E certification flight for VTOL SRDR
SUASE-5094	*	*	B	*	VTOL SRDR	*	SUAS-E Designation for VTOL SRDR

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 qualified

References:

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals

SUASE-5090 0.3 * B D L 1 VTOL SRDR

Goal. Observe how to instruct a live flight using VTOL SRDR.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:
Prepare to instruct an event.
Obtain required frequencies, range, airspace, and logistics support.
Obtain a Range OIC/Range Safety officer, as applicable.
Set up the training site for the flight event.
Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:
Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:
1. Launch/Landing Zone (LZ) dimensions. Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions. A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5091 0.3 * B D L 1 VTOL SRDR

Goal. Instruct a live flight using specified VTOL SRDR

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:
Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.

Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5090.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5092 0.3 * B D L 1 VTOL SRDR

Goal. Observe an SUAS Evaluation using specified VTOL SRDR.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.

During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:

Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.

Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5091.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5093 0.3 * B D L 1 VTOL SRDR

Goal. SUAS-E certification flight on VTOL SRDR

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.
Review and verify resources necessary to conduct the evaluation.
Frequencies, range, and airspace.
Range OIC and Range Safety officer, per local range SOP.
Any unique logistics support required.
Mission capable status of SUAS equipment.
Conduct evaluation to ensure the requirement and performance standards are met.
Activate range and airspace required.
Ensure all resources and equipment are staged.
Prepare ETF to be used to conduct the evaluation.
Brief the requirement and performance standards for the evaluation.
Conduct a debrief and provide guidance for corrective action, if needed.
Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5092.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5094 * * B * * 1 VTOL SRDR

Goal. SUAS-E Designation for a VTOL SRDR.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.11.9 NPOR SUAS-E STAGE

Purpose. To provide designated and experienced SUAS-Os the additional skills necessary to conduct CSS and currency training, and SUAS evaluations for NPOR platforms as required per this Manual

NPOR SUAS-E Overview

NPOR STAGE FLIGHTS							
SUASE-5190	0.3	*	B	D	NPOR	1	Observe how to instruct a live flight using NPOR
SUASE-5191	0.3	*	B	D	NPOR	1	Instruct a live flight using NPOR
SUASE-5192	0.3	*	B	D	NPOR	1	Observe an SUAS Evaluation using NPOR
SUASE-5193	0.3	*	B	D	NPOR	1	SUAS-E certification flight for NPOR
SUASE-5194	*	*	B	*	NPOR	*	SUAS-E Designation for NPOR

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage complete
3. BUQ-1 and BUQ-2 qualified

References:

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

SUASE-5190 0.3 * B D L 1 NPOR

Goal. Observe how to instruct a live flight using NPOR.

Requirement.

Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct a live event, to include:

Discuss with the student all aspects of how to train an event (prepare, conduct and document), to include how to:

Prepare to instruct an event.
Obtain required frequencies, range, airspace, and logistics support.
Obtain a Range OIC/Range Safety officer, as applicable.
Set up the training site for the flight event.

Demonstrate how to deliver the event brief.
Demonstrate how to instruct an event, explain each all parts of the requirement for the event selected.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Demonstrate how to take corrective actions when needed.
Demonstrate how to pack up equipment, turn in range and airspace.
Discuss with the student all administrative close out actions.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.
Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUAS Evaluator Ground Phase.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5191	0.3	*	B	D	L	1 NPOR

Goal. Instruct a live flight using specified NPOR

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:

Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUASE 5190.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5192 0.3 * B D L 1 NPOR

Goal. Observe an SUAS Evaluation using specified NPOR.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.

During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.

After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:

Characteristics, capabilities, and limitations of the SUAS being used to evaluate.

Contents of the applicable checklist.

Evaluation Guide.

Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.

Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. SUASE 5192.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5193 0.3 * B D L 1 NPOR

Goal. SUAS-E certification flight on specified NPOR

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. Instructor will specify NPOR Manufacturer/Type/Model on ETF. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.

Review and verify resources necessary to conduct the evaluation.

Frequencies, range, and airspace.

Range OIC and Range Safety officer, per local range SOP.

Any unique logistics support required.

Mission capable status of SUAS equipment.

Conduct evaluation to ensure the requirement and performance standards are met.

Activate range and airspace required.

Ensure all resources and equipment are staged.

Prepare ETF to be used to conduct the evaluation.

Brief the requirement and performance standards for the evaluation.

Conduct a debrief and provide guidance for corrective action, if needed.

Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.
Administrative close out action.
Complete the ETF.
Document the evaluation.
Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. SUASE 5192.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

SUASE-5194 0.3 * B * * 1 NPOR

Goal. SUAS-E Designation for a specified NPOR.

Requirement. Complete the prerequisites listed below. Designation documentation will specify NPOR Manufacturer/Type/Model.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer

2.11.10 MVTOL AF STAGE

Purpose: To provide designated and experienced SUAS-Os the additional skills necessary to serve in the capacity of a unit Adjunct Faculty (AF) instructor. The sole function of the AF is to conduct MVTOL IQT at the BN level and below for the purpose of certifying new MVTOL operators, IAQ this T&R manual, using approved the current and approved TALSA MVTOL Program of Instruction (POI), courseware and curriculum support tools.

MVTOL IE AF Overview.

AF DESIGNATION FOR MVTOL							
AF-5490	*	*	B	G	*	*	Observe how to instruct MVTL Academics
AF-5491	*	*	B	G	*	*	Instruct MVTOL Academics
AF-5492	0.3	*	B	D	MVTOL	1	Instruct a live flight using MVTOL

AF-5493	0.3	*	B	D	MVTOL	1	Observe an SUAS Evaluation using MVTOL
AF-5494	0.3	*	B	D	MVTOL	1	Adjunct Faculty (AF) Certification flight for MVTOL
AF-5495	*	*	B	*	MVTOL	*	Adjunct Faculty (AF) Designation for MVTOL

Prerequisites.

1. CSS Stage complete.
2. ACAD Stage
3. Designated as a MVTOL SUAS Evaluator
4. BUQ-1 qualified

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable Operator's Manuals.

AF-5490 * * B G * *

Goal. Observe how to instruct MVTOL Academics.

Requirement.
Student will observe the demonstration. Instructor will select a platform appropriate IQT event to complete this event. Instructor will demonstrate how to instruct all MVTOL Academics per para 2.7.5 of this document.

Performance Standard. Student shall observe instruction of all MVTOL Academics per para 2.7.5 of this document.

Instructor. IQT-I

Initial System Condition. N/A.

System Configuration. N/A.

Prerequisite. SUAS Evaluator Ground Phase.

AF-5491 * * B G * *

Goal. Instruct MVTOL Academics.

Requirement. In a formal classroom setting, the student will teach back all MVTOL Academics per para 2.7.5 of this document.

Performance Standard. Student shall effectively complete teach back instruction of all MVTOL Academics per para 2.7.5 of this document to the satisfaction of an IQT-I.

Instructor. IQT-I

Initial System Condition. N/A.

System Configuration. N/A.

Prerequisite. AF-5490.

AF-5492 0.3 * B D L 1 MVTOL

Goal. Instruct a live flight using specified MVTOL.

Requirement. Instructor will select a platform appropriate IQT event to use to complete this event. Instructor may play the role of a student. The student will:

Demonstrate ability to prepare to instruct an event by submitting (to the instructor) request for frequencies, range, and airspace.
Demonstrate understanding of procedures for coordination of Range OIC and Range Safety officer as applicable.
Demonstrate understanding how to coordinate logistics to support a flight event.
Activate range and airspace.
Set up a site and instruct a flight event.
Demonstrate proper training of the event selected, ensuring the requirement and performance standard are met.
Instruct the event in its entirety and ensure proper conduct and safety of flight; take corrective action when needed.
Instruct the student on how to plan and brief the event.
Instruct the student in a thorough manner so as to cover all requirements for the event selected.
Pack up equipment, turn in range and airspace.
Complete all administrative close out actions.

Performance Standard. Complete the instructional live flight event IAW the references, checklists, and ETF. The student will demonstrate the ability to complete all requirements without the assistance from the instructor.

Instructor. IQT-I.

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. AF-5491.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

AF-5493	0.3	*	B	D	L	1 MVTOL

Goal. Observe an SUAS Evaluation using specified MVTOL.

Requirement. Student will observe the instructor coordinate and conduct all aspects of an SUAS evaluation per the SUAS Evaluation Guide. The instructor will demonstrate to the student how to conduct an evaluation event according to the SUAS Evaluation Guide, to include:

Discuss and review all aspects of the evaluation with the student, prior to commencing the evaluation.
During the evaluation, explain each evaluation step in a thorough manner so as to cover requirements for the event selected.
After the completion of the evaluation, discuss and question the student to ensure clear understanding of how to conduct an evaluation from preparing, conducting, and documenting the evaluation. Questions should include topics/contents like:
Characteristics, capabilities, and limitations of the SUAS being used to evaluate.
Contents of the applicable checklist.
Evaluation Guide.
Training Forms and administration.

Performance Standard. While observing the demonstration, the student will:

Demonstrate knowledge and understanding of the evaluation process to include applicable training devices, checklists, SUAS Evaluation Guide, and training forms.

Demonstrate an understanding of how to conduct an evaluation by accurately answering questions and explaining the process thoroughly.

Instructor. IQT-I.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Prerequisite. AF-5492.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

AF-5494	0.3	*	B	D	L	1 MVTOL

Goal. Adjunct Faculty (AF) Certification flight for MVTOL.

Requirement. Instructor will select a platform appropriate IQT event to complete this event. Instructor may play the role of a student. The student will:

Review a sample ITR to determine purpose for the evaluation. Ensure person being evaluated is current in the SUAS being evaluated on.

Review and verify resources necessary to conduct the evaluation.

- Frequencies, range, and airspace.
- Range OIC and Range Safety officer, per local range SOP.
- Any unique logistics support required.
- Mission capable status of SUAS equipment.

Conduct evaluation ensure the requirement and performance standards are met.

- Activate range and airspace required.
- Ensure all resources and equipment are staged.
- Prepare ETF to be used to conduct the evaluation.
- Brief the requirement and performance standards for the evaluation.
- Conduct a debrief and provide guidance for corrective action, if needed.
- Secure site. Pack up training materials, turn-in range, and return airspace to controlling agency.

Administrative close out action.

- Complete the ETF.
- Document the evaluation.
- Arrange to return resources as necessary.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, complete all requirements without assistance. Evaluation shall be conducted thoroughly, corrective action taken as required, and safety of flight maintained.

Instructor. IQT-I.

Initial System Condition. System disassembled and packed in its case.

System Configuration. As briefed.

Prerequisite. AF-5493.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.

2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

AF-5495 * * B * * *

Goal. Adjunct Faculty (AF) Designation for MVTOL.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this T&R Manual.

Prerequisite.

Complete SUAS-E course for a specific SUAS.
Be designated and current as SUAS-O for a specific SUAS.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

2.12 CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (CQD) PHASE (6000)

Purpose. To outline the requirements for qualifications, designations, and SUAS Operator leadership.

General. The following stages are included in the Requirements, Certifications, Qualifications, Designations Phase of training.

Phase Overview.

QCD PHASE		
STAGE	**PARAGRAPH**	**PAGE NUMBER**
RQ-11B STAGE	2.13.1	2-193
RQ-12A STAGE	2.13.2	2-195
RQ-20 STAGE	2.13.3	2-196
STALKER SE STAGE	2.13.4	2-198
NVTL PD STAGE	2.13.5	2-199
MVTOL IE STAGE	2.13.6	2-201
VTOL SR STAGE	2.13.7	2-202
VTOL SRDR STAGE	2.13.8	2-204
NPOR STAGE	2.13.9	2-205
SUAS PROGRAM MANAGER (PM)	2.13.10	2-207

2.13 CQD STAGES

2.13.1 RQ-11B STAGE

Purpose. To evaluate an operator's fight conduct with the RQ-11B.

CQD RQ-11BA STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG-6021	*	*	*	*	RQ-11B	*	SUAS-O Designation for RQ-11B
EVAL-6022	0.4	365	B,R	(N)	RQ-11B	1	SUAS Evaluation for RQ-11B DDL

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable System Manuals.

DESG-6021	*	*	*	*	*	RQ-11B

Goal. SUAS-O Designation for RQ-11B.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

EVAL-6022	0.4	365	B,R	(N)	L	1	RQ-11B

Goal. Annual SUAS-O Evaluation on RQ-11B.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of “Qualified”. Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.2 RQ-12A STAGE

Purpose. To evaluate an operator's fight conduct with the RQ-12A.

Stage Overview

CQD RQ-12A STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG-6031	*	*	*	*	RQ-12A	*	SUAS-O Designation for RQ-12A.
EVAL-6032	0.4	365	B,R	(N)	RQ-12A	1	SUAS Evaluation on RQ-12A.

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable System Manuals

DESG-6031 * * * * * RQ-12A

Goal. SUAS-O Designation for RQ-12A.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

EVAL-6032 0.4 365 B,R (N) L 1 RQ-12A

Goal. Annual SUAS-O Evaluation on RQ-12A.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUASE.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.

Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.3 RQ-20 STAGE

Purpose. To evaluate an operator's fight conduct with the RQ-20.

Stage Overview

CQD RQ-20 STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG-6041	*	*	*	*	RQ-20	*	SUAS-O Designation for RQ-20
EVAL-6042	0.4	365	B,R	(N)	RQ-20	1	SUAS Evaluation on RQ-20

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable System Manuals.

DESG-6041	*	*	*	*	*	RQ-20

Goal. SUAS-O Designation for RQ-20.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

EVAL-6042	0.4	365	B,R	(N)	L	1 RQ-20

Goal. Annual SUAS-O Evaluation on RQ-20.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV (use launcher with RQ-20)

Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.4 STALKER XE STAGE

Purpose. To evaluate an operator's fight conduct with the Stalker XE.

CQD STALKER XE STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6051	*	*	*	*	STALKER XE	*	SUAS-O Designation for STALKER XE
EVAL - 6052	0.4	365	B,R	(N)	STALKER XE	1	SUAS Evaluation for STALKER XE DDL

Prerequisites.

1. ACAD Stage complete
2. BUQ-1 and BUQ-2 qualified

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable System Manuals.

DESG-6051 * * * * * STALKER XE

Goal. SUAS-O Designation for STALKER XE.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

EVAL-6052 0.4 365 B,R (N) L 1 STALKER XE

Goal. Annual SUAS-O Evaluation on STALKER XE.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO with assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.5 NVTL PD STAGE

Purpose. To evaluate an operator's fight conduct with the NVTL.

Stage Overview

CQD NVTL STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6061	*	*	*	*	NVTL	*	SUAS-O Designation for NVTOL

EVAL - 6062	0.3	365	B,R	(N)	NVTL	1	SUAS Evaluation on NVTL

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable System Manuals.

DESG-6061 * * * * * NVTL

Goal. SUAS-O Designation for NVTL.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

EVAL-6062 0.3 365 B,R (N) L 1 NVTL

Goal. Annual SUAS-O Evaluation on NVTL.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.6 MVTOL STAGE

Purpose. To evaluate an operator's fight conduct with the MVTL.

Stage Overview

CQD MVTOL STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6071	*	*	*	*	MVTOL	*	SUAS-O Designation for MVTOL
EVAL - 6072	0.3	365	B,R	(N)	MVTOL	1	SUAS Evaluation on MVTOL

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. NAVMC 3500.107_ Small Unmanned Aircraft Systems (SUAS) Training and Readiness Manual.
2. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations).
3. SUAS Evaluation Guide.
4. Local Unit SOPs.
5. Applicable Range SOP.
6. Applicable System Manuals.

DESG-6071 * * * * * MVTOL

Goal. SUAS-O Designation for MVTOL.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer.

EVAL-6072 0.3 365 B,R (N) L 1 MVTOL

Goal. Annual SUAS-O Evaluation on MVTOL.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO/ assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.7 VTOL STAGE

Purpose. To evaluate an operator's fight conduct with the VTOL SUAS.

Stage Overview

CQD VTOL STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6081	*	*	*	*	VTOL	*	SUAS-O Designation for VTOL
EVAL - 6082	0.4	365	B,R	(N)	VTOL	1	SUAS Evaluation on VTOL

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. CJSUAS-E 3255.01 Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

DESG-6081 * * * * * VTOL

Goal. SUAS-O Designation for VTOL.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer

EVAL-6082 0.4 365 B,R (N) L 1 VTOL

Goal. Annual SUAS-O Evaluation on VTOL.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO/ assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.8 VTOL SRDR STAGE

Purpose. To evaluate an operator's fight conduct with the VTOL SRDR.

Stage Overview

CQD VTOL SRDR STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6091	*	*	*	*	VTOL SRDR	*	SUAS-O Designation for VTOL SRDR
EVAL - 6092	0.4	365	B,R	(N)	VTOL SRDR	1	SUAS Evaluation on SRDR

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. CJSUAS-E 3255.01 Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

DESG-6091 * * * * * VTOL SRDR

Goal. SUAS-O Designation for VTOL SRDR.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer

EVAL-6092 0.4 365 B,R (N) L 1 VTOL SRDR

Goal. Annual SUAS-O Evaluation on VTOL SRDR.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO/ assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:

Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:

Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
2. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.9 NPOR STAGE

Purpose. To evaluate an operator's fight conduct with the NPOR SUAS.

Stage Overview

CQD NPOR STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6191	*	*	*	*	NPOR	*	SUAS-O Designation for NPOR SUAS.
EVAL - 6192	0.5	365	B,R	(N)	NPOR	1	SUAS Evaluation on NPOR SUAS.

Prerequisites.

1. ACAD Stage
2. BUQ-1 Qualification

References.

1. CJSUAS-E 3255.01 Joint UAS Minimum Training Standards (JUMTS)
2. NATO STANAG 4670 Recommended Guidance for the Training of Designated Unmanned Aerial Vehicle Operator (DUO)
3. OPNAVINST 3710.7_ (Chapter 14) NATOPS General Flight and Operating Instructions (UAS Policies and Operations)
4. Applicable Operator's Manual

DESG-6191	*	*	*	*	*	NPOR

Goal. SUAS-O Designation for NPOR.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Complete SUAS IQT Course for which being designated.
Be current on the specific SUAS for which being designated.
Be recommended by the Unit SUAS-PM.
Be designated in writing by the unit commanding officer

EVAL-6192	0.4	365	B,R	(N)	L	1	NPOR

Goal. Annual SUAS-O Evaluation on NPOR.

Requirement. Evaluate SUAS knowledge and ability to safely and effectively operate the SUAS. The evaluation flight shall be administered by an SUAS-E according to the SUAS Evaluation Guide. The SUAS-E may serve as the MO/ with assistant on systems that require two operators once the individual under evaluation completes the full system setup to include mission planning and upload. According to the SUAS Evaluation Guide, the person being evaluated shall complete each of the below:

Preflight:
Closed book examination with a minimum grade of 80%.
Closed book Emergency Procedures (EP) Exam with a minimum grade of 100%.
SUAS Evaluation discussion period.

Flight:
Pre-mission planning / crew brief.
Identify system components.
Knowledge of controls and displays.
Assemble AV as required.
Set up GCS as required.
Perform preflight and pre-takeoff checklist.
Launch AV
Navigate to objective area.
Conduct mission as directed by SUAS-E.
Perform emergency procedures.
Navigate to recovery area.
Land and recover AV.
Perform post-flight checks on AV.
Conduct operator level maintenance as required.
Disassemble and store SUAS.

Performance Standard. IAW the references, checklists, SUAS Evaluation Guide, and ETF, the person being evaluated shall complete all requirement items with a passing grade of "Qualified". Student must demonstrate overall situational awareness and airspace knowledge, awareness, and procedures during flight.

Prerequisite. Be a designated and current SUAS-O on SUAS being evaluated.

Instructor. IQT-I or SUAS-E.

Initial System Condition. System disassembled and packed in its cases.

System Configuration. As briefed.

Range Training Area. Minimum requirements:

1. Fixed Wing SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 200m by 200m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 2km by 2km or a 2km diameter about a point, with a vertical component of surface to 1200ft AGL. Tall obstacles may obstruct LOS during flight.
2. VTOL SUAS
   a. Launch/Landing Zone (LZ) dimensions: Cleared surface area of at least 3m by 3m to allow for AV launch and landing.
   b. Airspace dimensions: A minimum of 500m by 500m or a 500m diameter about a point, with a vertical component of surface to 500ft AGL. Tall obstacles may obstruct LOS during flight.

2.13.10 SUAS-Program Manager (PM) STAGE

Purpose. To designate SUAS personnel who have completed all training prerequisites and have demonstrated competency in the area being designated. The SUAS PM designation shall remain in effect as long as the individual remains in the billet for the unit in which the designation was originally granted.

Stage Overview

CQD SUAS-PM STAGE							
EVENT	**TIME**	**PROFICIENCY PERIOD**	**POI**	**COND**	**DEVICE**	**NUM**	**DESCRIPTION**
DESG - 6600	*	*	*	*	All	*	Unit SUAS Program Manager (SUAS-PM)

DESG-6600 * * * * * All

Goal. SUAS-PM Designation for all SUAS.

Requirement. Complete the prerequisites listed below.

Performance Standard. Complete the prerequisites to the standards set in this Manual.

Prerequisite.

Be assigned as the unit SUAS-PM by the unit Commanding Officer.
Complete a TALSA SUAS PM Course.

2.14 MISSION ESSENTIAL TASK (MET) PHASE (7000)

2.14.1. Certification events shall be in accordance with respective, supported user community T&R and its Core and Core Plus MET Certification requirements as listed within.

2.15 SUAS T&R SYLLABUS MATRIX

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
CORE SKILL INTRODUCTION TRAINING (1000 PHASE EVENTS)																	
RQ-11B RAVEN CORE SKILL INTRODUCTION																	
ACADEMICS																	
ACAD	1001	Knowledge of specific system description.					1	0.5									
ACAD	1002	Knowledge of controls and indicators.					1	1.0									
ACAD	1003	Perform system assembly/disassembly.					1	0.8									
ACAD	1004	Preflight & Launch					1	0.3									
ACAD	1005	Landing & Recovery					1	0.3									
ACAD	1006	Preflight, Launch, Landing & Recovery Demo					1	0.5									
ACAD	1007	Assembly, Preflight, Launch, and Landing & Recovery					1	2.0									
ACAD	1008	Perform system maintenance and troubleshooting.					1	0.8									
ACAD	1009	Understand system specific emergency procedures.					1	0.8									
ACAD	1010	Directives and Instructions					1	0.5									
ACAD	1011	Prohibited Activities					1	0.3									
ACAD	1012	Career Progression and Currency					1	0.8									
ACAD	1013	Basic Aerodynamics					1	0.5									
ACAD	1014	Advanced Flight					1	0.3									
ACAD	1015	Airspace Management					1	0.5									
ACAD	1016	Falcon View					1	2.0									
ACAD	1017	Mobile Operations					1	0.3									

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
ACAD	1018	Hand Off Procedures					1	0.3									
ACAD	1019	Night Operations					1	0.3									
ACAD	1020	Single Operator with assistant					1	0.3									
ACAD	1021	Incident Reporting					1	0.3									
ACAD	1022	Remote Launches					1	0.3									
ACAD	1023	Flight Log					1	0.3									
ACAD	1024	Relay Operations					1	0.3									
ACAD	4.91025	Falcon Tracker					1	0.3									
ACAD	1026	Base Mission Planning					1	0.8									
ACAD	1027	Operate range and bearing tool.					1	0.3									
TOTAL RQ-11B ACAD STAGE							27	15.7	0	0							
RQ-11B RAVEN STAGE FLIGHTS																	
RQ-11B	1100	Instructor Demonstration Flight	X						1	0.3	D	L	RQ-11B	1	*	1. ACAD Stage complete 2. BUQ-1 Qualification	RQ11B-1200
RQ-11B	1105	Basic Flight	X						1	0.5	D	L	RQ-11B	1	*	RQ11B-1100	
RQ-11B	1110	Flight Mode Familiarization and MO Assisted Flight	X						1	0.4	D	L	RQ-11B	1	*	RQ11B-1105	RQ11B-1210
RQ-11B	1115	Target Acquisition Flight	X						1	0.4	D	L	RQ-11B	1	*	RQ11B-1110	RQ11B-1220
RQ-11B	1120	Covert Target Area Surveillance Flight	X						1	0.3	D	L	RQ-11B	1	*	RQ11B-1115	RQ11B-1230
RQ-11B	1125	Target Offset Flight	X						1	0.3	D	L	RQ-11B	1	*	RQ11B-1115	
RQ-11B	1130	Mobile Operations from a Moving Vehicle	X						1	0.4	D	L	RQ-11B	1	*	RQ11B-1115	RQ11B-1240
RQ-11B	1135	Night Flight 01	X						1	0.3	N	L	RQ-11B	1	*	RQ11B-1115	RQ11B-1250
RQ-11B	1140	Night Flight 02	X						1	0.3	N	L	RQ-11B	1	*	RQ11B-1135	RQ11B-1260

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
RQ-11B	1145	AV Hand-Offs	X						1	0.4	(N)	L	RQ-11B	1	*	RQ11B-1115 RQ11B-1140 (if (N))	RQ11B-1270
RQ-11B	1150	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing	X						1	0.3	D	L	RQ-11B	1	*	RQ11B-1145	RQ11B-1280
RQ-11B	1155	Area / Point / Zone Reconnaissance Flight	X						1	0.5	(N)	L	RQ-11B	1	*	RQ11B-1120 RQ11B-1140 (if (N))	
RQ-11B	1199	Certification Flight	X						1	0.5	(N)	L	RQ-11B	1	*	RQ11B-1100 - 1155	RQ11B-1290
TOTAL RQ-11B FLIGHT STAGE							0	0	13	4.9							
RQ-12A WASP IV CORE SKILL INTRODUCTION																	
ACADEMICS																	
ACAD	1201	Knowledge of specific system description.	X				1	0.5				G			*		
ACAD	1202	Knowledge of controls and indicators.	X				1	1.0				G			*		
ACAD	1203	Perform system assembly/disassembly.	X				1	0.8				G			*		
ACAD	1204	Preflight & Launch	X				1	0.3				G			*		
ACAD	1205	Landing & Recovery	X				1	0.3				G			*		
ACAD	1206	Preflight, Launch, Landing & Recovery Demo	X				1	0.5				G			*		
ACAD	1207	Assembly, Preflight, Launch, and Landing & Recovery	X				1	2.0				G			*		
ACAD	1208	Maintenance and Troubleshooting	X				1	0.8				G			*		
ACAD	1209	Emergency Procedures	X				1	0.8				G			*		
ACAD	1210	Directives and Instructions	X				1	0.5				G			*		
ACAD	1211	Prohibited Activities	X				1	0.3				G			*		
ACAD	1212	Career Progression and Currency	X				1	0.8				G			*		

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
ACAD	1213	Basic Aerodynamics	X				1	0.5				G			*		
ACAD	1214	Advanced Flight	X				1	0.3				G			*		
ACAD	1215	Airspace Management	X				1	0.5				G			*		
ACAD	1216	Falcon View	X				1	2.0				G			*		
ACAD	1217	Mobile Operations	X				1	0.3				G			*		
ACAD	1218	Hand Off Procedures	X				1	0.3				G			*		
ACAD	1219	Night Operations	X				1	0.3				G			*		
ACAD	1220	Single Operator with assistant	X				1	0.3				G			*		
ACAD	1221	Incident Reporting	X				1	0.3				G			*		
ACAD	1222	Remote Launches	X				1	0.3				G			*		
ACAD	1223	Flight Log	X				1	0.3				G			*		
ACAD	1224	Relay Operations	X				1	0.3				G			*		
ACAD	1225	Falcon Tracker	X				1	0.3				G			*		
ACAD	1226	Base Mission Planning	X				1	0.8				G			*		
ACAD	1227	Operate range and bearing tool.	X				1	0.3				G			*		
TOTAL RQ-12 ACAD STAGE							27	15.7									
RQ-12A WASP STAGE FLIGHTS																	
RQ-12	1200	Instructor Demonstration Flight	X						1	0.3	D	L	RQ-12	1	*	1. ACAD Stage complete 2. BUQ-1 Qualification	RQ12-1300
RQ-12	1205	Basic Flight	X						1	0.5	D	L	RQ-12	1	*	RQ12-1200	RQ12-1310
RQ-12	1210	Flight Mode Familiarization and MO Assisted Flight	X						1	0.4	D	L	RQ-12	1	*	RQ12-1205	RQ12-1320
RQ-12	1215	Target Acquisition Flight	X						1	0.4	D	L	RQ-12	1	*	RQ12-1210	RQ12-1330
RQ-12	1220	Alternate Launch and Recovery	X						1	0.3	D	L	RQ-12	1	*	RQ12-1215	
RQ-12	1225	Target Offset Flight	X						1	0.3	D	L	RQ-12	1	*	RQ12-1215	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
RQ-12	1230	Mobile Operations from a Moving Vehicle	X						1	0.5	D	L	RQ-12	1	*	RQ12-1215	RQ12-1340
RQ-12	1235	Night Flight 01	X						1	0.3	N	L	RQ-12	1	*	RQ12-1215	RQ12-1350
RQ-12	1240	Night Flight 02	X						1	0.3	N	L	RQ-12	1	*	RQ12-1235	RQ12-1360
RQ-12	1245	AV Hand-Offs	X						1	0.4	(N)	L	RQ-12	1	*	RQ12-1215 RQ12-1240 (if event conducted at night).	RQ12-1370
RQ-12	1250	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing	X						1	0.3	D	L	RQ-12	1	*	RQ12-1215	
RQ-12	1255	Area / Point / Zone Reconnaissance Flight	X						1	0.5	(N)	L	RQ-12	1	*	RQ12-1220 RQ12-1240 (if event conducted at night).	RQ12-1380
RQ-12	1299	Certification Flight	X						1	0.5	(N)	L	RQ-12	1	*	RQ12 1200-1255	RQ12-1395
TOTAL RQ-12 FLIGHT STAGE							0	0	13	5							
RQ-20 PUMA CORE SKILL INTRODUCTION																	
RQ-20 ACADEMICS																	
ACAD	1300	Knowledge of specific system description.	X				1	0.5				G			*		
ACAD	1301	Knowledge of controls and indicators.	X				1	0.5				G			*		
ACAD	1302	Perform system assembly/disassembly.	X				1	0.5				G			*		
ACAD	1303	Preflight & Launch	X				1	0.5				G			*		
ACAD	1304	Landing & Recovery	X				1	0.5				G			*		
ACAD	1305	Preflight, Launch, Landing & Recovery Demo	X				1	0.5				G			*		
ACAD	1306	Assembly, Preflight, Launch, and Landing & Recovery	X				1	0.5				G			*		

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
ACAD	1307	Maintenance and Troubleshooting	X				1	0.5				G			*		
ACAD	1308	Emergency Procedures	X				1	0.5				G			*		
ACAD	1309	Directives and Instructions	X				1	0.5				G			*		
ACAD	1310	Prohibited Activities	X				1	0.5				G			*		
ACAD	1311	Career Progression and Currency	X				1	0.5				G			*		
ACAD	1312	Basic Aerodynamics	X				1	0.5				G			*		
ACAD	1313	Advanced Flight	X				1	0.5				G			*		
ACAD	1314	Airspace Management	X				1	0.5				G			*		
ACAD	1315	Falcon View	X				1	0.5				G			*		
ACAD	1316	Mobile Operations	X				1	0.5				G			*		
ACAD	1317	Hand Off Procedures	X				1	0.5				G			*		
ACAD	1318	Night Operations	X				1	0.5				G			*		
ACAD	1319	Single Operator with assistant	X				1	0.5				G			*		
ACAD	1320	Incident Reporting	X				1	0.5				G			*		
ACAD	1321	Remote Launches	X				1	0.5				G			*		
ACAD	1322	Flight Log	X				1	0.5				G			*		
ACAD	1323	Relay Operations	X				1	0.5				G			*		
ACAD	1324	Falcon Tracker	X				1	0.5				G			*		
ACAD	1325	Base Mission Planning	X				1	0.5				G			*		
ACAD	1326	Operate range and bearing tool.	X				1	0.5				G			*		
TOTAL RQ-20 ACAD STAGE							27	13.5									
RQ-20 PUMA STAGE FLIGHTS																	
RQ-20	1300	Instructor Demonstration Flight	X						1	0.3	D	L	RQ-20	1	*	1.ACAD Stage complete 2.BUQ-1 Qualification	RQ20-1400

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
RQ-20	1305	Basic Flight	X						1	0.5	D	L	RQ-20	1	*	RQ20-1300	RQ20-1410
RQ-20	1310	Flight Mode Familiarization and MO Assisted Flight	X						1	0.4	D	L	RQ-20	1	*	RQ20-1305	RQ20-1420
RQ-20	1315	Target Acquisition Flight	X						1	0.4	D	L	RQ-20	1	*	RQ20-1310	RQ20-1430
RQ-20	1320	Alternate Launch and Recovery	X						1	0.3	D	L	RQ-20	1	*	RQ20-1315	
RQ-20	1325	Target Offset Flight	X						1	0.3	D	L	RQ-20	1	*	RQ20-1320	
RQ-20	1330	Mobile Operations from a Moving Vehicle	X						1	0.5	D	L	RQ-20	1	*	RQ20-1320	RQ20-1440
RQ-20	1335	Night Flight 01	X						1	0.3	N	L	RQ-20	1	*	RQ20-1320	RQ20-1450
RQ-20	1340	Night Flight 02	X						1	0.3	N	L	RQ-20	1	*	RQ20-1335	RQ20-1460
RQ-20	1345	AV Hand-Offs	X						1	0.4	(N)	L	RQ-20	1	*	RQ20-1320 RQ20-1340 (if event conducted at night).	RQ20-1470
RQ-20	1350	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing	X						1	0.3	D	L	RQ-20	1	*	RQ20-1310	RQ20-1480
RQ-20	1355	Area / Point / Zone Reconnaissance Flight	X						1	0.5	(N)	L	RQ-20	1	*	RQ20-1325 RQ20-1340 (if (N))	
RQ-20	1399	Certification Flight	X						1	0.5	(N)	L	RQ-20	1	*	RQ20 1300-1355	RQ20-1495
TOTAL RQ-20 STAGE FLIGHTS									13	5							
NANO VTOL (PD-100/200) CORE Skill Introduction																	
ACADEMICS																	
ACAD	1401	Directives and Instructions	X				1	0.5				G	NVTOL PD		*		
ACAD	1402	Personnel Designation	X				1	0.5				G	NVTOL PD		*		
ACAD	1403	Basic Aerodynamics	X				1	0.5				G	NVTOL PD		*		
ACAD	1404	Prohibited Activities	X				1	0.5				G	NVTOL PD		*		

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
ACAD	1405	Airspace Management	X				1	0.5				G	NVTOL PD		*		
ACAD	1406	System Description	X				1	0.5				G	NVTOL PD		*		
ACAD	1407	Controls and Indicators	X				1	0.5				G	NVTOL PD		*		
ACAD	1408	Setup, Preflight, Launch, and Landing	X				1	0.5				G	NVTOL PD		*		
ACAD	1409	Postflight Maintenance and Troubleshooting	X				1	0.5				G	NVTOL PD		*		
ACAD	1410	Mission Planning	X				1	0.5				G	NVTOL PD		*		
ACAD	1411	Flight Log	X				1	0.5				G	NVTOL PD		*		
ACAD	1412	Incident Reporting	X				1	0.5				G	NVTOL PD		*		
ACAD	1413	Emergency Procedures	X				1	0.5				G	NVTOL PD		*		
TOTAL NVTOL ACADEMIC STAGE							13	6.5									
NANO VTOL (PD-100/200) FLIGHT STAGE																	
NVTL	1400	Instructor Demonstration Flight	X						1	0.3	D	L	NVTOL PD	1	*	1. ACAD Stage complete 2. BUQ-1 Qualification	NVTL-1600
NVTL	1405	Basic Heads Up Flight.	X						1	0.2	D	L	NVTOL PD	1	*	NVTL-1400	
NVTL	1410	Basic Heads Down Flight	X						1	0.2	D	L	NVTOL PD	1	*	NVTL-1405	NVTL-1605
NVTL	1415	Basic Reconnaissance Mission	X						1	0.3	D	L	NVTOL PD	1	*	NVTL-1410	NVTL-1610
NVTL	1420	Basic Reconnaissance Mission Using Waypoints	X						1	0.3	D	L	NVTOL PD	1	*	NVTL-1415	NVTL-1615
NVTL	1425	Advanced Flight Operations	X						1	0.3	D	L	NVTOL PD	1	*	NVTL-1420	
NVTL	1430	Precision Flight Operations	X						1	0.3	D	L	NVTOL PD	1	*	NVTL-1425	NVTL-1625
NVTL	1435	Night Flight	X						1	0.3	N	L	NVTOL PD	1	*	NVTL-1430	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
NVTL	1440	Indoor Flight	X						1	0.3	(N)	L	NVTOL PD	1	*	NVTL-1430 NVTL-1435 if conducted at night	
NVTL	1499	Certification Flight	X						1	0.3	(N)	L	NVTOL PD	1	*	NVTL 1400 - 1440	NVTL-1635
TOTAL NVTOL FLIGHTS							0	0	10	2.8							
MICRO VTOL (INSTANTEYE [IE]) CORE SKILL INTRODUCTION																	
ACADEMICS (ACAD)																	
ACAD	1501	Directives and Instructions	X				1	0.5				G	MVTOL		*		
ACAD	1502	Personnel Designation	X				1	0.5				G	MVTOL		*		
ACAD	1503	Basic Aerodynamics	X				1	0.5				G	MVTOL		*		
ACAD	1504	Prohibited Activities	X				1	0.5				G	MVTOL		*		
ACAD	1505	Airspace Management	X				1	0.5				G	MVTOL		*		
ACAD	1506	System Description	X				1	0.5				G	MVTOL		*		
ACAD	1507	Controls and Indicators	X				1	0.5				G	MVTOL		*		
ACAD	1508	Setup, Preflight, Launch, and Landing	X				1	0.5				G	MVTOL		*		
ACAD	1509	Postflight Maintenance and Troubleshooting	X				1	0.5				G	MVTOL		*		
ACAD	1510	Mission Planning	X				1	0.5				G	MVTOL		*		
ACAD	1511	Flight Log	X				1	0.5				G	MVTOL		*		
ACAD	1512	Incident Reporting	X				1	0.5				G	MVTOL		*		
ACAD	1513	Emergency Procedures	X				1	0.5				G	MVTOL		*		
TOTAL MVTL IE ACAD STAGE							13	6.5	0	0							
MICRO VTOL (INSTANTEYE [IE]) FLIGHT STAGE																	
MVTL	1500	Instructor Demonstration Flight	X						1	0.3	D	L	MVTOL	1	*	1. ACAD Stage complete 2. BUQ-1 Qualification	MVTL-1700

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
MVTL	1505	Basic Heads Up Flight	X						1	0.2	D	L	MVTOL	1	*	MVTL-1500	MVTL-1705
MVTL	1510	Basic Heads Down Flight	X						1	0.2	D	L	MVTOL	1	*	MVTL-1505	MVTL-1710
MVTL	1515	Heads Up Precision Flight	X						1	0.3	D	L	MVTOL	1	*	MVTL-1510	
MVTL	1520	Heads Down Precision Flight	X						1	0.3	D	L	MVTOL	1	*	MVTL-1515	
MVTL	1525	Track GCS and Max Range Flight	X						1	0.3	D	L	MVTOL	1	*	MVTL-1520	MVTL-1715
MVTL	1530	Enhanced/Alternate Payload Operations	X						1	0.2	D	L	MVTOL	1	*	MVTL-1525	MVTL-1725
MVTL	1535	Night Flight	X						1	0.2	N	L	MVTOL	1	*	MVTL-1530	
MVTL	1599	Certification Flight	X						1	0.3	(N)	L	MVTOL	1	*	MVTL 1500 - 1535	MVTL-1745
TOTAL MVTL IE FLIGHT STAGE							0	0	9	2.3							
VTOL CORE SKILL INTRODUCTION																	
VTOL / VTOL SRDR ACADEMICS																	
ACAD	1601	Directives and Instructions	X				1	0.5				G			*		
ACAD	1602	Personnel Designation	X				1	0.5				G			*		
ACAD	1603	Basic Aerodynamics	X				1	0.5				G			*		
ACAD	1604	Prohibited Activities	X				1	0.5				G			*		
ACAD	1605	Airspace Management	X				1	0.5				G			*		
ACAD	1606	System Description	X				1	0.5				G			*		
ACAD	1607	Controls and Indicators	X				1	0.5				G			*		
ACAD	1608	Setup, Preflight, Launch, and Landing	X				1	0.5				G			*		
ACAD	1609	Postflight Maintenance and Troubleshooting	X				1	0.5				G			*		
ACAD	1610	Mission Planning	X				1	0.5				G			*		
ACAD	1611	Flight Log	X				1	0.5				G			*		
ACAD	1612	Incident Reporting	X				1	0.5				G			*		
ACAD	1613	Emergency Procedures	X				1	0.5				G			*		

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
ACAD	1614	Directives and Instructions	X				1	0.5				G			*		
TOTAL VTOL/ VTOLSRDR ACAD STAGE							14	6.5									
VTOL FLIGHT STAGE																	
VTOL	1600	Instructor GUI Demonstration Flight	X						1	0.3	D	L	VTOL	1	*	1. ACAD Stage complete 2. BUQ-1 Qualification	VTOL-1800
VTOL	1605	Basic GUI Flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1600	VTOL-1805
VTOL	1610	Instructor System Hand Controller Demonstration Flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1605	
VTOL	1615	Basic System Hand Controller Flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1610	
VTOL	1620	In-depth GUI Flight	X						1	0.4	D	L	VTOL	1	*	VTOL-1615	
VTOL	1630	Basic EO/IR Payload Operations Flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1620	VTOL-1815
VTOL	1632	Basic 30X Zoom EO Payload Operations Flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1620	
VTOL	1640	Night Flight	X						1	0.3	N	L	VTOL	1	*	VTOL-1630	
VTOL	1650	Instructor AIR / Multi UAV Demonstration Flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1630 & 1632	
VTOL	1652	Basic AIR flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1650	
VTOL	1654	Basic Multi UAV flight	X						1	0.3	D	L	VTOL	1	*	VTOL-1650	
VTOL	1699	Certification Flight	X						1	0.3	(N)	L	VTOL	1	*	VTOL 1600 - 1654	VTOL-1845
TOTAL VTOL FLIGHT STAGE									12	3.7							
VTOL R80D SKY RAIDER (SRDR) FLIGHT STAGE																	
SRDR	1700	Instructor GUI Demonstration Flight	X						1	0.3	D	L	VTOL SRDR	1	*	1. ACAD Stage complete 2. BUQ-1 Qualification	VTOL-1800
SRDR	1705	Basic GUI Flight	X						1	0.3	D	L	VTOL SRDR	1	*	VTOL-1700	VTOL-1805

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
SRDR	1710	Instructor System Hand Controller Demonstration Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1705	
SRDR	1715	Basic System Hand Controller Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1710	
SRDR	1720	In-depth GUI Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1715	
SRDR	1730	Basic EO/IR Payload Operations Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1720	VTOL-1815
SRDR	1732	Basic 30X Zoom EO Payload Operations Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1720	
SRDR	1734	Basic Forward / Navigation Camera Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1720	
SRDR	1736	Basic Drop Payload Operations Flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1720	
SRDR	1740	Night Flight 01: EO/IR Payload	X						1	0.3	N	L	VTOL SRDR	1	*	SRDR-1730	
SRDR	1745	Night Flight 02: Color Night Payload	X						1	0.3	N	L	VTOL SRDR	1	*	SRDR-1730	
SRDR	1750	Instructor AIR / Multi UAV Demonstration Flight	X						1	0.3	(N)	L	VTOL SRDR	1	*	SRDR-1730 & 1732	
SRDR	1752	Basic AIR flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1750	
SRDR	1754	Basic Multi UAV flight	X						1	0.3	D	L	VTOL SRDR	1	*	SRDR-1750	
SRDR	1799	Certification Flight	X						1	0.3	(N)	L	VTOL SRDR	1	*	SRDR 1700 – 1754	VTOL-1845
TOTAL VTOL SRDR STAGE									15	4.5							
STALKER SE CORE SKILL INTRODUCTION																	
LR/LE STALKER XE FLIGHTS																	
LR/LE	1800	Basic Demonstration Flight	X						1	0.4	D	L	STLKR XE	1		1. ACAD Stage complete 2. BUQ-1 & BUQ-2 Qualification	
LR/LE	1805	Basic Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1800	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
LR/LE	1810	Flight Mode Familiarization	X						1	0.4	D	L	STLKR XE	1		LR/LE-1805	
LR/LE	1815	Target Acquisition Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1810	
LR/LE	1820	Drop Payload Demonstration Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1825	Drop Payload Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1820	
LR/LE	1830	Multi UAV Demonstration Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1835	Multi UAV Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1830	
LR/LE	1840	Target Offset Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1845	AV Hand Offs	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1850	Mobile Operations from a Moving Vehicle	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1855	Alternate Launch Methods	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1860	VTOL Demonstration Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1815	
LR/LE	1865	Basic VTOL Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE-1860	
LR/LE	1870	Basic Night Flight	X						1	0.4	N	L	STLKR XE	1		LR/LE 1815	
LR/LE	1875	Basic VTOL Night Flight	X						1	0.4	N	L	STLKR XE	1		LR/LE 1860 & 1870	
LR/LE	1880	Area / Point / Zone Reconnaissance Flight	X						1	0.4	D	L	STLKR XE	1		LR/LE 1845	
LR/LE	1899	Certification Flight	X						1	0.4	(N)	L	STLKR XE	1		LR/LE 1800 – 1880	
TOTAL LR/LE STALKER XE STAGE FLIGHTS							0	0	18	7.2							
NON-PROGRAM OF RECORD (POR) VTOL (NPOR)CORE SKILL INTRODUCTION																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
NON-POR VTOL (NPOR) FLIGHTS																	
NPOR	1900	Conduct a demonstration flight using NPOR	X						1	0.3	D	L	NPOR	1		1.ACAD Stage complete 2.BUQ-1 Qualification	NPVTL-1900
NPOR	1905	Conduct heads up flight using an NPOR	X						1	0.3	D	L	NPOR	1		NPOR 1900	NPVTL-1905
NPOR	1910	Conduct heads down flight, primary flight mode using an NPOR	X						1	0.3	D	L	NPOR	1		NPOR 1905	NPVTL-1910
NPOR	1915	Conduct maximum range flight using an NPOR	X						1	0.3	D	L	NPOR	1		NPOR 1910	NPVTL-1915
NPOR	1920	Conduct flight using alternate flight modes and special features using the NPOR	X						1	0.3	(N)	L	NPOR	1		NPOR 1915	NPTL-1920
NPOR	1925	Conduct payload operations using an NPOR	X						1	0.3	(N)	L	NPOR	1		NPOR 1920	NPVTL-1925
NPOR	1930	Conduct an airborne recon mission using an NPOR	X						1	0.3	(N)	L	NPOR	1		NPOR 1925	NPVTL-1930
NPOR	1979	Certification flight for NPOR	X						1	0.3	(N)	L	NPOR	1		NPOR 1930	
TOTAL NPOR STAGE FLIGHTS							0	0	8	2.4							
CORE PHASE (2000 PHASE EVENTS)																	
COMMON SUAS SKILLS (CSS) STAGE FLIGHTS																	
CSS	2000	Introduction to local area flying operations using any SUAS	X		X				*	*	*	G	*	*	*	Be a designated and current SUAS-O on SUAS in which being trained.	MQT-2000
CSS	2005	Demonstrate normal flight procedures within the local area and safely execute emergency procedures.	X		X	X			1	0.4	(N)	L	Any SUAS	1	60	CSS-2000. Be a designated and current SUAS-O on SUAS in	Completed the Certification Flight in the specific SUAS

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
																which being trained.	
CSS	2010	Flight Mode Familiarization and MO Assisted Flight	X		X	X			1	0.4	D	L	Any SUAS	1	90	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	Completed the Certification Flight in the specific SUAS
CSS	2015	Refine reconnaissance techniques in a tactical scenario using any SUAS	X		X				1	0.4	(N)	L	Any SUAS	1	*	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	MQT-2005
CSS	2020	Target Acquisition Flight	X		X	X			1	0.4	D	L	Any SUAS	1	90	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	Completed the Certification Flight in the specific SUAS
CSS	2025	Conduct overwatch and security operations ISO a fixed position using any SUAS	X						1	0.4	(N)	L	Any SUAS	1	*	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	MQT-2010
CSS	2030	Track mobile targets in a tactical environment using any SUAS	X						1	0.4	(N)	L	Any SUAS	1	*	CSS-2000. Be a designated and current SUAS-O on SUAS in	MQT-2015

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
																which being trained	
CSS	2035	Conduct overwatch of friendly mobile operations using any SUAS	X						1	0.4	(N)	L	Any SUAS	1	*	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	MQT-2020
CSS	2040	Night Flight 01	X		X	X			1	0.3	N	L	Any SUAS	1	180	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	Completed the Certification Flight in the specific SUAS
CSS	2045	AV Hand-Offs	X						1	0.4	(N)	L	Any SUAS	1	*	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	Completed the Certification Flight in the specific SUAS
CSS	2050	Operate AV Using an Single Operator with assistant and Conduct Low Level (LL) Flight / LL Landing	X						1	0.3	D	L	Any SUAS	1	*	CSS-2000. Be a designated and current SUAS-O on SUAS in which being trained	Completed the Certification Flight in the specific SUAS
TOTAL CSS STAGE							0	0	9	2.8							
SUAS FIRES SKILLS (SFS) STAGE FLIGHTS																	
SFS	2105	Acquire PID and position of a target to support the development of a fire mission	X		X				1	0.4	D	L	Any SUAS	1	365	CSS-2000. Be a designated and current	MQT-2025

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
		ISO a JTAC/FAC using any SUAS														SUAS-O on SUAS in which being trained	
SFS	2110	Adjust Fire using any SUAS	X		X				1	0.4	D	L	Any SUAS	1	*	CSS-2000. MarineNet Forward Observer PC Simulation (FOPSUAS-EM) Course (J00FOP).	MQT-2030
SFS	2115	Conduct BDA using any SUAS	X		X				1	0.4	D	L	Any SUAS	1	*	CSS-2000. MarineNet Forward Observer PC Simulation (FOPSUAS-EM) Course (J00FOP).	MQT-2035
TOTAL SFS STAGE									3	1.2							
INSTRUCTOR TRAINING (5000 PHASE EVENTS)																	
SUAS-E ACADEMICS																	
ACAD	5001	System Specific Exam / Ep Exam/ ITR Audit	X				1	1.0				G	SUAS-E		*		
ACAD	5002	Course Intro	X				1	0.3				G	SUAS-E		*		
ACAD	5003	Overview of SUAS Program	X				1	0.5				G	SUAS-E		*		
ACAD	5004	Roles and Responsibilities of SUAS-E	X				1	0.5				G	SUAS-E		*		
ACAD	5005	Event Structure and Content	X				1	0.5				G	SUAS-E		*		
ACAD	5006	How to Plan and Conduct Live Flight Event	X				1	0.8				G	SUAS-E		*		
ACAD	5007	Documentation of Event Training and Prac App	X				1	0.5				G	SUAS-E		*		
ACAD	5008	Individual Training Record (Build, Prac-App)	X				1	0.5				G	SUAS-E		*		

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
ACAD	5009	System Inventory & OpCheck	X				1	1.0				G	SUAS-E		*		
ACAD	5010	System Specific Exam	X				1	1.0				G	SUAS-E		*		
TOTAL SUAS-E ACAD STAGE							14	7.4									
SUAS-E FLIGHT STAGE																	
RQ-11B SUAS-E STAGE FLIGHTS																	
SUASE	5020	Observe how to instruct a live flight using RQ-11B	X						1	0.4	D	L	RQ-11B	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5021	Instruct a live flight using RQ-11B	X						1	0.4	D	L	RQ-11B	1	*	SUASE 5020	SUASE-2205
SUASE	5022	Observe an SUAS Evaluation using RQ-11B	X						1	0.4	D	L	RQ-11B	1	*	SUASE 5021	SUASE-2210
SUASE	5023	SUAS-E certification flight for RQ-11B	X						1	0.4	D	L	RQ-11B	1	*	SUASE 5022	SUASE-2215
SUASE	5024	SUAS-E Designation for RQ-11B	X						*	*	*	*	RQ-11B	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit	DESG-2820

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
																commanding officer.	
TOTAL RQ-11B STAGE							0	0	4	1.6							
RQ-12A SUAS-E STAGE FLIGHTS																	
SUASE	5030	Observe how to instruct a live flight using RQ-12A	X		X				1	0.4	D	L	RQ-12A	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5031	Instruct a live flight using RQ-12A	X		X				1	0.4	D	L	RQ-12A	1	*	SUASE 5030	SUASE-2205
SUASE	5032	Observe an SUAS Evaluation using RQ-12A	X		X				1	0.4	D	L	RQ-12A	1	*	SUASE 5031	SUASE-2210
SUASE	5033	SUAS-E certification flight for RQ-12A	X		X				1	0.4	D	L	RQ-12A	1	*	SUASE 5032	SUASE-2220
SUASE	5034	SUAS-E Designation for RQ-12A	X		X				*	*	*	*	RQ-12A	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	DESG-2825
TOTAL RQ-12A STAGE							0	0	4	1.6							

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
RQ-20 SUAS-E STAGE FLIGHTS																	
SUASE	5040	Observe how to instruct a live flight using RQ-20	X		X				1	0.5	D	L	RQ-20	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5041	Instruct a live flight using RQ-20	X		X				1	0.5	D	L	RQ-20	1	*	SUASE 5040	SUASE-2205
SUASE	5042	Observe an SUAS Evaluation using RQ-20	X		X				1	0.5	D	L	RQ-20	1	*	SUASE 5041	SUASE-2210
SUASE	5043	SUAS-E certification flight for RQ-20	X		X				1	0.5	D	L	RQ-20	1	*	SUASE 5042	SUASE-2225
SUASE	5044	SUAS-E Designation for RQ-20	X		X				*	*	*	*	RQ-20	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	DESG-2830
TOTAL RQ-20 STAGE							0	0	4	2.0							

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
STLKR XE SUAS-E STAGE FLIGHTS																	
SUASE	5050	Observe how to instruct a live flight using STLKR XE	X						1	0.4	D	L	STLKR XE	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 & BUQ-2 qualified	
SUASE	5051	Instruct a live flight using STLKR XE	X						1	0.4	D	L	STLKR XE	1	*	SUASE 5050	
SUASE	5052	Observe an SUAS Evaluation using STLKR XE	X						1	0.4	D	L	STLKR XE	1	*	SUASE 5051	
SUASE	5053	SUAS-E certification flight for STLKR XE	X						1	0.4	D	L	STLKR XE	1	*	SUASE 5052	
SUASE	5054	SUAS-E Designation for STLKR XE	X						*	*	*	*	STLKR XE	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	
TOTAL NVTL PD STAGE							0	0	4	1.6							

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
NVTL PD SUAS-E STAGE FLIGHTS																	
SUASE	5060	Observe how to instruct a live flight using NVTL PD	X						1	0.4	D	L	NVTL PD	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5061	Instruct a live flight using NVTL PD	X						1	0.4	D	L	NVTL PD	1	*	SUASE 5060	SUASE-2205
SUASE	5062	Observe an SUAS Evaluation using NVTL PD	X						1	0.4	D	L	NVTL PD	1	*	SUASE 5061	SUASE-2210
SUASE	5063	SUAS-E certification flight for NVTL PD	X						1	0.4	D	L	NVTL PD	1	*	SUASE 5062	SUASE-2250
SUASE	5064	SUAS-E Designation for NVTL PD	X						*	*	*	*	NVTL PD	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	DESG-2850
TOTAL NVTL PD STAGE							0	0	4	1.6							
MVTL IE SUASE STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
SUASE	5070	Observe how to instruct a live flight using MVTL	X						1	0.3	D	L	MVTOL	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5071	Instruct a live flight using MVTL	X						1	0.3	D	L	MVTOL	1	*	SUASE 5070	SUASE-2205
SUASE	5072	Observe an SUAS Evaluation using MVTL	X						1	0.3	D	L	MVTOL	1	*	SUASE 5071	SUASE-2210
SUASE	5073	SUAS-E certification flight for MVTL	X						1	0.3	D	L	MVTOL	1	*	SUASE 5072	SUASE-2275
SUASE	5074	SUAS-E Designation for MVTL	X						*	*	*	*	MVTOL	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	DESG-2875
TOTAL MVTOL IE SUASE STAGE									4	1.2							
VTOL SR SUAS-E STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
SUASE	5080	Observe how to instruct a live flight using VTOL SR	X						1	0.3	D	L	VTOL	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5081	Instruct a live flight using VTOL	X						1	0.3	D	L	VTOL	1	*	SUASE 5080	SUASE-2205
SUASE	5082	Observe an SUAS Evaluation using VTOL	X						1	0.3	D	L	VTOL	1	*	SUASE 5081	SUASE-2210
SUASE	5083	SUAS-E certification flight for VTOL	X						1	0.3	D	L	VTOL	1	*	SUASE 5082	SUASE-2300
SUASE	5084	SUAS-E Designation for VTOL	X						*	*	*	*	VTOL	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	DESG-2900
TOTAL VTOL SR SUAS-E STAGE									4	1.2							
VTOL SRDR SUAS-E STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
SUASE	5090	Observe how to instruct a live flight using VTOL SRDR	X						1	0.3	D	L	VTOL SRDR	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 qualified	SUASE-2200
SUASE	5091	Instruct a live flight using VTOL SRDR	X						1	0.3	D	L	VTOL SRDR	1	*	SUASE 5090	SUASE-2205
SUASE	5092	Observe an SUAS Evaluation using VTOL SRDR	X						1	0.3	D	L	VTOL SRDR	1	*	SUASE 5091	SUASE-2210
SUASE	5093	SUAS-E certification flight for VTOL SRDR	X						1	0.3	D	L	VTOL SRDR	1	*	SUASE 5092	SUASE-2300
SUASE	5094	SUAS-E Designation for VTOL SRDR	X						*	*	*	*	VTOL SRDR	*	*	1. Complete SUAS-E course for a specific SUAS 2. Be designated and current as SUAS-O for a specific SUAS. 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	DESG-2900
TOTAL VTOL SRDR SUAS-E STAGE									4	1.2							
NPOR SUAS-E STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
SUASE	5190	Observe how to instruct a live flight using a designated Non-POR device	X						1	0.3	D	L	Any Non-POR	1	*	1. CSS Stage complete. 2. ACAD Stage complete 3. BUQ-1 and BUQ-2 qualified	SUASE-2200
SUASE	5191	Instruct a live flight using 4a designated Non-POR device	X						1	0.3	D	L	Any Non-POR	1	*	SUASE 5190	SUASE-2205
SUASE	5192	Observe an SUAS Evaluation using 4a designated Non-POR device	X						1	0.3	D	L	Any Non-POR	1	*	SUASE 5191	SUASE-2210
SUASE	5193	SUAS-E certification flight for 4a designated Non-POR device	X						1	0.3	D	L	Any Non-POR	1	*	SUASE 5192	
SUASE	5194	SUAS-E Designation for 4a designated Non-POR device	X						*	*	*	*	Any Non-POR	*	*	1. Complete SUAS-E course for a specific SUAS. 2. Be designated and current as SUAS-O for a specific SUAS 3. Be recommended by the Unit SUAS-PM 4. Be designated in writing by the unit commanding officer.	
TOTAL NPOR SUAS-E STAGE									4	1.2							

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
MVTOL IE AF STAGE																	
AF	5490	Observe how to instruct a live flight using MVTOL	X						*	*	*	G	MVTOL	*	*	1. CSS Stage complete. 2. ACAD Stage 3. Designated as a MVTOL SUAS Evaluator 4. BUQ-1 qualified	
AF	5491	Instruct MVTOL Academics	X						*	*	*	G	MVTOL	*	*	AF-5490	
AF	5492	Instruct a live flight using specified MVTOL	X						1	0.3	D	L	MVTOL	1	*	AF-5491	
AF	5493	Observe an SUAS Evaluation using specified MVTOL	X						1	0.3	D	L	MVTOL	1	*	AF-5492	
AF	5494	Adjunct Faculty (AF) Certification flight for MVTOL	X						1	0.3	D	L	MVTOL	1	*	AF-5493	
AF	5495	Adjunct Faculty (AF) Designation for MVTOL	X						*	*	*	*	MVTOL	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer.	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
TOTAL MVTOL IE AF STAGE									3	0.9							
CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (CQD) PHASE (6000)																	
RQ-11B STAGE																	
DESG	6021	SUAS-O Designation for RQ-11B	X		X				*	*	*	*	RQ-11B	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2620
EVAL	6022	SUAS Evaluation for RQ-11B	X		X				1	0.5	(N)	L	RQ-11B	1	365		EVAL-2420
TOTAL RQ-11B STAGE							0	0	1	0.5							
RQ-12A STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6031	SUAS-O Designation for RQ-12	X		X				*	*	*	*	RQ-12A	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommend ed by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2625
EVAL	6032	SUAS Evaluation for RQ-12	X		X				1	0.3	(N)	L	RQ-12A	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	EVAL-2425
TOTAL RQ-12A STAGE							0	0	1	0.3							
RQ-20 STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6041	SUAS-O Designation for RQ-20	X		X				*	*	*	*	RQ-20	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2630
EVAL	6042	SUAS Evaluation for RQ-20	X		X				1	0.5	(N)	L	RQ-20	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	EVAL-2430
TOTAL RQ-20 STAGE									1	0.5							
STALKER XE STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6051	SUAS-O Designation for STALKER XE	X		X				*	*	*	*	STALKER XE	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 & BUQ-2 Qualification	
EVAL	6052	SUAS Evaluation for STALKER XE DDL	X		X				1	0.5	(N)	L	STALKER XE	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	
TOTAL STALKER XE STAGE							0	0	1	0.5							
NVTL PD STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6061	SUAS-O Designation for NVTL PD	X		X				*	*	*	*	NVTL PD	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2650
EVAL	6062	SUAS Evaluation on NVTL PD.	X		X				1	0.5	(N)	L	NVTL PD	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	EVAL-2450
TOTAL NVTL PD STAGE							0	0	1	0.5							
MVTOL IE STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6071	SUAS-O Designation for MVTL	X		X				*	*	*	*	MVTOL	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2675
EVAL	6072	SUAS Evaluation on MVTL	X		X				1	0.5	(N)	L	MVTOL	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	EVAL-2475
TOTAL MVTOL STAGE							0	0	1	0.5							
VTOL STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6081	SUAS-O Designation for VTOL	X		X				*	*	*	*	*	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2900
EVAL	6082	SUAS Evaluation on VTOL	X		X				1	0.5	(N)	L	VTOL	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	EVAL-2500
TOTAL VTOL SR STAGE							0	0	1	0.5							
VTOL R80D SKY RAIDER [SRDR] STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6091	SUAS-O Designation for SRDR	X		X				*	*	*	*	*	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	DESG-2900
EVAL	6092	SUAS Evaluation on SRDR	X		X				1	0.5	(N)	L	VTOL SRDR	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	EVAL-2500
TOTAL VTOL SRDR STAGE							0	0	1	0.5							
NPOR STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6191	SUAS-O Designation for NPOR	X		X				*	*	*	*	*	*	*	1. Complete SUAS IQT Course for which being designated. 2. Be current on the specific SUAS for which being designated. 3. Be recommended by the Unit SUAS-PM. 4. Be designated in writing by the unit commanding officer. 5. BUQ-1 Qualification	
EVAL	6192	SUAS Evaluation on NPOR	X		X				1	0.5	(N)	L	NPOR	1	365	Be a designated and current SUAS-O on SUAS being evaluated.	
TOTAL NPOR STAGE							0	0	1	0.5							
SUAS-PM STAGE																	

STAGE	EVENT #	DESCRIPTION	ATTAIN			MAINTAIN	ACAD/GND		FLIGHT		COND	OPTION	TYPE	#	REFLY	PREREQ	EVENT CONV 3500.107B to 3500.107C
			B	C	R		#	TIME	#	TIME							
DESG	6600	Unit SUAS Program Manager (SUAS-PM)	X						*	*	*	*	ALL	*	*	Be assigned as the unit SUAS-PM by the unit Commanding Officer. Complete a TALSA SUAS PM Course.	TALSA PM Completion Certificate
TOTAL SUAS-PM STAGE									0	0							
6000 PHASE TOTAL							0	0	20	8.3							

APPENDIX A

SUAS PROGRAM ASSESSMENT CHECKLIST

SUAS PROGRAM ASSESSMENT CHECKLIST				
SECTION 1. UNIT SUAS TRAINING PROGRAM REQUIREMENTS	YES	NO	N/A	COMMENTS
Has the unit established a SUAS Training Program? NAVMC 3500.107, para. 116.2.				
Does the unit have a SNCO or Officer designated as a Unit SUAS-PM in writing by the commanding officer and does the Unit SUAS-PM understand assigned roles and responsibilities? NAVMC 3500.107, para 116.2.a or b, as applicable, and para. 207.2.				
Does the unit have the minimum number SUAS crew(s) of designated and current SUAS-Os to operate each system in the unit's inventory? NAVMC 3500.107, para 113.				
Has the unit developed standard operating procedures for local unit SUAS activities? NAVMC 3500.107, para 116.2.a. (7).				
Does the unit integrate SUAS training during mission planning? NAVMC 3500.107, para 116.2.b. (4).				
Does the unit submit monthly SUAS reports via the chain of command to the applicable MEF/MARFORRES G-3 using the required format? NAVMC 3500.107, para 107.2 and OPNAVINST 3710.7U, para 14.10.2.1.				
Are SUAS personnel who were revoked immediately removed from the SUAS Program and notified with a revocation letter signed by the commanding officer? NAVMC 3500.107, para 117.11.				
If SUAS personnel were permitted to reenter the unit SUAS Program following revocation, did they receive a SUAS Remedial Syllabus letter by the commanding officer approving reinstatement? NAVMC 3500.107, para 117.11.				
If T&R policy deviations were implemented by the unit, did the unit request and TECOM/ATD approve the deviation? NAVMC 3500.107, para 117.13.				
Did SUAS personnel who were current and designated prior to a deployment receive a SUAS Waiver Letter signed by the commanding officer allowing them 90 days upon return to complete required refresher training in order to retain currency? NAVMC 3500.107, para 117.14.				

SUAS PROGRAM ASSESSMENT CHECKLIST				
SECTION 1. UNIT SUAS TRAINING PROGRAM REQUIREMENTS	YES	NO	N/A	COMMENTS
Are SUAS personnel completing all training prerequisites before beginning training in a phase, stage or event? NAVMC 3500.107, chap 2.				
Are SUAS personnel familiar with the Sharepoint website where Group 1 UAS T&R documentation is posted? NAVMC 3500.107, para. 101.				
SECTION 2. SAFETY OF FLIGHT, AIRSPACE AND FREQUENCIES	YES	NO	N/A	COMMENTS
Are SUAS crews conducting mission planning, mission briefings and utilizing checklists as instructed during IQT and CSS? NAVMC 3500.107, para 203 and 204. OPNAVINST 3710.7U, para 14.3.2.1, 14.4.11.1 through .4.				
Does SUAS mission planning include mishap prevention planning and operational risk management (ORM)? NAVMC 3500.107, para 103 and 104.1, and OPNAVINST 3710.7U, para 14.14.4.11.1 through .4				
Is the unit properly coordinating for and obtaining approval for the use of airspace and required frequencies prior to conducting SUAS operations? NAVMC 3500.107, para 111.1 and .2, and OPNAVINST 3710.7U, para 14.4.5.				
Are all incidents, deviations, violations of flying regulations, and mishaps being reported using the SUAS Incident Report Form? NAVMC 3500.107, para and local SOP.				
Are the commanding officer and his staff aware of the air vehicle recovery policy? NAVMC 3500.107, para 104.2.				

SECTION 3. INDIVIDUAL SUAS EVALUATIONS AND UNIT ASSESSMENTS	YES	NO	N/A	COMMENTS
Does the unit have a SUAS Evaluation Program established to evaluate SUAS-O/I/Es? NAVMC 3500.107, para 116.2.c. (1).				
Have all SUAS-O/I/Es received a SUAS evaluation within the last 12 months on each SUAS Type in which operating, instructing or evaluating? NAVMC 3500.107, para 117.7 and 207.1.a. (2).				
Are SUAS Evaluations being conducted by SUAS-Es only? NAVMC 3500.107, para 207.3.				
Are SUAS Evaluations being conducted properly using Live flights (not using a simulator)? NAVMC 3500.107, para 115.2.				
Is SUAS Evaluation documentation to include written and EP exams, and evaluation training forms being filed in the ITR? NAVMC 3500.107, para 117.7.d.				
Are SUAS Evaluations being logged in the SUAS flight log, entered in MCTIMS and evaluation form with written and EP exam filed in the ITR? NAVMC 3500.107, para 115.2, 117.7.c and d, and 118.2.				
Has the unit completed a unit SUAS Training Program Annual Assessment within the last 12 months? NAVMC 3500.107, para 116.2.a. (5) and 117.15.				
Did the unit take action within 60 days from date of assessment to correct all deficiencies noted during the annual assessment and was a written status report provided to the SUAS-PM who conducted the assessment? NAVMC 3500.107, para 117.15.				
SECTION 4. UNIT SUAS INSTRUCTOR AND EVALUATOR REQUIREMENTS	YES	NO	N/A	COMMENTS
Does the unit have a SGT or above SUAS-E designated in writing by the CO and did they meet prerequisite? NAVMC 3500.107, para 116.2.c, and para. 207.2.				
Did SUAS-Os who were recommended for IUT meet the prerequisites before beginning training as a SUAS IUT? NAVMC 3500.107, para 205.1b.				
Does the unit have a NCO or above designated as a SUAS-I in writing by the commanding officer and does the SUAS-I understand assigned roles and responsibilities? NAVMC 3500.107, para 116.2.d, and para. 207.2.				
Did SUAS-Is who were recommended for EUT meet the prerequisite prior to beginning training as a SUAS EUT? NAVMC 3500.107, para 206.2.				
Are unit SUAS-I/Es properly trained, current, and designated in each SUAS in which instructing or evaluating? NAVMC 3500.107, para 117.6, 205, 206 and 207; OPNAVINST 3710.7U, para 14.11.3.				

Has any SUAS-I/E/PM instructed IQT? NAVMC 3500.107, para 117.9.d and 203.1f.				
Is currency, CSS, SUAS-I and SUAS-E training being conducted by a designated and current SUAS-I or a SUAS-E, as required? NAVMC 3500.107, para 205, 206, 207.				
If a SUAS-I was suspended for receiving an overall grade of UQ during a SUAS Evaluation, did that individual successfully pass a subsequent evaluation prior to being reinstated in writing by the commanding officer? NAVMC 3500.107, para 205.1.c.				
SECTION 5. SUAS OPERATOR (SUAS-O) TRAINING	YES	NO	N/A	COMMENTS
Is the BUQ-I course being completed by students before they begin IQT and are the completion certificates filed in the ITR and entered in MCTIMS? NAVMC 3500.107, para 118, 200.1 and 203.1.b.				
Are SUAS-Os completing IQT prior to being designated in writing and are the course completion certificates and designation letters being filed in the ITR and event codes entered in MCTIMS? NAVMC 3500.107, para 200 and 203.1.				
Is completion of IQT for RQ-11B being documented in the individual Basic Training Record as course code "XJL"? NAVMC 3500.107, para 107.3.				
Are SUAS-Os current and designated in each SUAS type the individual is expected to operate? NAVMC 3500.107, para 117.6.c and 207; OPNAVINST 3710.7U, para 14.11.3.				
SECTION 6. SUAS TRAINING PROGRAM ADMINISTRATION	YES	NO	N/A	COMMENTS
Are SUAS Individual Training Records (ITR) constructed and being maintained by the Unit SUAS-PM using the templates located on the TECOM/ATD SharePoint website? NAVMC 3500.107, para 101, 118.1; and OPNAVINST 3710.7U, para 14.10.2 and 14.11.3.				
Are SUAS ITRs being audited and attested by the commanding officer as required? NAVMC 3500.107, para 118.1.b and OPNAVINST 3710.7U, para 14.10.2.				
Does the unit identify unit IQT requirements and communicate them via the chain of command to the MEF/MARFORRES SUAS-PM? NAVMC 3500.107, para 116.2.a and b.				
Does the unit have a process to track currency and designations status for unit SUAS-O/I/Es and to notify the commanding officer of any currency lapses? 116.2. b. (9) and OPNAVINST 3710.7U, para 14.11.3.1.				

Is the unit tracking and scheduling SUAS-O/I/Es for initial or refresher training in a timely manner, especially prior to individuals deploying? NAVMC 3500.116.2.b. (11) And b. (14); OPNAVINST 3710.7U, para 14.11.3.2.				
Is the unit tracking and scheduling SUAS-O/I/Es for initial or refresher training in a timely manner, especially prior to individuals deploying? NAVMC 3500.116.2.b. (11) And b. (14); OPNAVINST 3710.7U, para 14.11.3.2.				
Is there a process to initiate, implement, and track revocations, waivers and reinstatements? NAVMC 3500.107, para 117.11, 117.14, and 205.1.c; OPNAVINST 3710.7U, para 14.10.2.				
Are personnel who lapse in currency for greater than 720 days being scheduled to complete applicable IQT course again? NAVMC 3500.107, para 117.10 and 203.1.f.				
Are SUAS personnel starting a flight log in IQT and maintaining throughout their career; correctly computing flight hours based on the position of duties performed; and are they ensuring the log is reflected/updated in their ITR on a monthly basis? NAVMC 3500.107, para 118.3.				
Are flight logs being reviewed and updated, at minimum, on a monthly basis? NAVMC 3500.107, para 118.3.a and OPNAVINST 3710.7U, para 14.10.2.				
Are all SUAS flights and simulator events documented using an individual flight log and are the logs being reviewed and updated on a monthly basis? NAVMC 3500.107, para 118.3; OPNAVIST 3710.7U, para 14.10.2.				
Are Event Training Forms (ETF) being completed with required signatures for each event conducted; and are the event codes entered in MCTIMS with the ETF filed in the ITR? NAVMC 3500.107, para 117.7.d, 117.8, 117.9.d. (2), and 118.				
Is MCTIMS being used to track and document all training events conducted/completed? NAVMC 3500.107, para 116.2.b. (1) and 118.2.				
Are training rosters being maintained? OPNAVINST 3710.7U, para 14.10 and NAVMC 3500.107, para 107.2.				
OVERALL COMMENTS AND RECOMMENDATIONS				

APPENDIX B

SUAS COURSES

1. SUAS Initial Qualification Training (IQT) Courses. IQT courses focus primarily on the basic operation of SUASs. The TALSAs offer standardized IQT courses that meet USMC and Joint training requirements and ensure students are trained to operate SUASs during contingencies and combat operations. Graduates of these courses are certified as SUAS-Operators (SUAS-Os) for the system instructed in. The SUAS IQT courses offered by the TALSA are:

a. Fixed Wing SUAS courses

- RQ-11B DDL Raven Course.
- RQ-12A Wasp IV Course.
- RQ-20 PUMA Course.
- LR/LE Stalker XE Course (Course in development)
- Non-Program of Record (NPOR) Course.

b. Vertical Take-Off and Landing (VTOL)

- VTOL/Sky Raider Course.
- XMQ-13 InstantEye Course.
- PD-100/200 Course.
- Non-Program of Record (NPOR) Course.

c. Difference Training. Once an individual completes Initial training for a specific platform and is designated on that platform, they may complete Differences Training on additional platform. Units shall coordinate through their SUAS Program Manager to the applicable TALSA to determine which SUAS Differences Training Course is appropriate for specific SUAS-O's with prior SUAS training. Regardless of the first SUAS trained on, Difference Training may be completed for any additional platform in any order. Differences Training is comprised of two phases: differences ground phase and differences flight phase.

(1) Differences Ground Phase - PSA Only. Differences Ground Phase training consists solely of Platform Specific Academics. The duration of this phase will vary by platform.

(2) Differences Flight Phase. Differences Flight Phase training consists of live flight events conducted in a field environment. The duration of this phase will vary by platform.

d. SUAS Accelerated Courses. These courses are restricted to designated Naval Aviators and MOS-designated Group 3 or higher UAS operators. Their in-depth aviation training satisfies the Basic Unmanned Qualification (BUQ-1) portions of the program of instruction for IQT courses; therefore, an abridged course for each SUAS has been developed to efficiently certify these individuals as SUAS-Os in compliance with this T&R Manual.

Note: Only instructors (known as IQT-Is) assigned to Service recognized formal learning centers are authorized to instruct IQT courses (includes TALSA). SUAS-Es/PMs are prohibited from conducting IQT in any SUAS for the purpose of certifying SUAS-Os for the first time or recertifying SUAS-Os who have gone out of currency for greater than 730 days.

2. Other SUAS Training. The TALSAs offer SUAS program specific courses to assist units to meet and maintain T&R requirements.

a. SUAS-Program Managers (SUAS-PM) Course. This course provides SUAS-PMs at all levels with a comprehensive overview of information essential to manage a successful unit SUAS program. The course also provides the SUAS-PM with an extensive review of this Manual, and provides guidance on how to establish and maintain a unit SUAS Program. Graduates of this course are certified as unit SUAS-PMs.

b. SUAS-Evaluator (SUAS-E) Course. SUAS-E course provides instruction to experienced SUAS Operators on how to conduct the duties of an SUAS Evaluator and assist the unit SUAS-Program Manager. Graduates of this course are certified as unit SUAS-Es.

3. Course Scheduling. USMC conventional units requiring IQT should contact their unit SUAS Program Manager (PM) to schedule a course with the local TALSA IAW their individual MEF procedures. MARSOC units shall coordinate all IQT through the MARSOC UAS-PM via the NIPR Sharepoint portal. When training is

conducted at a TALSA facility, classroom and flight training resources necessary to conduct IQT are normally provided. However, units should be prepared to provide any training resources the TALSA is unable to provide. These resources may include, but are not limited to: frequencies, training areas, airspace, classroom, vehicles, and personnel required to meet local range requirements. When the TALSA supports with Mobile Support Team at the requesting host unit location, that unit must ensure necessary training resources are made available for the duration of the course to ensure the course can be conducted in its entirety..

4. Non-USMC IQT. The TALSAs are the only USMC-approved source of IQT for Marine Corps SUAS-Os. Situations may exist or occur that would prevent units from obtaining IQT through a TALSA, or where attending IQT through another Service school or activity is more practical (i.e. time, travel distance, fiscal constraints, etc.). Waivers to deviate from this order and attend other Service IQT activities (formal learning center or Master Trainer-led courses) can be requested via message to TECOM via the appropriate MFR/higher headquarters. MARSOC operators may attend USSOCOM approved SUAS training venues when mission requirements prevent TALSA course attendance and only when scheduled through the component HQ SUAS-PM.

APPENDIX C

SUAS TRAINING PROGRAM ROLES AND RESPONSIBILITIES

1. SUAS-Program Manager (SUAS-PM) Requirements for Units without SUAS. Units that do not have SUASs on their Table of Equipment (T/E) but who are assigned subordinate units that do shall have a staff noncommissioned officer (SNCO) or officer designated as the Unit SUAS-PM; the individual should be assigned for a minimum of 12 months. The SUAS-PM shall attend a formal SUAS-PM course, offered through the TALSA, within 90 days of being designated in accordance with paragraphs 2.7 of this Manual. Responsibilities shall include:

a. Oversee the administration of the overall SUAS Program and ensure all subordinate commands' SUAS training programs are standardized.

b. Assist subordinate commands in the administration of their unit programs to ensure all deploying unit SUAS operators and evaluators (SUAS-O/Es) are certified, designated and current.

c. Conduct an SUAS staff assist visit (SAV) to each subordinate unit to determine effectiveness of programs, compliance with governing directives, and efficiency of resource expenditures. Brief the unit commanding officer of the assessment results and provide recommendations as needed. See paragraph 3b of this chapter for the location of the SUAS Training Program Assessment Checklist
Ensure SUAS Incident Reports are submitted per Appendix J.

d. Prepare the Monthly SUAS Status Report and submit to the commanding officer, and higher headquarters SUAS-PM if applicable.

2. SUAS-Program Manager (SUAS-PM) Requirements for Units with SUAS. Units that have SUASs on their T/E shall designate a staff noncommissioned officer (SNCO) or officer as the Unit SUAS-PM, the individual should be an SUAS-O. The SUAS-PM shall attend a formal SUAS-PM course, offered through the TALSA, within 90 days of being designated in accordance with paragraph 2.7 of this Manual. Responsibilities shall include:

a. Administer the unit SUAS Program as delineated in this Manual.

b. Ensure SUAS Incident Reports are submitted per Appendix J.

c. Maintain accountability and maintenance status of unit SUAS equipment.

d. Prepare the Monthly SUAS Status report and submit to the commanding officer, and higher headquarters SUAS-PM if applicable.

e. Schedule SUAS Initial Qualification Training (IQT) and other courses through the TALSA, see page 2-3 for TALSA locations and contact information.

f. Monitor and track currency training and designation of all unit SUAS-O/Es. Assist SUAS-O/Es in maintaining their currency.

g. Identify SUAS personnel who are failing to maintain currency standards and make recommendations concerning revocation to the unit commanding officer. Administratively process any SUAS-O/E for revocation, when directed by the unit commanding officer.

h. Ensure the unit is identifying SUAS pre-deployment training requirements and integrating them into mission planning.

3. SUAS-Operator (SUAS-O). An SUAS-O is an individual, certified as IQT complete by a recognized Service formal learning center, and designated by the commanding officer to operate SUAS(s) in accordance with paragraphs 2.7 of this Manual. An SUAS-O may be certified and designated in writing in more than one SUAS simultaneously provided requirements are met and currency is maintained for each. Responsibilities shall include:

a. Ensure required airspace and spectrum usage is approved prior to operating an SUAS.

b. Report incidents, mishaps, and SUAS losses to the Unit SUAS-PM immediately upon occurrence. Submit an SUAS Incident Report Form and preserve SUAS system digital flight logs and flight video per the direction of the SUAS-PM.

c. Ensure a copy of all SUAS related course completion certificates and other training documentation are filed in the SUAS-Os ITR on MCTIMS.

d. Maintain system logbooks as appropriate.

e. Ensure SUAS-O flight logs are updated monthly in the ITRs on MCTIMS.

f. Maintain own individual currency and evaluation requirements for SUAS-O designation(s). Notify the Unit SUAS-E/PM if currency or recertification training is required.

4. Unit SUAS-Evaluator (SUAS-E). Units that have SUASs on their T/E shall designate for each SUAS type at least one E-5 or above as an SUAS-E in accordance with paragraphs 2.7 of this Manual. The SUAS-E should be highly experienced as an SUAS-O (should have a minimum of 25 hours experience in the platform on which they will be certified to evaluate). SUAS-Es may be designated in writing in more than one system provided requirements are met and currency is maintained for each. Responsibilities shall include:

a. Assist the Unit SUAS-PM as needed.

b. Conduct and manage the unit SUAS Evaluation program and serve as the technical advisor on all levels of SUAS standardization within the command.

c. Conduct currency and Common SUAS Skills (CSS).

d. Conduct currency and remediation training when necessary.

e. Perform the duties of an SUAS-O, when necessary.

Note: Only instructors (known as IQT-Is) assigned to Service recognized formal learning centers are authorized to instruct IQT courses (includes TALSA). SUAS-Es/PMs are prohibited from conducting IQT in any SUAS for the purpose of certifying SUAS-Os for the first time or recertifying SUAS-Os who have gone out of currency for greater than 730 days.

APPENDIX D

SUAS EVALUATION GUIDANCE AND PROCEDURES

SUAS EVALUATION PROCESS.

1. Unit SUAS personnel have joint responsibility to ensure evaluations are conducted when required. Only designated and current SUAS-Es shall conduct these evaluations. See Figure 1-1 for the SUAS Evaluation Process.

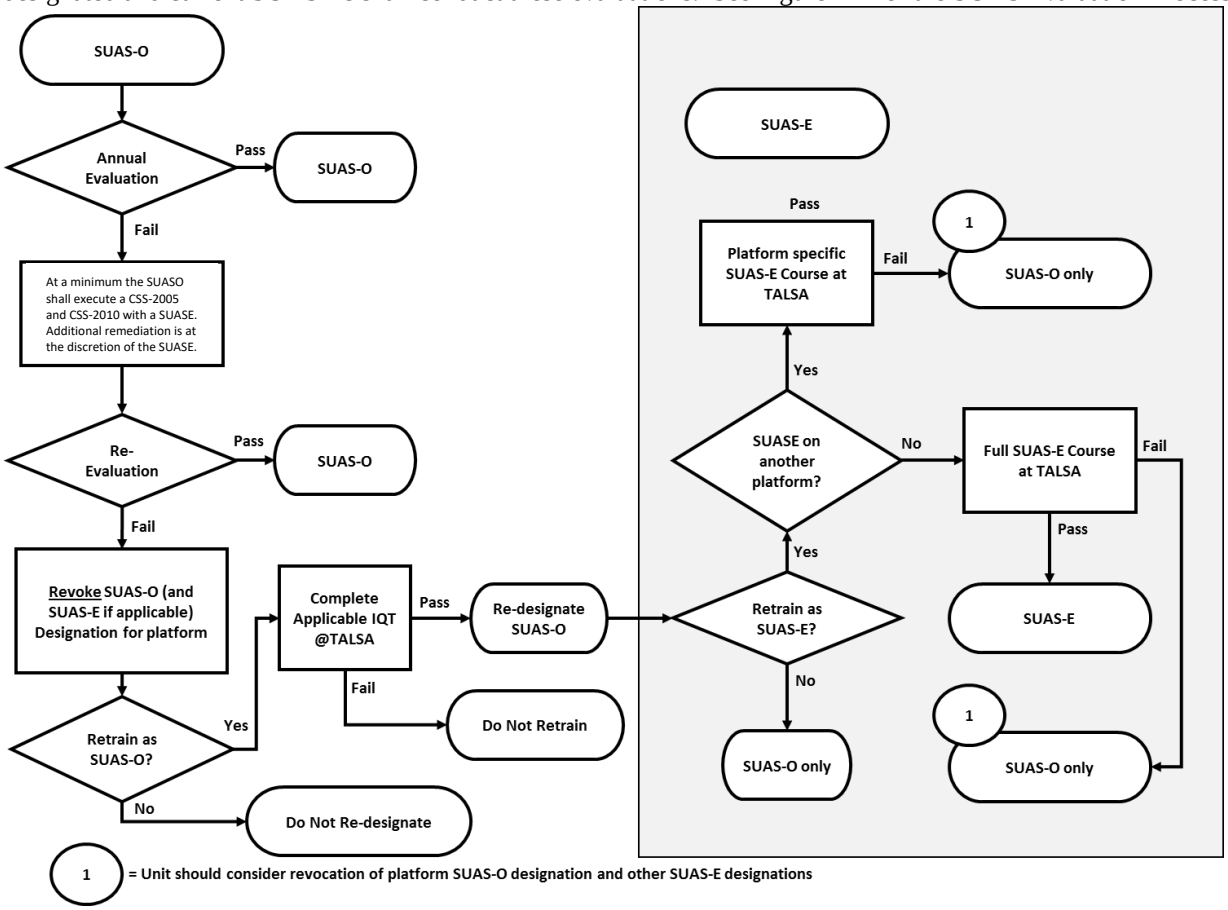


Figure 1-1. SUAS Evaluation Process

2. SUAS Evaluation Guide. The SUAS Evaluation Guide provides the standardized detailed direction and guidance on how to conduct an SUAS Evaluation and are located on the TECOM ASB sharepoint (https://vcepub.tecom.usmc.mil/sites/directorates/mtesd/asb/G1_Trng/default.aspx?PageView=Shared&InitialTabId=Ribbon.WebPartPage&VisibilityContext=WSSWebPartPage).

a. The Unit SUAS-PM will work with the unit operations/training section and SUAS-E to coordinate resources necessary for the evaluation. As a rule of thumb, planning for an evaluation should begin 60 days from the projected evaluation date. The 60-day window will provide adequate time to obtain required ranges and airspace, frequencies and equipment, and to schedule required personnel (SUAS-E, Range OIC, Range Safety Officer, etc.).

b. The SUAS-E should contact the evaluate NLT 24 hours prior to the event. It is recommended the evaluatee be provided a copy of the SUAS Evaluation Guide. The SUAS Evaluation Guide provides a detailed agenda for the day of the evaluation which is composed of two closed book assessments (an SUAS written exam and an emergency procedures (EP) quiz); a mission brief; an evaluation live flight (any IQT or CSS event); and a formal debrief.

c. The evaluatee shall achieve a minimum grade of 80% on the closed book exam and 100% on the EP quiz before progressing to the flight portion.

d. At the completion of the evaluation, the SUAS-E shall submit the completed evaluation form and graded written exams to the SUAS-PM. If the evaluation results in a recommendation for a designation, then the SUAS-PM shall route all evaluation documentation with the designation letter for the unit commanding officer's signature.

e. All SUAS Evaluation Forms and written examinations shall be filed in Part VI of the individual's ITR.

3. Evaluation Documents. The master library of current Emergency Procedures (EP) study guides and quizzes, SUAS Evaluation study guides, and written exams shall be maintained by the TALSA with syllabus sponsor oversight. Units that require SUAS Evaluation Exams should contact the TALSA. See TECOM's ASB sharepoint (https://vcepub.tecom.usmc.mil/sites/directorates/mtesd/asb/G1_Trng/default.aspx?PageView=Shared&InitialTabId=Ribbon.WebPartPage&VisibilityContext=WSSWebPartPage) for the SUAS Evaluation Guide and SUAS Evaluation Form.

APPENDIX E

SUAS OPERATOR CURRENCY AND PROFICIENCY

CURRENCY. Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. Loss of currency does not affect a loss of proficiency.

EVENT PROFICIENCY. Event proficiency is defined as successful completion of the performance standard as determined by the instructor or evaluator. Event completion is predicated upon demonstrated proficiency. Once completed, it is logged in MCTIMS by entering the appropriate event code. MCTIMS automatically updates the event proficiency date to reflect the completion date.

SKILL PROFICIENCY. Skill Proficiency is a measure of achievement of a specific skill. To attain Individual Skill proficiency, an individual must be simultaneously proficient in all events for that Skill. Individuals may be attaining proficiency in some skills while maintaining proficiency in others.

1. Once an individual finishes the 1000 phase events for a particular SUAS that individual does not need to fly those event again unless they simultaneously lose proficiency in all 2000 phase events for a period of 731days or more in which case that individual will need to attend the specific SUAS IQT course again to be recertified and eligible to be designated as a SUAS-O.

2. Loss of Individual Skill Proficiency. Should an individual lose proficiency in all maintain events in a skill, the individual will be assigned to the Refresher POI for the skill. To regain skill proficiency, the individual must demonstrate proficiency in all R-coded events for the skill.

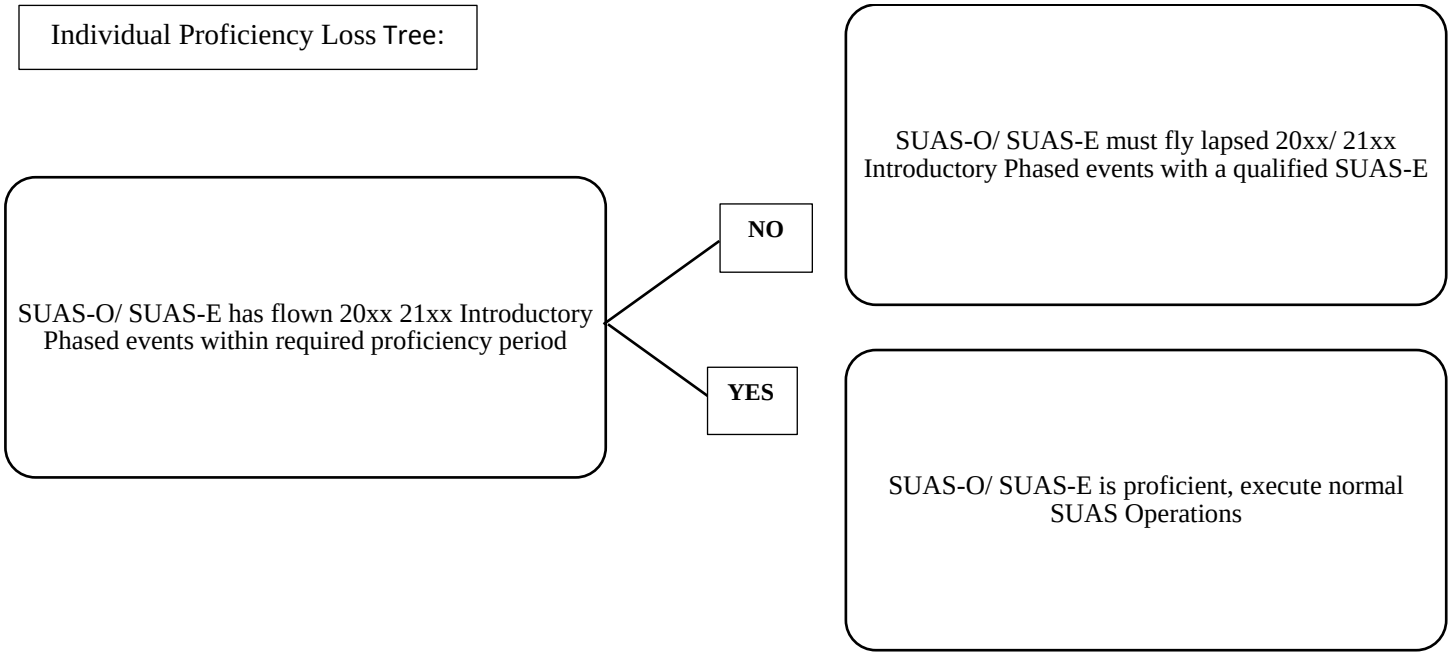
3. Loss of Unit Skill Proficiency. If an entire unit loses proficiency in an Event, unit instructors shall regain proficiency by completing the Event with an instructor from a like unit. If not feasible, the instructor shall regain proficiency by completing the Event with another instructor. For flying communities, if a unit has only one instructor and cannot complete the Event with an instructor from another unit, the instructor shall regain proficiency with another aircraft commander or as designated by the commanding officer.

4. If an individual loses proficiency in one or more events but less than all events with proficiency periods, that individual needs to only fly those specific events with lapsed proficiency periods with a proficient instructor to regain skill currency. If an individual simultaneously loses proficiency in all event with proficiency periods in a skill/phase then that individual must fly, with the applicable instructor, and be simultaneously proficient in all "R" coded events.

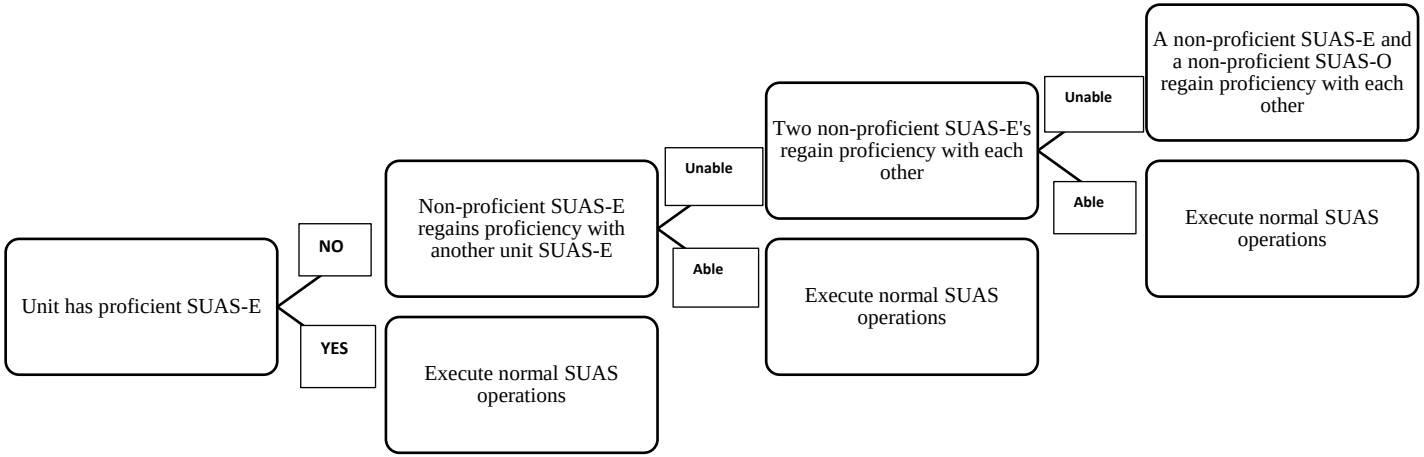
5. If a SUAS-O losses proficiency in all 2000 level events simultaneously and fails to regain roficiency for a period in excess of 365 days, the SUAS-O designation in which lapsed shall be evoked in writing. In order to regain their designations a SUAS-O the individual must fly, with the applicable instructor, and be simultaneously proficient in all "R" coded events in the 2000 phase.

6. Skill Currency During Deployments. SUAS-O/E's shall make every attempt to maintain event proficiency periods during deployment. Once deployed, SUAS-O/Es that have completed all 2000 phase events, who are proficient in all events with proficiency periods, and designated by their Commanding Officer as a SUAS-O/E will be considered current and designated for the duration of the deployment regardless of lapsed proficiency periods during deployment. Upon return from deployment, SUAS-O/E's with events that have lapsed their proficiency period have 120-day grace period to fly those events with lapsed proficiency periods. Failure to fly those events with lapsed proficiency periods will result in loss of skill currency (see above).

Figure E-4 Proficiency Tables



Unit Proficiency Loss Tree:



APPENDIX F

LOGS, RECORDS AND REPORTING RESPONSIBILITIES

SYSTEMS LOGS AND RECORDINGS. To facilitate incident and mishap reporting, all SUAS flights shall be recorded using the ground control station's recording capability, if the system has that capability. Recordings and system logs shall be preserved, under the authority of the unit commanding officer, following an incident or mishap to assist with reviews or investigations. Handling and retention of SUAS flight recordings shall be in accordance with MCO 3800.2_, Oversight of Intelligence Activities. Instructions for downloading system logs files can be found in the applicable SUAS operator's manual.

TRAINING ADMINISTRATION.

1. Individual Training Record (ITR).

a. Electronic ITR's shall be maintained in MCTIMS and the SUAS-PM will maintain an addition hard copy of the ITR on each SUAS-O/E/PM. Until MCTIMS has been deemed fully operational by the Syllabus Sponsor and TECOM, hard copy Individual Training Records will be maintained.

b. The ITR shall contain all documents and records for an SUAS-O/E/PM. An updated and accurate ITR is critical to tracking and documenting designations and currency. Only the commanding officer or the unit SUAS-PM is authorized to review and attest the accuracy of an ITR.

c. The unit SUAS-PM is responsible for ensuring each SUAS-O/E has an ITR. SUAS-O/Es are responsible for providing the unit SUAS-PM with SUAS training documents such as course completion certificates and copies of flight logbook entries.

d. The ITR will be physically located with the Unit SUAS-PM, unless signed out by the individual. When signed out, the ITR Locator sheet will be completed and filed as a place holder until the ITR is returned.

e. ITRs shall be constructed and organized into six parts per Table F-1 using a six-part folder. See paragraph 3b of this chapter for location of the SUAS ITR cover sheets and training forms.

f. The ITR shall be audited annually at a minimum, or when one of the following occasions occurs:

(1) Upon reporting to a unit.

(2) Upon designation or recertification.

(3) Prior to an SUAS Evaluation.

(4) Upon transferring to another unit.

(5) During a SAV, ITRs shall be randomly reviewed.

g. Each ITR document shall be maintained for a minimum of two years from the date of the document.

Table F-1. ITR Organization.

PART	ITEMS
I	General A: Privacy Act Statement B: Record of Audit C: Medical Documentation
II	Designation and Other Letters
III	Course Completion Certificates
IV	Flight Log

V	SUAS Event Training Forms
VI	Flight Evaluations
See paragraph 3b of this Manual for location of SUAS ITR cover sheets and training forms.	

3. T&R Event Tracking. Once completed, T&R events shall be tracked using an SUAS T&R ETF that shall be placed in Part V of the ITR.

4. SUAS Flight Logs.

a. SUAS-Os shall maintain an individual flight log. Each individual flight event, live or simulated, shall be documented using a flight log. Flight logging starts with the first flight in an IQT course and is maintained throughout an SUAS-O/E's career. Electronic flight logs shall be standardized by the syllabus sponsor and will be accessible on the MCTIMS website (when fully implemented). SUAS Flight Log Forms are available on the TECOM SharePoint site and from the TALSA as an interim measure until MCTIMS is available. These flight logs shall be reviewed monthly by the Unit SUAS-PM.

b. All flights shall be logged to reflect the position of the duties being performed:

(1) SUAS-Os will log operator time as MO or VO as appropriate.

(2) SUAS-Es will log evaluator time only when conducting unit level event training or SUAS evaluations.

Note: Flight hour computation starts when an air vehicle (AV) is launched and ends when it has landed. Anything less than 6 mins (.1) does not consitiute a flight and will not be logged in MCTIMS.

5. Monthly Reporting. Monthly Reporting. Unit SUAS-PMs shall review monthly in MCTIMS subordinate unit's SUAS flight operations and training are documented per OPNAVINST 3710.7_, chapter 14.10. MARCORSYSCOM and PMA-263 SUAS office shall pull these reports directly from MCTIMS to track monthly SUAS utilization and flight data.

APPENDIX G

SUAS SAFETY AND MISHAP/INCIDENT REPORTING

SAFETY. Conducting SUAS operations in a safe manner is the responsibility of all personnel from operators through unit commanding officers. Because of their size, weight, and operating altitudes, improperly handled SUAS can present serious (and potentially catastrophic) hazards to low flying aircraft and personnel on the ground. Conducting operations in a safe manner ensures the preservation of a critical war fighting capability through the prevention of SUAS related mishaps, injuries or fatalities. Unit commanding officers shall ensure the unit establishes SUAS safety procedures that address standard operating, preventive, and emergency procedures. SUAS personnel shall be aware of the unique operational challenges and shall adhere to all safety requirements.

AIR VEHICLE RECOVERY. While not disposable, SUAS air vehicles are designed to be expendable in support of operations. If an air vehicle is lost during training every reasonable effort shall be made to recover it. If an unmanned air vehicle is lost during combat operations a recovery may be attempted if it is tactically prudent and the environment is permissive enough to execute a recovery without undue risk to personnel. Specific requirements for recovering downed unmanned air vehicles may be addressed by theater or higher headquarters directives. A loss of an unmanned air vehicle during training or combat shall be properly documented in accordance with the appendix, Reporting Process.

EXTERNAL TRACKING DEVICE. An external tracking device shall be used for SUAS training flights in order to maximize the chance of recovering a downed air vehicle. Falcon Trackers are made available at each Marine Raider Battalion (MRB) for MARSOC operations. For conventional USMC units, when available, tracking devices shall be issued with systems checked out from centralized storage locations, the TALSA and Inventory Control Point (ICP). III MEF units may receive these trackers as direct issue.

OPERATIONAL AWARENESS. External factors like weather, emergency situations, changing environments, etc., are unpredictable by nature and require proper mission planning, detailed mission briefings, and adherence to checklists, procedures and established standards to minimize their impact on SUAS operations and personnel. Unlike manned systems, SUASs are unable to provide operators with sufficient peripheral visual, auditory, and tactical cueing. This sensory deprivation requires the SUAS operator to exercise greater vigilance and maintain a High-Level of situational awareness.

LOSS OF LINK (LOL). If a LOL condition occurs where the Air Vehicle (AV) cannot be recovered according using the procedures outlined in that system's operator manual, the SUAS-O shall contact the controlling agency immediately per Naval Air Training and Operating Procedures Standardization (NATOPS), OPNAVINST 3710.7_, chapter 14.5, and local procedures.

SUAS INCIDENT/MISHAP REPORTING.

1. Mishap. Defined per Marine Corps Safety Program (MCO 5100.29B). SUAS are unique in that, by the very nature of their design and operation, air vehicle loss or damage can be expected. SUAS kits include multiple air vehicles to account for this. Therefore, a SUAS incident (as defined below) shall not be considered a Mishap, even if mishap cost thresholds are met. A mishap involving a SUAS in one of the following situations would be handled IAW MCO 5100.29B:

a. SUAS crashes resulting in death or injury to ground personnel, or damage to property. Handle as a ground mishap.

b. SUAS involved in a mid-air collision with a military aircraft. Unit owning aircraft would conduct the mishap investigation.

c. SUAS involved in a mid-air collision with a civilian aircraft. Civilian aviation authority (FAA, NTSB, private corporation) would conduct the mishap investigation.

2. Incident. Defined as an instance whereas SUAS air vehicle damage or loss is beyond normal wear and tear. A SUAS incident should be documented in an incident report. If the air vehicle is lost or damaged due to "normal" use (LOL, loss of GPS, air vehicle departs controlled flight, loss of components, CFIT), report this event as an incident. If the AV loss is due to operator negligence or involves damage to other equipment/property, injury, or death, report this event as a mishap per paragraph 1 of this section

3. Hazard Report. Does not meet mishap or incident threshold. Includes near misses and reportable safety incidents for community awareness.

4. The unit SUAS-PM is responsible for providing all required SUAS-related reports to higher headquarters. Units shall submit the SUAS Incident Report Form for all SUAS incidents or mishaps that exceed the definition of fair wear and tear, i.e. no deformations or defects. In the case of a mishap, the SUAS-PM shall complete an SUAS Incident Report to support a mishap investigation. The SUAS Incident Report does not take the place of a mishap investigation per MCO 5100.29B.

5. SUAS incident report submission process. SUAS Incident reports shall be entered into the Web Enabled Safety System (WESS) using the following link: https://wessas7.safetycenter.navy.mil/collective.

6. Systems Logs and Recordings. To facilitate incident and mishap reporting, all SUAS flights shall be recorded using the ground control station's recording capability, if the system has that capability. Recordings and system logs shall be preserved, under the authority of the unit commanding officer, following an incident or mishap to assist with reviews or investigations. Handling and retention of SUAS flight recordings shall be in accordance with MCO 3800.2_, Oversight of Intelligence Activities. Instructions for downloading system logs files can be found in the applicable SUAS operator's manual.

SUAS INCIDENT/MISHAP REPORT - FOUO when filled in

Forward report via chain of command to SUAS-PM located at the MEF or MARFORRES HQTRS within 24 hours from incident or mishap occurence.

At minimum, distribute to offices listed below:
Division or Wing Unit SUAS-PM/Safety Office
Regiment or Air Group Unit SUAS-PM/Safety Office

1. UNIT NAME:		2. BASE OF STATION:			
INCIDENT DATE (mm/dd/yy):		TIME:		LOCATION:	
3. UAS TYPE:				4. AIR VEHICLE INFO:	
				AV NO:	
5. PERSONNEL INVOLVED:					
NAME / RANK:		NAME / RANK:			
POSITION:		POSITION:			
MODEL TIME:	90 DAY TIME:	MODEL TIME:	90 DAY TIME:		
IQT Compl Date and Location:		IQT Compl Date and Location:			
6. Could this meet MISHAP criteria? ($50,000 damage, or one lost workday)				☐ YES (see below)	☐ NO
Anticipated MISHAP CLASS: ☐ A ☐ B ☐ C ☐ D ☐ E				OPREP STATUS:	
Was another aircraft involved in the incident? ☐ Yes ☐ No					
7. UAS INFORMATION:					
Uplink Freq:		GCS:		Battery/Fuel Type:	
GPS Keyed:		RVT:		Payload:	
Flight Recorded? ☐ Yes ☐ No					
8. INCIDENT MISC INFORMATION:					
Launch Time:		Land / Crash Time:		Total Flight Duration (hours.tenths):	
Weather:		Ceiling:		Visibility (SM) and obscurants:	
Temp (°F):		Wind Speed:		Wind Direction:	Lighting:
Illumination:		Precipitation:			
9. MISSION INFORMATION:					
Origin/Launch Site:				Mission:	
Previous/Known Maintenance Issues:					
GPS Startup Issues/Problems:					
Launch Issues/Problems:					
Problems/Issues during flight:					
Flight Mode at time of Loss:		Commanded Altitude and Throttle Setting:			
Last Known AV altitude (AGL):		Last Known AV Heading (° magnetic):			
Last Known AV Location (LAT/LONG):				AV Recovered?: ☐ YES ☐ NO	
Last Known Windspeed Aloft (Knots):		Last Known Wind Direction Aloft (° Magnetic):			
10. LOSS OF LINK (LOL) INFORMATION:					
LOL Mode Setting:					
LOL Location:		LOL End Destination/Waypoint:			
LOL Altitude:		Is AV programmed to land upon Loss of Link? ☐ YES ☐ NO			
11. PROPERTY DAMAGE (Type and estimated cost if known. Include payload damage.):					
DOD Property Damage:					
Non-DOD Property Damage:					
12. EVENT SUMMARY (Provide a brief explanation of the incident.):					
13. ACTIONS TAKEN UPON/AFTER LOSS (Search pattern used, number of searchers, duration of search, etc).					
14. SUMMARY OF DAMAGE (Provide a description of the damage to the AV)					
15. SENDER's NAME:				PHONE#:	
16. UNIT SAFETY POC:				PHONE#:	

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APPENDIX H

SPECTRUM AND AIRSPACE COORDINATION

SPECTRUM COORDINATION.

1. Prior to SUAS operations, SUAS-Os shall ensure they have received spectrum approval for C2 and datalink frequencies as applicable to the specific SUAS(s) being operated. It is the responsibility of unit planners and SUAS-Os to coordinate the use of all spectrum required to conduct SUAS operations. Spectrum approval occurs at the local level and requires submission through the unit spectrum management section (S-6/G-6). There may be long lead times to coordinate and finalize a spectrum plan, therefore, it is recommended spectrum requests be submitted in sufficient time to receive approval prior to SUAS operations. Refer to the applicable operator's manual for the spectrum range of the specific SUAS; for RQ-11B DDL, RQ-12A and RQ-20 frequency required will be determined by the avionics module (M1, M2, or M5) installed in the air vehicle. Current VTOL systems operate using FCC Part 15 (civilian use) bands but still require coordination through unit spectrum manager.

2. Spectrum requirements for currently fielded SUAS are as follows:

a. LM Stalker XE Block 25 (20V). SILVUS STREAMCASTER RADIO (S-Band 2200-2500 MHZ, C-Band 4400-4940 MHZ): 10-20 MHz channel size.

b. AV DDL SUAS (RQ-20 Puma, RQ-12 WASP, RQ-11B Raven)
   1) M1 Module, OCONUS (1625 MHz – 1725 MHz)
   2) M2 Module, CONUS (1755 MHz – 1850 MHz)
   3) M5 Module, CONUS (2030 MHz – 2106 MHz)

c. R60D Sky Ranger (Commercial)
   1) Mikrotik (5180-5310 MHz 5500-5670 MHz - C2 link)
   2) Xagyl (905-925 MHz - Video link)

d. R80D Sky Raider (Commercial) - 902-928MHz, 2412-2462MHz, 5180-5240MHz

e. Instant Eye MK2Gen3 (Commercial)
   1) MCEB 10841 (XBP24-AU1-001, 2405 - 2470MHz - C2 link)
   2) MCEB 10842 (TX5800, 5700 - 5900 MHz - Video link)

f. Instant Eye MK2Gen5 (Commercial)
   1) Minimum Transmit Frequency: 1810 MHz (GEN5-D1), 2.402 GHZ (GEN5-D2)
   2) Maximum Transmit Frequency: 1850 MHz (GEN5-D1) 2.478 GHz (GEN5-D2)

g. PD-100 (BH2, BH3). JF10400 PD-150 (355 - 380 MHz - C2/Video)

U.S. NATIONAL AIRSPACE.

1. Per the Federal Aviation Regulations (FAR), Chapter 1 (para 1.1), all Marine Corps SUAS are considered Public Aircraft and can operate in either Special Use Airspace (SUA) or civil airspace by obtaining a Certificate of Authorization (COA) from the FAA.

2. Special Use Airspace (SUA). For the specific purpose of SUAS flight, SUAS shall only be operated in Restricted and Warning Areas, and only when those operations have been approved by the owning/scheduling authority for that area.

3. Civil Airspace. A Certificate of Authorization (COA) and/or Class G [illegible]ification allows an operator to use a defined block of airspace and includes special provisions unique to the propo[illegible]operation. COAs/Notifications

can technically be established for any class of airspace, but normally will only be issued for Class G and in limited cases, Class D airspace. Units planning to operate an SUAS in the National Airspace System (NAS) shall first coordinate with the owners of the property over which the SUAS will fly (private or public). Once written permission has been received (standard Land Use Agreement), the unit SUAS-PM shall coordinate with the MEF SUAS-PM to establish a COA. COAs may take a minimum of 90 days to coordinate with the FAA. COAs can remain in effect for up to two years, and can be renewed biannually.

AIRSPACE COORDINATION.

1. SUAS personnel and planners shall utilize local procedures to coordinate and deconflict the use of airspace. SUAS operations are normally conducted in Special Use Airspace (Warning and Restricted areas) but can also be conducted in the National Airspace System (NAS) under a Certificate of Authorization (COA) or Class G notification.

2. SUAS operations shall remain within the boundaries of the scheduled / assigned airspace and maintain radio contact with the controlling agency (i.e., Range Control). Contact the controlling agency immediately if operations spill out of the assigned airspace, an emergency occurs where the air vehicle does not return to the designated return home point, or there is a deviation from the planned event schedule.

3. Per Title 49 of the United States Code (49 U.S.C.) § 40102 Part 1 (Definitions), United States Department of Transportation Air Traffic Organization Policy (N JO 7200.23), and ALNAV 052/16 (DTG 271307Z JUL 16), all Marine Corps SUASs (i.e. any SUAS purchased with U.S. Government funds, whether they are part of a Program of Record or non-Program of record) are classified as Public Aircraft and therefore personnel engaged in the operation of an SUAS shall comply with Federal Aviation Regulations (FAR), International Civil Aviation Organization (ICAO) regulations, Host country regulations, laws and rules, military regulations, DOD Flight Information Publications (e.g., General Planning Guides, Area Planning Guides), published airspace control policy, and SUAS operator's manuals, checklists and standard operating procedures, as applicable.

Note: 14 CFR, Part 107 (Small Unmanned Aircraft Systems (SUAS)) does NOT apply to Public Use aircraft.

APPENDIX I

LIST OF ACRONYMS

Acronym	Definition
ACA	Airspace Control Authority
ACM	Airspace Coordination Measure
AF	Adjunct Faculty
AGL	Above Ground Level
ALT	Altitude
AV	Air Vehicle
BDA	Battle Damage Assessment
CMMR	Core Model Minimum Requirements
DTED	Digital Terrain Elevation Data
EO	Electro-Optical
EP	Emergency Procedures
ETF	Event Training Form
FO	Forward Observer
FSCM	Fire Support Coordination Measure
GCS	Ground Control Station
IAW	In Accordance With
IE	InstantEye
IDF	Indirect Fire
IPB	Intelligence Preparation of the Battlefield
IR	Infrared
IQT – (I)	Initial Qualification Training - (Instructor)
JTAC	Joint Terminal Attack Controller
LAT	Latitude
LOL	Loss of Link
LONG	Longitude
LOS	Line of Sight

LZ	Landing Zone
MCTIMS	Marine Corps Training Information Management System
MET	Mission Essential Task
METL	Mission Essential Tasks List
MGRS	Military Grid Reference System
MO	Mission Operator
MST	Mobile Support Teams
MVTOL	Micro Vertical Take Off and Landing
NAIs	Named Areas of Interest
NAS	National Airspace System
NLT	No Lower Than
NVD	Night Vision Device
NVTOL	Nano Vertical Take Off and Landing
NPOR	Non-Program of Record Vertical Take-Off and Landing
PID	Positive Identification
PM	Program Manager
POO	Point of Origin
RSTA	Reconnaissance Surveillance and Target Acquisition
RVT	Remote Video Terminal
SR	R60D SkyRanger
SRDR	R80D SkyRaider
SOP	Standard Operating Procedure
SUA	Special Use Airspace
SUAS	Small Unmanned Aircraft System
SUAS-E	Small Unmanned Aircraft System - Evaluator
SUAS-O	Small Unmanned Aircraft System - Operator
SUAS-PM	Small Unmanned Aircraft System- Program Manager
TAIs	Target Areas of Interest
TD	Technical Directive
UAV	Unmanned Aerial Vehicle
UAS	Unmanned Aerial System