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From: Commandant of the Marine Corps
To: Distribution List

Subj: UNMANNED AIRCRAFT SYSTEM (UAS) T&R MANUAL

Ref: (a) NAVMC 3500.14B

Encl: (1) RQ-7B UAS T&R MANUAL

1. Purpose. To publish standards and regulations regarding the training of RQ-7B UAS crews per the reference.
2. Cancellation. NAVMC 3500.34
3. Information. Highlights of major changes are as follows:
 - a. Incorporated Marine Corps Tasks (MCTs) versus tasks from the Universal Joint Tasks List (UJTL).
 - b. Incorporated new VMU Mission Essential Tasks (METs) to facilitate MET-based readiness.
 - c. Emphasized Mission Skills versus Core Skills.
 - d. Instituted training to comply with CJCSI 3255.01, Joint UAS Minimum Training Standards.
 - e. Re-named and re-numbered training phases from three digit codes to four.
 - f. Integrated UAS training with fires and strike assets.
 - g. Established a qualification for three of the four VMU core Mission Essential Tasks (METs): Conduct Air Reconnaissance (AR); Control Indirect Fires (IDF); Conduct Terminal Guidance Operations (TGO).
 - h. Added qualifications for Advanced Flight Operations (AFO), Mission Support Systems Operator (MSSO), Unmanned Aircraft Commander (UAC), UAS Mission Commander (UMC), Mission Payload Operator (MPO), and Air Vehicle Operator (AVO).
 - i. Established designations for MSSO, UMC, AFO and Joint Fires Observer (JFO).

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DEC 14 2010

j. Instituted different levels of specialized instructors to include Basic and Senior instructors and an enlisted Advanced Flight Operations instructor certified by MAWTS-1.

k. Embedded Aviation Career Progression Model (ACPM) throughout the 7314 syllabus.

4. Recommendations. Recommended changes to this Manual are invited, and may be submitted via the syllabus sponsor and the appropriate chain of command to: Commanding General, Training and Education Command, Aviation Training Division using standard Naval correspondence or the Automated Message Handling System plain language address: CG TECOM ATD.

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

6. Certification. Reviewed and approved this date.


R. C. FOX
By direction

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CHAPTER 1

RQ-7B TRAINING AND READINESS UNIT REQUIREMENTS

	<u>PARAGRAPH</u>	<u>PAGE</u>
VMU UNIT TRAINING AND READINESS REQUIREMENTS.....	100	1-3
MISSION.....	101	1-3
TABLE OF ORGANIZATION (T/O).....	102	1-3
CORE, MISSION AND CORE PLUS SKILL ABBREVIATIONS.....	103	1-4
CORE METL AND CORE METL OUTPUT STANDARDS.....	104	1-4
CORE METL TO CORE/MISSION/CORE PLUS SKILL MATRIX.....	105	1-6
CMMR CORE/MISSION/CORE PLUS SKILLS CREW DEFINITION AND PROFICIENCY REQUIREMENTS.....	106	1-6
CMMR COMBAT LEADERSHIP REQUIREMENTS.....	107	1-7
UNIT INSTRUCTOR REQUIREMENTS.....	108	1-7
ORDNANCE REQUIREMENTS.....	109	1-8
TRAINING RESOURCE REQUIREMENTS.....	110	1-8

NAVMC 3500.34A
14 Dec 2010

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CHAPTER 1

MARINE UNMANNED AERIAL VEHICLE SQUADRON (VMU)

TRAINING AND READINESS UNIT REQUIREMENTS

100. VMU UNIT TRAINING AND READINESS REQUIREMENTS. The goal of Marine Aviation is to attain and maintain combat readiness to support Expeditionary Maneuver Warfare while conserving resources. 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 mission skills and combat leadership. Training events are based on specific requirements and performance standards to ensure a common base of training and depth of combat capability.

101. MISSION. Conduct day and night unmanned aerial Reconnaissance, Surveillance, and Target Acquisition (RSTA) in support of a Marine Air-Ground Task Force (MAGTF).

102. TABLE OF ORGANIZATION (T/O). Refer to T/O #8890 managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength. Information below depicts the Marine Unmanned Aerial Vehicle Squadron (VMU) T/O information as of the date of this directive.

VMU 1, 2, 3	
<u>Squadron</u>	
3 RQ-7B UAS	
Officers	- 9 (7315)
Enlisted	- 39 (7314)
VMU 4	
<u>Squadron</u>	
3 RQ-7B UAS	
Reserve Officers	- 7 (7315)
Reserve Enlisted	- 33 (7314)
Active Officers	- 2 (7315)
Active Enlisted	- 6 (7314)

103. CORE, MISSION AND CORE PLUS SKILL ABBREVIATIONS. Shading indicates core plus skills.

CORE, MISSION AND CORE PLUS SKILLS ABBREVIATIONS	
CORE SKILLS	
MPO	Mission Payload Operator
AVO	Air Vehicle Operator
UAC	Unmanned Aircraft Commander
MISSION SKILLS	
AR	Aerial Reconnaissance
TGO	Terminal Guidance Operations
IDF	Control of Indirect Fires
CORE PLUS SKILLS	
CBRN	Chemical, Biological, Radiological, Nuclear
MSSO	Mission Support Systems Operator
AFO	Advanced Flight Operations
UMC	Unmanned Aircraft System Mission Commander

104. CORE METL AND CORE METL OUTPUT STANDARDS.

1. Core METL. A standardized list of specified tasks a unit was designed to perform. Selected tasks are drawn from the Marine Corps Task List (MCTL) and are standardized by type unit.

2. Core METL Output Standards. The required level of performance a unit must be capable of sustaining during contingency/combat operations by MET to be considered MET-ready. Output standards will be demonstrated through the incorporation of Unit Training Events.

CORE METL OUTPUT STANDARDS VMU SQUADRON			
MCT	MET	OUTPUT STANDARD	CMMR CREWS
2.2.5.2	Conduct Air Reconnaissance	(2) Sorties with surge of (3) sorties (of (6) hours each for a daily maximum of 12/18 hours during contingency/ combat operations). Sorties are based on 85 NM range from primary Ground Data Terminal (GDT).	7
		Y/N: Able to provide real-time and/or near real-time battlespace information products (video).	
		Y/N: Able to communicate relevant reconnaissance information using line-of-sight (LOS) / beyond-line-of-site (BLOS) means.	
2.4.3	Analyze and Synthesize Information	Y/N: Able to generate precision coordinates near real-time from UAS sensor point-of-interest to support acceptable Circular Error of Probability (CEP) in order to meet weapons employment criteria.	7
		Y/N: Able to provide a Mission Report (MISREP) per sortie and associated imagery products.	
		Y/N: Able to provide Intelligence Summary (INTSUM) input	
3.2.7.2	Control Indirect Fires	(2) Sorties with surge of (3) sorties (of (6) hours each for a daily maximum of 12/18 hours during contingency/ combat operations). Sorties are based on 85 NM range from primary Ground Data Terminal (GDT).	4
		Y/N: Able to function as airborne supporting arms observer or spotter	
		Y/N: Able to conduct Call-For-Fire (CFF) and subsequent adjustments in Grid, Polar, and/or Shift-From-Known-Point format IAW MCWP 3-16.6	
3.2.7.3	Conduct Terminal Guidance Operations (TGO)	(2) Sorties with surge of up to (3) sorties (of (6) hours each for a daily maximum of 12/18 hours of operations). Sorties are based on 85 NM range from primary Ground Data Terminal (GDT).	7
		Y/N: Able to provide targeting information consisting of target elevation (meters or feet), description of target, and target location (Lat/Long, MGRS, or UTM coordinate format).	
		Y/N: Able to report targeting information to weapons release authority and/or airspace control agency.	
		Y/N: Able to provide limited mark during hours of darkness for strike package.	
		Y/N: Able to report effects of weapons employment on target.	
		Y/N: Able to maintain PID chain of custody from point of hostile action or intent until target is engaged IAW ROE.	
		Y/N: Able to provide real-time and/or near real-time battlespace information products (video).	
		Y/N: Able to communicate relevant reconnaissance information using line-of-sight (LOS) / beyond-line-of-site (BLOS) means.	

105. CORE METL TO CORE/MISSION/CORE PLUS SKILLS MATRIX. Matrix below provides a pictorial of the relationship between the VMU Core METL and each Core and Mission skill required to perform the METL. Shading indicates a Core Plus skills.

NOTE: Core MET 2.4.3 is a function of the intelligence section within the VMU. NAVMC Directive 3500.101, Intel T&R Manual, governs training requirements for intelligence personnel to be able to execute this MET. Therefore when determining unit readiness, commanding officers will make an assessment of the unit's ability to support this MET and include it when reporting unit readiness.

VMU METL TO CORE / MISSION / CORE PLUS SKILLS MATRIX										
METL	CORE SKILLS			MISSION SKILLS			CORE PLUS SKILLS			
	2000 PHASE			3000 PHASE			4000 PHASE			
	MPO	AVO	UAC	AR	TGO	IDF	CBRN	MSSO	AFO	UMC
2.2.5.2	X	X	X	X			X	X		X
3.2.7.2	X	X	X			X	X	X	X	X
3.2.7.3	X	X	X		X		X	X	X	X

106. CMMR CORE/MISSION/CORE PLUS SKILLS CREW DEFINITION AND PROFICIENCY REQUIREMENTS. This table delineates crew position and proficiency requirements for each Core and Mission skill. Core Plus skills are not directly tied to any of the VMU METs and thus are not delineated in this table. The numbers associated with each crew position column reflect the number of Core and Mission skills. Core Plus skills are not directly tied to any of the VMU METs and thus are not delineated in this table.

VMU CORE SKILLS (2000 PHASE)				
CORE SKILLS (2000)	7314		7315	TOTAL CMMR CREWS
	MPO	AVO	UAC	
MPO	7			7
AVO		14		
UAC			7	
MISSION SKILLS (3000)	MPO	AVO	UAC	TOTAL CMMR CREWS
AR	7	14	7	7
TGO	7	14	7	7
IDF	8	4	4	4

CORE PLUS SKILLS (4000)				
CBRN	7	14	7	
MSSO		4		
AFO		4	2	
UMC			3	

107. CMMR COMBAT LEADERSHIP REQUIREMENTS. At a minimum, in order to be considered core competent, a VMU unit must possess the following numbers of crews with the listed combat leadership designations.

VMU CMMR COMBAT LEADERSHIP		
LEADERSHIP DESIGNATION	OPERATOR (7314)	UAC (7315)
MSSO	4	N/A
AFO	4	2
UAC	N/A	6
UMC	N/A	3

108. UNIT INSTRUCTOR REQUIREMENTS. A unit should possess the following numbers of personnel with the instructor designations listed in the matrix.

UNIT CMMR INSTRUCTORS		
INSTRUCTOR DESIGNATION	OPERATOR (7314)	UAC (7315)
Basic Instructor (BI)	6	3
Senior Instructors (SI)	3	1
Advance Flight Operations-Senior Instructor(AFO-SI)	1	0
Crew Resource Management Instructor (CRMI)	1	1
Assistant NATOPS Instructor (ANI)	2	2
NATOPS Instructor (NI)	1	1
Weapons and Tactics Instructor (WTI)	6	3
Notes: Squadron WTPP Officers or WTIs may be counted concurrently with other instructors provided they meet T&R requirements for each.		

109. ORDNANCE REQUIREMENTS. Ordnance requirements are developed on a "per person" basis per OPNAVNOTE 8010 and the Aviation T&R Program Manual.

ORDNANCE REQUIREMENTS		
POI	ORDNANCE	QUANTITY (per person)
Basic	155mm HE	18
Refresher	155mm HE	12
Notes: Ordnance totals reflect per person per event requirements.		

110. TRAINING RESOURCE REQUIREMENTS.

TRAINING RESOURCE REQUIREMENTS					
PHASE	STAGE	SIM	LASER RANGE	AVIATION SUPPORT	ORDNANCE
CORE SKILL INTRODUCTION	OPER	X			
	UAC	X			
CORE SKILL	MPO	X			
	AVO	X			
	UAC	X			
MISSION SKILL	AR	X			
	TGO	X	X	X	
	IDF	X			X
CORE PLUS SKILL	CBRN	X			
	MSSO				
	AFO	X	X	X	
	UMC				

CHAPTER 2

UNMANNED AERIAL VEHICLE OPERATOR / MOS 7314

INDIVIDUAL TRAINING AND READINESS (T&R) REQUIREMENTS

	<u>PARAGRAPH</u>	<u>PAGE</u>
INDIVIDUAL TRAINING AND READINESS REQUIREMENTS.....	200	2-3
TRAINING PROGRESSION MODEL.....	201	2-3
INDIVIDUAL CORE SKILL PROFICIENCY (CSP) REQUIREMENTS.....	202	2-4
INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS....	203	2-4
INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS.....	204	2-5
CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS.....	205	2-6
PROGRAMS OF INSTRUCTION (POIs).....	206	2-8
ACADEMIC TRAINING.....	207	2-8
SYLLABUS NOTES.....	208	2-11
CORE SKILL INTRODUCTION TRAINING (1000).....	209	2-15
CORE SKILL TRAINING (2000).....	210	2-22
MISSION SKILL TRAINING (3000).....	211	2-37
CORE PLUS SKILL TRAINING (4000).....	212	2-46
INSTRUCTOR TRAINING (5000).....	213	2-57
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (6000).....	214	2-65
T&R SYLLABUS MATRIX	215	2-69
SYLLABUS EVALUATION FORMS.....	216	2-76
SIMULATOR MISSION ESSENTIAL SUBSYSTEMS MATRIX (MESM).....	217	2-76

NAVMC 3500.34A
14 Dec 2010

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CHAPTER 2

UNMANNED AERIAL VEHICLE OPERATOR MOS 7314

INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

200. INDIVIDUAL TRAINING AND READINESS REQUIREMENTS. This syllabus is based on specific goals and performance standards designed to ensure individual proficiency in core and mission skills. The goal of this chapter is to develop individual and unit warfighting capabilities.

201. TRAINING PROGRESSION MODEL. This model represents the recommended training progression for the average Unmanned Aerial Vehicle Operator. Units should use the model as a point of departure to generate individual training plans.

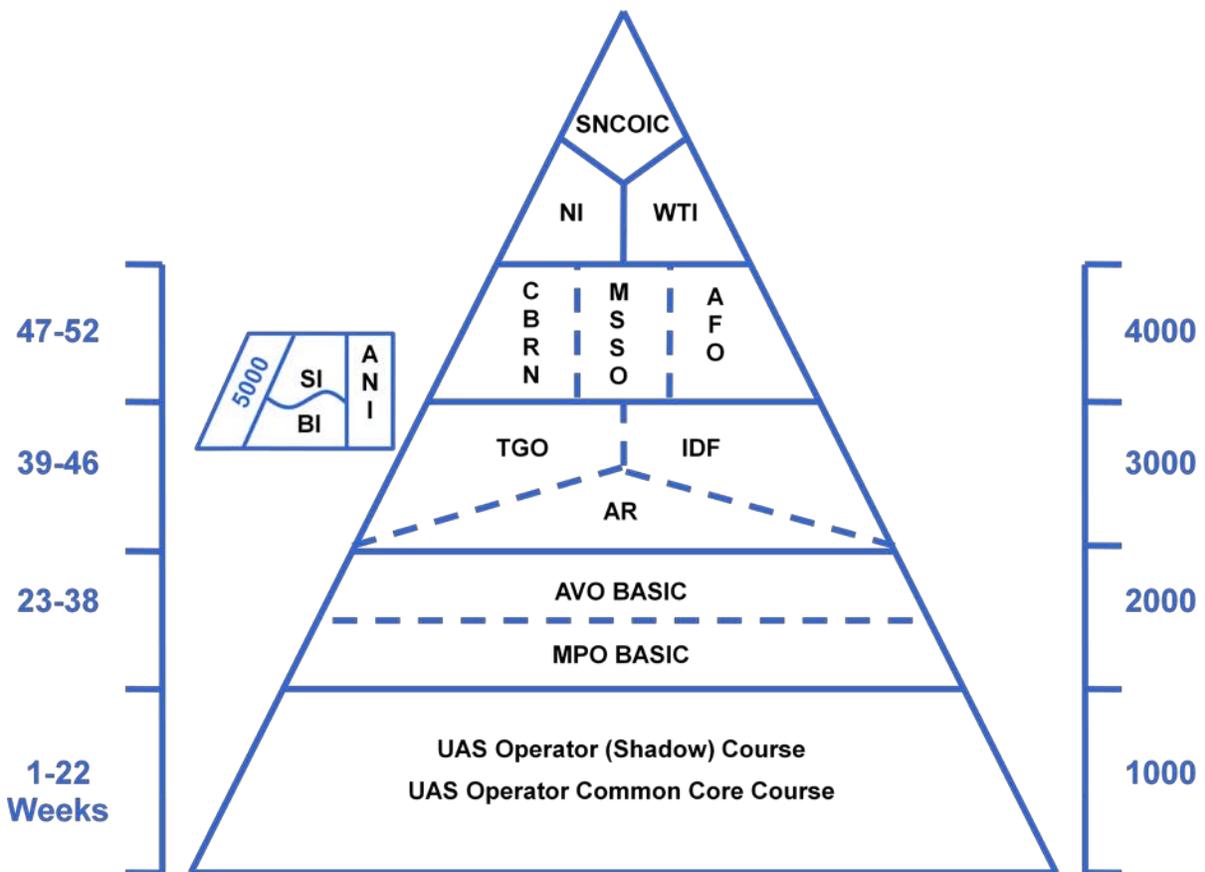


Figure 1. Unmanned Aerial Vehicle Operator Training Progression Model

202. INDIVIDUAL CORE SKILL PROFICIENCY (CSP) REQUIREMENTS. A CSP crew consists of individuals representing each crew position who have achieved and currently maintain individual CSP. In order to be considered proficient in a core skill, an individual must attain and maintain proficiency in all events in a core skill as delineated below.

1. Events Required to Attain Individual CSP. To initially attain CSP in a core skill, an individual must simultaneously have a proficient status in all 2000 phase T&R events listed for that core skill:

INDIVIDUAL CORE SKILL PROFICIENCY (CSP) ATTAIN TABLE				
	MPO		AVO	
7314 Unmanned Aerial Vehicle Operator	2000R	S2050R	2100R	S2150R
	2010R	2060R	2110R	2160R
	2020R	S2070R	2120R	2170R
	2030R	2080R	2130R	2180R
	S2040R	2099R	S2140R	2199R
R = Refresher POI S = Event Conducted in Simulator				

2. Events Required to Maintain Individual CSP. To maintain CSP in a core skill, an individual must maintain proficiency in all 2000 phase T&R events listed for that core skill:

INDIVIDUAL CORE SKILL PROFICIENCY (CSP) MAINTAIN TABLE		
	MPO	AVO
7314 Unmanned Aerial Vehicle Operator	2000R	2160R
	2010R	2170R
	2080R	2180R
R = Refresher POI		

203. INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS. A MSP crew consists of individuals representing each crew position who have achieved and currently maintain individual MSP. To be considered proficient in a mission skill, an individual must attain and maintain proficiency in mission skill events as delineated below.

1. Events Required to Attain Individual MSP. To initially attain MSP in a mission skill, an individual must simultaneously have a proficient status in all 3000 phase T&R events listed for that mission skill:

INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) ATTAIN TABLE			
	AR	TGO	IDF
7314 Unmanned Aerial Vehicle Operator	3000R	3100R	S3200R
	S3010R	S3110R	3210R
	3020R	3120R	S3220R
	S3030R	3130R	
R = Refresher POI S = Event Conducted on Simulator			

2. Events Required to Maintain Individual MSP. To maintain MSP in a mission skill, an individual must maintain proficiency in all 3000 phase T&R events listed for that mission skill:

INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) MAINTAIN TABLE			
	AR	TGO	IDF
7314 Unmanned Aerial Vehicle Operator	S3010R	3120R	3210R
	3020R	3130R	3220R
	S3030R		
R = Refresher POI S = Event Conducted on Simulator			

204. INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS. Proficiency in core plus skills is not required to achieve unit CSP or MSP. This phase contains training standards applicable to integrated missions, unique mission areas, geographic specific training, or mission areas having a low probability of execution. Although core plus training may provide valuable training opportunities, they do not affect unit readiness.

1. Events Required to Attain Individual Proficiency in Core Plus Skills. Proficiency in core plus skills is not required to obtain unit CSP/MSP. Training to core plus skills is at the discretion of the unit commanding officer. To initially attain proficiency in a core plus skill, an individual must simultaneously have a proficient status in all T&R events listed for that core plus skill:

INDIVIDUAL CORE PLUS SKILL PROFICIENCY ATTAIN TABLE			
	CBRN	MSSO	AFO
7314 Unmanned Aerial Vehicle Operator	S4000R	4100	S4200R
		4110	S4210R
		4120	4220R
		4130	S4230R
		4140R	4240R
			4250R
			4260R
			4270R
		4280R	
R = Refresher POI S = Event Conducted in Simulator			

2. Events Required to Maintain Individual Proficiency in Core Plus Skills. To maintain proficiency in a core plus skill, an individual must maintain proficiency in all T&R events listed in the table below for that core plus skill:

INDIVIDUAL CORE PLUS SKILL PROFICIENCY MAINTAIN TABLE			
	CBRN	MSSO	AFO
7314 Unmanned Aerial Vehicle Operator	S4000R	4140R	S4210R
			4240R
			4260R
			4280R
R = Refresher POI S = Event Conducted in Simulator			

205. CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS.

1. The tables below delineate requirement to attain proficiency for certifications, qualifications or designations. See paragraph 208 (Syllabus Notes) for ACPM information and guidance.

2. The squadron WTI shall review the individual performance records to ensure all required training, documentation and administrative actions have been completed prior to forwarding any certification, qualification or designation recommendation to the standardization board who will forward their recommendation to the CO for written approval.

3. Qualification and designation letters signed by the commanding officer shall be placed in the performance records and appropriate M-SHARP entries made. Policy on qualifications and designations is contained in paragraph 215 of the Aviation T&R Program Manual, reference (a). AFO-SI certification letter will be signed by the MAWTS-1 evaluator.

4. Only once an individual is certified, qualified or designated in writing, the signed letter is filed in the performance record, and all administrative actions are completed and the event code has been logged in M-SHARP will the certification, qualification or designation become effective. ACPM and SCHL codes are located in the MAWTS-1 C3 Course Catalog.

INDIVIDUAL QUALIFICATION (QUAL) REQUIREMENTS	
QUALS	Event Requirements
MPO	MPO: 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2099 ACPM: 8000 (MACCS)
AVO	MPO: 2000, 2010, 2020, 2030 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2199 ACPM: 8020 (ACE)
AR	TRCK: 6200 (FSC), 6210 (Six Functions of Marine Avn) 6220 (MACCS) AR: 3000, 3010, 3020, 3030 QUALS: MPO, AVO ACPM: 8040 (THREAT)
TGO	TGO: 3100, 3110, 3120, 3130, QUAL: AR
IDF	IDF: 3200, 3210, 3220, QUAL: AR
CBRN	CBRN: 4000 QUALS: MPO, AVO
MSSO	MSSO: 4100, 4110, 4120, 4130, 4140 QUALS: MPO, AVO ACPM: 8060 (MAGTF)
AFO	TRCK: 6230 (JTACPC) AFO: 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280 QUALS: TGO ACPM: 8080 (JOINT AIR OPERATIONS)

INDIVIDUAL DESIGNATION (DESG) REQUIREMENTS	
DESG	Event Requirements
CRMF	Complete CRMF training per OPNAVINST 1542.7 from a designated CRMI
CRMI	SCHL: 6061
BI	BIUT: 5000, 5010, 5020, 5030 QUALS: MPO, AVO, AR
SI	TRCK: 6240 (SAT) SIUT: 5100, 5110, 5120, 5130 QUALS: MPO, AVO, TGO, IDF, CBRN, MSSO DESG: BI
ANI	PER OPNAVINST 3710.7
NI	PER OPNAVINST 3710.7
NE	PER OPNAVINST 3710.7
WTI	SCHL: 6000 Prior to attending MAWTS-1 WTI course PWTIs shall complete ACPM 8060 (MAGTF) and 8080 (Joint Air Operations).
MSSO	QUAL: MSSO
AFO	QUAL: AFO
JFO	SCHL: 6080

INDIVIDUAL CERTIFICATION (CERT) REQUIREMENTS	
CERT	Event Requirements
AFO-SI	<p>QUAL: AFO DESG: AFO and SI. Complete the following:</p> <ol style="list-style-type: none"> 1. Be nominated for MAWTS-1 certification by the standardization board and approved by the CO. 2. Fulfill MAWTS-1 certification requirements: <ol style="list-style-type: none"> a. Complete a MAWTS-1 provided written exam and pass with a min score of 80%. b. Complete a teach-back evaluation on one AFO ground code; pass with min score of 80%. MAWTS-1 will choose the event. c. Complete a teach-back evaluation on one AFO flight event that is selected by the CO or MAWTS-1 evaluator; pass with min score of 80%. 3. Once teach-backs have been successfully completed: <ol style="list-style-type: none"> a. The MAWTS-1 evaluator will certify the SI as an AFO-SI. b. AFO-SI certification logged in M-SHARP. c. AFO-SI signed certification letter filed in the APR.

NATOPS ANNUAL REQUIREMENTS	
	Event Requirements
MPO	RQD: 6300, 6310, 6320
AVO	RQD: 6300, 6310, 6330

206. PROGRAMS OF INSTRUCTION (POIs).

1. Basic POI.

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-22	Core Skill Introduction: - UAS Operator Common Core Course - UAS Operator (Shadow) Course	UASTB
23-38	Core Skill	Tactical Squadron
39-46	Mission Skill	Tactical Squadron
47-52	Core Plus Skill	Tactical Squadron

2. Refresher POI.

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-5	Core Skill	Tactical Squadron
6-9	Mission Skill	Tactical Squadron
10-12	Core Plus Skill	Tactical Squadron

207. ACADEMIC TRAINING.

1. Academic training shall be conducted for each phase/stage of the syllabus, as required. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity. The proficiency attained by completing select courses provides units with the relevant skills essential to the accomplishment of unit mission essential tasks. Commanders are highly encouraged to ensure personnel attend skills enhancement formal courses to the extent possible.

2. TECOM ATB publishes an annual MACCS/UAS Skills Enhancement message that lists most formal courses offered to Marine Air Control Group (MACG) units. Certain courses are TECOM funded while others require unit funding. Training personnel should read this message in its entirety to ensure they maximize these training opportunities. Instructors and administrators are encouraged to post this message in their VMU work sections

3. Chapter 2 of the MAWTS-1 C3 Course Catalog (reference (b)) provides a list of formal resident courses, distance learning sites, and Marine Corps regional training centers that offer skills enhancement courses that support the training requirements of this Manual and professional development. The C3 Course Catalog is available from the C3 Department Section of the MAWTS-1 website: <https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx>.

4. Aviation Career Progression Model (ACPM). ACPM academics are integrated throughout this syllabus. These academics were developed to enhance professional understanding of Marine Aviation, the MAGTF and Joint operations to ensure individuals possess the requisite knowledge to support of the ACE and MAGTF. ACPM training promotes professional growth regardless of specific unit assignment. The syllabus sponsor (MAWTS-1) will manage the ACPM in an effort to maintain standardization, as such, these modules are maintained in the C3 course catalog. WTI personnel are certified to instruct this courseware. Recommended changes to ACPM modules or events shall be forwarded to the syllabus sponsor. Supporting material for portions of the ACPM is located on the MAWTS-1 websites at:

- a. NIPR www.intranet.tecom.usmc.mil/sites/mawts1

b. SIPR www.mawts1.usmc.smil.mil

5. Formal Courses.

a. External academic resident courses of instruction (with associated T&R tracking codes) available to complete the syllabus are listed below. A comprehensive list for UAS training is located in chapter 2 of the MAWTS-1 C3 Course Catalog (reference (b)). Catalog is available from the C3 Department, MAWTS-1 website:

<https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx>

COURSE	ACTIVITY
Unmanned Aircraft Commander (UAC) Course	UASTB, Ft Huachuca, AZ
Joint Fires Observer Course (JFOC)	EWTGLANT, EWTGPAC
EWTGPAC FAC(A) Ground School	EWTGPAC, EWTGPANT
Tactical Air Control Party (TACP) Course	EWTGPAC, EWTGLANT
Weapons and Tactics Instructor Course	MAWTS-1
Airspace Operations Center Initial Qualification Course, Joint Personnel Recovery Course	505 th Training Sqdn, Hurlburt Field
Airspace Course	505 th Training Sqdn, Hurlburt Field
Personnel Recovery Course	505 th Training Sqdn, Hurlburt Field
Advanced Field Artillery Tactical Data Systems (AFATDS) Course	Regiment Schools, Ft Sill, OK

b. Marine Corps regional training centers that offer resident courses or mobile training teams (MTTs) are noted below:

ACTIVITY	WEBSITE / URL
Communications Training Centers (CTC)	https://www.29palms.usmc.mil/ctc/trngschedule.asp
COC	https://www.intranet.tecom.usmc.mil/sites/c2tecoe/default.aspx
MAGTF Integrated System Training Center (MISTC)	https://www.intranet.tecom.usmc.mil/sites/c2tecoe/default.aspx
Command and Control Training and Education Center of Excellence (C2 TECOM)	https://www.intranet.tecom.usmc.mil/sites/c2tecoe/default.aspx
1 st Marine Division Schools	http://www.i-mef.usmc.mil/div/hqbn/hq/DivSchools.asp
2 nd Marine Division Schools	http://www.lejeune.usmc.mil/iimef
Expeditionary Warfare Training Group, Atlantic (EWTGLANT)	http://ewtglant.ahf.nmci.navy.mil/courses/index.html
Expeditionary Warfare Training Group, Pacific (EWTGPAC)	http://ewtgpac.ahf.nmci.navy.mil/academics/courses/courses.html

c. A list of DL opportunities that compliment this syllabus (it is not all inclusive) is provided below.

ACTIVITY	COURSE NUMBER	COURSE TITLE
MCI	0632	HF/UHF Field Radio Equipment
MCI	0664	Radio Terminal Set (AN/MRC-142) Operator
MCI	001A	Principles of Instruction for the Marine NCO
MCI	0416B	Marine Corps Publications and Directives System
MCI	0861	Basic Forward Observation Procedures
MCI	2515H	Antenna Construction and Propagation of Radio Waves
MCI	2525B	Communications Security
MCI	2526B	Introduction to Electronic Warfare
MCI	2538A	Single Channel Ground Airborne Radio System
MCI	2540	Communications Plans and Orders
MCI	2568	Data Transfer Device (AN/CYZ-10), Operations
MCI	5803	Physical Security Specialist
MCI	5804	Physical Security Chief
MarineNet	0801AO	Fire Support Coordination
MarineNet	CC03AO	Graphic and Airspace Control Measures
MarineNet	7201AO	Marine Air Command and Control System
MarineNet	C2P001	C2PC: Command and Control Personal Computer
MarineNet	BFT001	Blue Force Tracking
MarineNet	MAGTAA	MAGTF Fires
MarineNet	JTACPC	Joint Terminal Attack Controller (JTAC) Primer Curriculum Course
MarineNet	7204AO	Six Functions of Marine Aviation
MarineNet	UT01AO	Systems Approach to Training (SAT)
MISTC	N/A	AFATDS Operator
MISTC	N/A	JTCW/C2PC Operator
MISTC	N/A	FBCB2-BFT Operator
MISTC	N/A	JADOCs Operator
MISTC	N/A	SharePoint Level I&II Operator
MISTC	N/A	CPOF Operator
JKO	N/A	Joint Fires Observer Familiarization Course

d. An abbreviated list of activities that offer distance learning courses is provided below.

ACTIVITY	WEBSITE / URL
MARINENET	https://www.marinenet.usmc.mil/marinenet
Total Force Structure Management System (TFSMS)	https://tfsms.mccdc.usmc.mil
Defense Acquisition University (DAU)	http://www.dau.mil/
MAWTS-1	https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx

Defense Knowledge On Line (DKO)	https://www.us.army.mil/appiansuite/login/login
Navy Knowledge Online (NKO)	https://www.nko.navy.mil
Army Knowledge On Line (AKO)	https://www.us.army.mil
Air Force Knowledge Now (AFKN)	https://afkn.wpafb.af.mil

6. Aircrew Training References. Aircrews shall use the following references to standardize training and grading criteria in order to ensure safety of flight, proper maintenance procedures and aircraft operations. Each event in this syllabus lists references pertinent to its training.

<u>Identification Codes</u>	<u>Title</u>
JP 3-60	Joint Doctrine for Targeting
JP 3-09.3	Close Air Support (CAS)
JP 3-9	Joint Fire Support
MCO P4790.12	Individual Training Standards Systems (MATMEP)
MCO 3500.109	Weapons and Tactics Training Program (WTPP)
MCO 3500.27/OPNAV 3500.39	Operational Risk Management (ORM)
OPNAVINST 1542.7	Crew Resource Management Program
OPNAVINST 3710.7_	NATOPS Gen Flt & Operating Inst
OPNAVINST 4790.2_	Naval Aviation Maintenance Program
NAVMC 3500.14	Aviation T&R Program Manual
NTTP 3-22.3-VMU	VMU Tactics, Techniques, and Procedures
AFTTP 3-1	Air Force Tactics, Techniques and Procedures
TM 1-1550-689-10-1	(NAVY A1-RQ7BA-NFM-000)
TM 1-1550-689-10-2	(NAVY A1-RQ7BA-NFM-010)
TM 1-1550-689-10-CL	(NAVY A1-RQ7BA-NFM-500)
TM 11-5820-890-10-8	SINGARS GROUND COMBAT NET RADIO ICOM MANUAL
TM 10515-0109-4100	AN/PRC-117 Operations Manual
FMFM 7-30	Raids
MCWP 3-16.6	Supporting Arms Observer, Spotter, and Controller
MCWP 3-42.1	UAV Operations
MCWP 3-43.1	Raid Operations
MCRP 3-23C	Offensive Air Support
MAWTS-1 C3 Course Catalog	ACPM Training
MAWTS-1	FAC(A) Handbook
FAA-H-8083-25A	Pilot's Handbook of Aeronautical Knowledge

208. SYLLABUS NOTES.

1. General.

a. The purpose of this syllabus is to provide the commander with standardized programs of instruction (POI) for MOS 7314 personnel. The goal is to develop unit warfighting capabilities. Syllabi are based on specific performance standards designed to ensure proficiency in core competencies.

b. An effective T&R program is the first step in providing the commander with a unit capable of accomplishing any and all of its stated mission essential tasks (MET). The Aviation T&R Program provides the fundamental tools for commanders to build and maintain unit combat readiness. Using

these tools, training managers can construct and execute an effective training plan that supports the unit Mission Essential Task List (METL).

c. The 7314 training syllabus consists of academic/ground, simulator, and live training. All scenario driven events may be accomplished during actual exercises, contingency or combat operations.

d. The 7314 syllabus complies with Basic UAS Qualifications (BUQ) and Joint Mission Qualifications (JMQ) training requirements set forth in CJCSI 3255.01, Joint UAS Minimum Training Standards (JUMTS).

e. The MAWTS-1 C3 course catalog serves as a companion to this T&R manual and maintains standardized programs of instruction (POI) for the Aviation Career Progression Model (ACPM). In an effort to standardize training and baseline MAGTF knowledge, ACPM events reside in the MAWTS-1 C3 course catalog within the assigned event codes as listed in the table below:

T&R BLOCK	MACCS COMMON TRAINING PROGRAM
8000-8019	(ACPM-8000) MACCS
8020-8039	(ACPM-8020) ACE
8040-8059	(ACPM-8040) Threat - classified
8060-8079	(ACPM-8060) MAGTF
8080-8099	(ACPM-8080) Joint Air Operations
8200-8499	Reserved for Future AC2 Common Events

f. Command and control systems (C2SYS) training is available through various training sources. Personnel are encouraged to participate in C2SYS training. See the MAWTS-1 C3 Course Catalog, chapter 3, for further information.

2. POI Assignment.

a. Basic POI. Personnel with MOS 7314 shall be assigned to the Unmanned Aerial Vehicle Operator Basic POI of this T&R syllabus. A 7314 assigned to the Basic POI shall complete all events in the respective core, mission, or core plus attain tables to achieve required proficiency in these skills and prerequisites necessary to be eligible for certifications, qualifications and designations.

b. Refresher POI. The refresher POI is predicated on experience. A 7314 assigned to the refresher POI shall complete all R- coded events in the respective core, mission or core plus skill tables and those applicable events not previously completed in the Basic POI.

(1) 7314 personnel who have completed the Basic POI and attained proficiency for a core, mission or core plus skill and are subsequently assigned to duties outside of the VMU community for greater than 36 months shall be assigned to the Refresher POI to complete the R-coded events in the Attain tables in order to regain proficiency for the respective skill(s).

(2) 7314 personnel who have completed the Basic POI and attained proficiency for a core, mission or core plus skill and remain at a VMU unit will be assigned to the Refresher POI to complete the R-coded events in the Maintain tables to maintain proficiency for the respective skill(s).

(3) If the 7314 has no previous proficiency in a specific core, mission or core plus skill then all applicable events for that skill not current or not previously completed must be completed. The refresher POI applies only to events in the Attain table(s) previously completed by the individual. Event or academic training not previously completed shall be completed in their entirety.

3. T&R Phases. This Manual is divided into seven distinct phases with an additional phase placeholder for future use, see chapter 6 of reference (a) for a detailed description of each training phase.

PHASE	TITLE
1000	Core Skill Introduction
2000	Core Skills
3000	Mission Skills
4000	Core Plus
5000	Instructor training
6000	Certification, Qualification, Designation
7000	Reserved for future TECOM/ATB use
8000	Academic Training (ACPM)

4. Training Personnel.

a. Trainee. A trainee is an individual who is undergoing training to achieve a particular skill set essential to the accomplishment of unit mission essential tasks. The trainee shall complete all event prerequisites before commencing training in the event, stage, phase, core, mission, or core plus skill for which the prerequisite applies.

b. Instructor. An instructor is someone who has been certified and designated to conduct training and evaluations on subject areas for which they are proficient and current in. Events in this POI can only be trained and evaluated by someone who is designated as an instructor per the requirements specified in the 5000-phase and who is proficient in the event for which training is being conducted. All event training shall terminate with the instructor debriefing the trainee on performance. This debrief will include at a minimum a comprehensive review of the trainee's performance, corrective action required to meet the standard, and a plan on how to proceed with the training. Instructors are encouraged to mentor the trainee and enter into discussions that solidify and/or broaden their understanding. Once able to perform the event proficiently, the instructor shall evaluate the trainee and ensure the event is performed to standard.

c. Squadron WTI. The squadron WTI is someone who has been trained to manage the unit T&R program and has completed M-SHARP training provided by the local M-SHARP representatives. M-SHARP technical support and training can be found at <http://msharpsupport.com>. Managing unit training requirements is essential to ensure the unit CMMR is achieved. See the WTTP order, MCO 3500.109 for duties and responsibilities.

5. Individual and Crew Training

a. Academic Training. Academic training will be conducted prior to or concurrently with required events, unless otherwise stated. An academic training event, once completed, can be credited as a prerequisite for follow-on training events.

b. Devices. Events conducted on a simulator can use either the Institutional Mission Simulation (IMS) or the Multiple Unified Simulation Environment (MUSE). Therefore device requirements are noted as "SIM" to allow the command to use either simulator devices. Events conducted as live flight events can be conducted in the RQ-7B UAS, including PGCS. This device is listed in applicable events as "UAS."

c. Prerequisites. All prerequisites shall be completed prior to beginning training in an event. Distance learning courses completed as a prerequisite to event training will be documented by filing the completion certificate in the APR and entering the event/tracking code in M-SHARP.

d. Event References. Trainees will be provided required references during training to ensure they read and understand them. However, unless otherwise stated, all event performance standards are to be evaluated without the aid of reference.

e. Cross Training. Cross training allows for the development of new, higher level responsibilities while providing opportunity for Marines to continue to grow and develop job and career enhancing skills. Cross training provides commands flexibility to assign personnel to different positions or billets enabling them to achieve CMMR to accomplish their missions.

f. Multiple Event Logging. There may be opportunities for crewmembers to accomplish the requirements of more than one event during a scheduled training evolution. Units are encouraged to take advantage of complex training opportunities that allow multiple event completion. Under all circumstances, post-event logging (single or multiple) is allowable if the requirement for each event is accomplished per the performance standard. If multiple events are scheduled to be accomplished during a single training evolution, appropriate planning, briefing, and debriefing time must be allotted to ensure that requisite training objectives are met. Evaluators shall strictly scrutinize to ensure the performance standard for each event code was clearly met.

g. Crew Training Requirements.

(1) At a minimum, one Unmanned Aircraft Commander (UAC), one Mission Payload Operator (MPO), one Air Vehicle Operator (AVO) are required to conduct position training. Additionally as needed, one Intelligence Analyst and/or one Imagery Analyst.

(2) If crew members are required to assist in the conduct of an event, the crew shall be core or mission capable in the position they are filling. Training will be executed as individual training with appropriate assistance at the crew level as needed and as dictated by the conditions listed for each event. Crewmember assistance must be restricted to those actions required to support or facilitate individual training so as not to detract from the individual trainee properly demonstrating the event performance standard.

6. Syllabus Evaluation Form.

a. The standardized syllabus evaluation form that shall be used to document all training conducted per this Manual is posted on the MAWTS-1 website at

<https://www.intranet.tecom.usmc.mil/sites/mawts1/departments1/newc3/uas/Shared%20Documents/Forms/AllItems.aspx>. This form is maintained by the syllabus sponsor.

b. If the commanding officer waives an event per chapter 2 of the Aviation T&R Program Manual, the waiver letter shall be placed in section 3 of the individual performance record. The individual proficiency date for the waived event shall be manually updated in M-SHARP.

7. Training Administration.

a. Core, Mission, and Core Plus Events. Once the evaluation form is approved and signed by required signatories, the event code is logged in M-SHARP, and form/accompanying documentation is filed in the APR, only then will the trainee be credited for completing the event.

b. Certification, Qualification and Designation Events. These events shall have an evaluation form completed, approved and signed by required signatories, the individual performance record reviewed by the squadron WTI to ensure all requirements were met, letter signed by the commanding officer, event code logged in M-SHARP, and signed letters/accompanying documentation filed in the APR. Only then is the trainee considered certified, qualified or designated.

209. CORE SKILL INTRODUCTION TRAINING (1000)

1. General.

a. Purpose. To provide knowledge, skills and experience in tactical UAS operations. Completion of the UAS Common Core Course provides the student with knowledge and skills that include map and symbology reading, understanding the operational environment, stability and support operations, fundamentals of intelligence, collection and reconnaissance techniques, fratricide, tactical identification of equipment, Federal Aviation Administration Regulations (FAA), airspace, weather, mission planning, flight physiology, and aviation communications. The UAS Operator Course includes completion of UAS ground school academics, crew resource management, operating procedures, RSTA operations, and simulator and live training in flight operations. Upon completion of this phase of training conducted at Ft. Huachuca, AZ, the graduate is assigned MOS 7314.

b. Prerequisite.

(1) Per 7314 MOS requirements delineated in the MOS Manual, MCO 1200.17B.

(2) Must be eligible for a secret-level security clearance.

(3) Have a Class III flight physical

c. Administration Notes.

(1) Student must complete all ground school training requirements prior to beginning solo simulator flights, simulator crew rides, and live flight operations.

(2) Student shall complete the Unmanned Aircraft System Operator Common Core Course prior to starting the Unmanned Aircraft System Operator (Shadow) Course.

d. Academic Training.

(1) Phase I: Unmanned Aircraft System Operator Common Core Course (CID: A12VAH1).

(2) Phase II: Unmanned Aircraft System Operator (Shadow) Course (CID: A12VAK1).

e. Stage. Shadow Operator Course (SOC)

2. Shadow Operator Course (SOC).

SOC-1000 90.5 * B G

Goal. Introduce Reconnaissance, Surveillance, and Target Acquisition Processes and Operations.

Requirement. Given relevant publications, tools and resources, demonstrate knowledge of the following:

1. Unmanned Aircraft System (UAS) major components and crewmember positions/responsibilities.
2. Map reading techniques, common warfighting symbology, and terrain association.
3. Fundamentals, processes and operations of tactical imagery in Intelligence and Reconnaissance, Surveillance and Target Acquisition (RSTA).
4. UAS support to intelligence preparation of the battlefield (IPB) in both conventional and unconventional operational environments.
5. RSTA techniques for UAS payload operations.

Performance Standard. Complete the following exams with a minimum score of 80%:

1. UAS in military operations combined written examination.
2. Tactical Imagery and RSTA operations exam.
3. Complete map reading for UAS operation exam.
4. Complete common warfighting symbology for UAS operations exam.

Reference.

1. Combined Student Evaluation Plan (SEP) for 102-15W10 UAS Operator Common Core
2. MIL-STD-2515B
3. Field Management (FM) 1-02 (FM 101-5-1)
4. FM 2-0.
5. FM 2-0, C1
6. FM 2-01.3
7. FM 3.0
8. FM 3-0
9. FM 3-04.15
10. FM 3-04.155

11. FM 3-04.203
12. FM 3-07
13. FM 3-25-26
14. FM 3-90
15. FM 34-130
16. FM 34.130
17. FM 44-100
18. FMI 2-01.301
19. FMI 3-04.155 Change 1. M3-04
20. JP 3-0
21. JP 3-07.3
22. JP 3-07.6
23. JP 3-09.1
24. JP 3-26.
25. JP 3-27
26. JP 3-28
27. JP 3-68
28. CJCSI 3710.01B
29. Joint Concept of Operations for Unmanned Aircraft Systems
30. TC 1-600
31. CALL HANDBOOK NO 92-3
32. CALL NEWSLETTER NO 92-4

SOC-1020 86.4 * B G

Goal. Understand Imagery Components of Reconnaissance, Surveillance, and Target Acquisition Operations.

Requirement. Given relevant publications, tools and resources, demonstrate knowledge of the following:

1. Military equipment, activities, and areas of interest
2. Components of lines of communication.
3. Principles, concepts and procedures of Battle Damage Assessment (BDA).
4. All major/specific features and characteristics of tanks and armored recovery vehicles.
5. All major/specific features and characteristics of armored personnel carriers.
6. Major/specific features and characteristics of military trucks
7. All major/specific features and characteristics of engineer equipment.
8. All major/specific features and characteristics of Artillery (Towed, Self-propelled and Anti Aircraft), mortars, and associated equipment.
9. All major/specific features and characteristics of missiles and rockets.
10. All major/specific features and characteristics of fixed and rotor wing aircrafts.
11. How to exploit imagery intelligence products .

Performance Standard. Complete all required exams with a minimum score of 80%:

12. Aircrew Coordination Training Crosswalk Chart Handout
13. Airman's Information Manual (AIM)

SOC-1100 56.6 * B 1 SIM S

Goal. Complete solo simulator flights.

Requirement. Given relevant publications, tools and resources, complete the following:

1. Complete AVO presets checklist.
2. Complete AVO preflight, presets, engine start, launch, recovery, and post-launch checklists.
3. Perform AVO solo flights 1 thru 4.
4. Receive evaluation on AVO solo check ride.

Performance Standard. Complete the simulator flight requirement with a minimum score of 75% and without error answer system limitations/emergency procedures exam.

Reference.

1. Student evaluation plan (SEP) 243-ASI7D
2. NAVY A1-RQ7B-IETM
3. TM 9-5895-YYY-10
4. TM 9-5895-681-CL
5. TC 1-600

SOC-1120 36.0 * B 1 SIM S

Goal. Complete AVO Simulator Crew Rides.

Requirement. Given relevant publications, tools and resources, complete the following IAW the references:

1. Operate the mission planning software.
2. Complete AVO presets checklist.
3. Complete AVO presets, preflight, engine start, launch, recovery, and post-launch checklists.
4. Perform radio communication procedures.
5. Apply emergency procedures.
6. Perform as AVO in crew rides 1 thru 8.
7. Receive evaluation on AVO crew check ride.

Performance Standard. Complete the simulator flight requirement with a minimum score of 75% and without error answer system limitations/emergency procedures exam.

Reference.

1. Student evaluation plan (SEP) 243-ASI7D
2. NAVY A1-RQ7B-IETM
3. TM 9-5895-YYY-10
4. TM 9-5895-681-CL
5. TC 1-600

SOC-1140 36.0 * B 1 SIM S

Goal. Complete MPO Simulator Crew Rides.

Requirement. Given relevant publications, tools and resources, complete the following IAW the references:

1. Operate the mission planning software.
2. Complete MPO presets checklist.
3. Operate MPO software panels.
4. Perform radio communication procedures.
5. Apply emergency procedures.
6. Perform as MPO on crew rides 1 thru 8.
7. Receive evaluation on MPO crew check ride.

Performance Standard. Complete the simulator flight requirement with a minimum score of 75% and without error answer system limitations/emergency procedures exam.

Reference.

1. Student evaluation plan (SEP) 243-ASI7D
2. NAVY A1-RQ7B-IETM
3. TM 9-5895-YYY-10
4. TM 9-5895-681-CL
5. TC 1-600

SOC-1160 7.0 * B 1 UAS A

Goal. Conduct AVO Flight Operations.

Requirement. Given relevant publications, tools and resources, complete the following:

1. Prepare Ground Control Station (GCS) for flight.
2. Prepare Portable Ground Control Station (PGCS) for flight (if applicable).
3. Prepare Ground Data Terminal (GDT) for flight.
4. Prepare Portable Ground Data Terminal (PGDT) for flight (if applicable).
5. Prepare Tactical Automatic Landing System (TALS) for flight.
6. Perform control station transfer procedures.
7. Perform as AVO during flights 1 thru 4.
8. Receive evaluation on AVO check ride.
9. Perform as AVO during launch and recovery flights 1 thru 2.
10. Receive evaluation on AVO launch and recovery check ride.

Performance Standard. Complete the flight requirement with a minimum score of 75% and without error answer system limitations/emergency procedures exam.

Reference.

1. Student evaluation plan (SEP) 243-ASI7D
2. NAVY A1-RQ7B-IETM
3. TM 9-5895-YYY-10
4. TM 9-5895-681-CL
5. TC 1-600

SOC-1180 6.0 * B 1 UAS A

Goal. Conduct MPO Flight Operations.

Requirement. Given relevant publications, tools and resources, complete the following:

1. Prepare Ground Control Station (GCS) for flight.
2. Perform control station transfer procedures.
3. Perform as MPO during flights 1 thru 4.
4. Receive evaluation on MPO check ride.

Performance Standard. Complete the flight requirement with a minimum score of 75% and without error answer system limitations/emergency procedures exam.

Reference

1. Student evaluation plan (SEP) 243-ASI7D
2. NAVY A1-RQ7B-IETM
3. TM 9-5895-YYY-10
4. TM 9-5895-681-CL
5. TC 1-600

SOC-1190 2.0 * B G

Goal. Initial Crew Resource Management (CRM) Training

Requirement. Complete CRM Training.

Performance Standard. Per the reference.

Instructor. CRMI

Reference. OPNAVINST 1542.7

210. CORE SKILL TRAINING (2000).

1. General.

a. Purpose. To provide the operator with the knowledge and skill proficiency necessary to meet NATOPS annual requirements, gain proficiency, and perform as an AVO and MPO. This phase culminates with the operator being:

- (1) Mission Payload Operator (MPO) Qualified.
- (2) Aircraft Vehicle Operator (AVO) Qualified.

b. Prerequisite.

- (1) Complete Core Skill Introduction training.
- (2) Possess, at a minimum, an interim secret clearance.

(3) Have a Class III flight physical.

c. Administration Notes. Ground syllabus events can be executed in conjunction with the flight events. Completion of the ground event prior to its corresponding flight is mandatory. Ground events cannot update or replace the corresponding flight event.

d. Academic Training. During this phase, Aviation Career Progression Modules (ACPM) 8000 (MACCS) and 8020 (ACE) will be conducted in parallel with the MPO and AVO stages respectively. Completion of ACPM-8000 (MACCS) is required to obtain MPO qualification. Completion of ACPM-8020 (ACE) is required to obtain AVO qualification.

e. Core Skill Stages.

(1) Mission Payload Operator (MPO)

(2) Air Vehicle Operator (AVO)

2. MISSION PAYLOAD OPERATOR (MPO).

a. Purpose. To provide the operator with the core skills necessary to carry out the responsibilities of a MPO. These skills will include crew resource management and communication procedures.

b. Administrative Notes. The trainee will also be exposed to mission planning, local operations and flight procedures.

MPO-2000	2.0	365	B, R	G
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Goal. Annual Crew Resource Management (CRM) Training.

Requirement. Complete annual CRM Training.

Performance Standard. Per the reference.

Instructor. CRMI

Prerequisite. Use most recent date this training was completed. Recent graduates of the Unmanned Aircraft System Operator (Shadow) Course will use the date SOC-1190 was completed.

Reference. OPNAVINST 1542.7

MPO-2010	2.0	365	B, R	G
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Goal. Describe Area of Operation, Unit SOPs, Local Course Rules and Regulations.

Requirement. Conduct the following:

1. Describe the area of operation, unit SOPs, local course rules and regulations.

2. Describe the phases of flight.
3. Describe the procedures to perform during the following phases of flight:
 - a. Departure
 - b. Climb
 - c. Return to Base (RTB)
 - d. Descent and landing procedures
4. Complete the local course rules exam.
5. Complete the squadron SOP exam.

Performance Standard. Pass local written exams with a score of 100%.

Instructor. BI, SI

Reference.

1. Unit SOPs
2. Local course rules and regulations
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTPP 3-22.3-VMU

MPO-2020 2.0 180 B, R G

Goal. Perform Mission Planning.

Requirement. Given a mission and an ATO, perform the following mission planning activities:

1. Discuss Air Tasking Order (ATO).
2. Obtain situation report and/or target deck.
3. Plot targets.
4. Introduce mission planning tools (i.e. PFPS).
5. Collect information to include weather considerations, fuel requirements, altitude requirements, and airspeed.
6. Determine appropriate routes and loiters (mission plan).
7. Identify applicable components of communications plan.
8. Identify appropriate controlling agencies.
9. Prepare and rehearse brief with the instructor for validation.
10. Introduce Fire Support Coordination Measures and Airspace Control Measures.
11. Conduct brief for UAS crew.

Performance Standard. Complete the required items without error. Planning shall support the mission given.

Instructor. BI, SI

Prerequisite. MPO 2000, 2010

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU

MPO-2030 1.0 180 B, R 1 AN/VRC-92 G

Goal. Utilize the AN/VRC-92 radio system.

Requirement. Given one AN/VRC-92 conduct the following:

1. Identify characteristics of the listed radio as follows:
 - a. State the proper nomenclature
 - b. State the frequency spectrum
 - c. State the expected range and factors affecting range
 - d. State the output power requirements
 - e. State the associated cryptological equipment
2. Set up and configure the AN/VRC-92 radio:
 - a. Set up the radio
 - b. Input frequencies or Net IDs
 - c. Toggle frequencies or Net IDs
3. Conduct a radio check:
 - a. Establish cipher text communications
 - b. Establish plain text communications
4. Zeroize the radio.

Performance Standard.

1. Complete the requirement items with minimal instructor assistance.
2. Demonstrate working knowledge of the radio characteristics, item 1 of the requirement, when questioned.
3. Instructor will verify radio is configured properly, the communications check was successful and radio is properly zeroized.

Instructor. BI, SI

External Syllabus Support. Field Radio Operator MOS 0621.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 11-5820-890-10-8 (VRC-92/PRC-119)

MPO-2040 2.0 180 B, R 1 SIM S

Goal. Perform MPO software application procedures.

Requirement. Utilize software applications to execute the following:

1. Use Overlay Editor to create the following:
 - a. Target Overlay
 - b. Threat Overlay
 - c. ATC Overlays
2. Use Task Editor to create the following:
 - a. Area Search Task
 - b. Line Search Task

3. Utilize FTP software to send a file over the flight LAN.
4. Configure MPO VME for TACLAN communications with external targeting software.
5. Utilize C4I Software to perform the following:
 - a. Create and send a digital fire mission
 - b. Use artillery correction software to send adjustments

Performance Standard. Complete the required items without error. Planning shall support the mission given.

Instructor. BI, SI

Prerequisite. MPO 2000, 2020, 2030

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

MPO-2050	2.0	180	B, R	1	SIM	S/A	(N)
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Goal. Conduct sensor/targeting system operations and employment.

Requirement. Given a tactical scenario:

1. Plot on a map 5 points utilizing each of the following:
 - a. Military Grid Reference System (MGRS)
 - b. Latitude/Longitude (Lat/Long)
 - c. Universal Transverse Mercator (UTM)
2. Describe terrain association.
3. Describe payload symbology.
4. Describe dual sensor/targeting system setup techniques.
5. Describe dual sensor/targeting system troubleshooting.
6. Describe target acquisition techniques.
7. Describe search patterns and tracking techniques.
8. Describe aircraft positioning with reference to a map/chart.
9. Describe AV navigation in an emergency situation.
 - a. Demonstrate principles of map reading and terrain association to acquire targets and provide point-to-point navigation to the AVO, ensuring highest quality targeting methods.
 - b. Assist the AVO with navigational input in the event of an emergency.

Performance Standard.

1. Correctly plot 5 points on a map in the three coordinate formats listed above.
2. Correctly identify the criteria necessary in describing sensor/targeting system setup/troubleshooting; targeting techniques (search/acquire/track); and aircraft positioning as it relates to targeting and emergency situations utilizing all applicable resources.
3. Demonstrate effective CRM throughout the flight.
4. Adhere to local SOP.

Instructor. BI, SI

Prerequisite. MPO 2040

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU

MPO-2060	2.0	180	B, R	1	UAS	A	(N)
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Goal. Conduct sensor/targeting system operations and employment.

Requirement. Given a tactical scenario:

1. Employ an UAS while conducting sensor/targeting operations
2. Demonstrate the application of target acquisition techniques
3. Locate targets applying coordinate information:
 - a. Manually locate 3 targets
 - b. Use Point at Coordinates mode to locate 3 targets:
4. Locate targets applying terrain association:
 - a. Manually locate 3 targets
 - b. Demonstrate the application of terrain association
5. Describe payload symbology.
6. Demonstrate the application of dual sensor/targeting system setup techniques.
7. Troubleshoot dual sensor/targeting system.
8. Demonstrate the application of search patterns and tracking techniques.
9. Provide AV navigational input and perform checklist steps, as appropriate, during simulated emergencies.

Performance Standard.

1. Complete the requirement items IAW the references.
2. Locate targets and employ the sensor/targeting system and aircraft IAW the mission's requirements.
3. Apply the requisite skills outlined in MPO 2050.
4. Perform all simulated emergencies without error.
5. Demonstrate effective CRM throughout the flight.
6. Adhere to local SOP.

Instructor. BI, SI

Prerequisite. MPO 2050

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

MPO-2070	2.0	180	B, R	1	SIM	S/A	(N)
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Goal. Employ sensor/targeting system and manage mission tools.

Requirement. Given a tactical scenario, and utilizing payload functions during a mission.

1. Acquire and prosecute specified targets utilizing terrain association, payload graphics as well as all available techniques and payload functions to include:
 - a. Inertial
 - b. Heading hold
 - c. Point at coordinate
 - d. Line search
 - e. Point scan
 - f. Area scan
2. Discuss/describe all MPO menus and functions.

Performance Standard.

1. Complete the requirement items IAW the references
2. Correctly employ sensor/targeting system, prosecute targets, and apply payload function.
3. Demonstrate effective CRM throughout the flight.
4. Adhere to local SOP.

Instructor. BI, SI

Prerequisite. MPO 2060

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

MPO-2080	1.0	180	B, R	1	UAS	A	(N)
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Goal. Employ sensor/targeting system and manage mission tools.

Requirement. Given a tactical scenario:

1. Effectively manage mission tools.
2. Perform auto search functions:
 - a. Point Searches

- b. Pattern Searches (Area/Line)
3. Utilize the coverage parameters function.

Performance Standard.

1. Complete the requirement items IAW the references.
2. Correctly plan and execute the procedures for prosecuting point and area targets.
3. Demonstrate effective CRM throughout the flight.
4. Adhere to local SOP.

Instructor. BI, SI

Prerequisite. MPO 2070

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU

MPO-2099 2.0 * B, R E 1 UAS A (N)

Goal. Complete a Mission Payload Operator (MPO) Evaluation Flight.

Requirement. Be evaluated as a MPO while conducting a flight.

1. Perform MPO duties during all phases of flight.
2. Conduct mission planning and brief the UAS crew as applicable.
3. Acquire and prosecute multiple targets using all available methods.
4. Conduct applicable scan and search methods.
5. Perform a minimum of 4 emergency procedures and use proper CRM techniques to assist the crew.
6. Perform effective crew resource management during normal operations.

Performance Standard.

1. Employ an UAS to conduct the evaluation flight using all payload applications and resources.
2. Complete the requirement items IAW the references.
3. Demonstrate effective CRM throughout the flight.
4. Adhere to local SOP.

Instructor. BI, SI

Prerequisite. MPO 2080

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU

3. AIR VEHICLE OPERATOR (AVO).

a. Purpose. To provide the core skills necessary to carry out the responsibilities of an AVO. These skills will include launch, flight and recovery procedures. The trainee will also be exposed to aircraft aerodynamics and system software.

b. Prerequisite. Complete MPO 2000, 2010, 2020, 2030. Although not mandatory, student should have completed the MPO-2099.

AVO-2100	1.0	180	B, R	G
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Goal. Understand associated flight procedures and documentation.

Requirement. Given the required reference, demonstrate an understanding of local airspace and operational area flight procedures and local SOP to include:

1. Explain the following procedures:
 - a. Local Course Rules
 - b. Preset/preflight procedures
 - c. Engine start up
 - d. Launch
 - e. Recovery
 - f. Engine shutdown
2. Discuss and conduct of post-flight administrative procedures.

Performance Standard. Complete each item in this event with minimal aid from an instructor.

Instructor. BI, SI

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. Range flight operation procedures from range control

AVO-2110	1.0	180	B, R	G
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Goal. Describe the UAS and its associated flight characteristics.

Requirement. Given required technical publications:

1. Describe main components and design characteristics of the UAS.

2. Describe aerodynamic forces and effects acting on the UAS during flight to include, but not limited to:
 - a. Lift
 - b. Weight
 - c. Thrust
 - d. Drag
3. Describe how to interpret instrument readings and the way in which the UAS compensates for changes in aerodynamic forces.

Performance Standard.

1. Complete the requirement items with minimal assistance from the instructor.
2. Demonstrate working knowledge of the UAS and its flight characteristics.

Instructor. BI, SI

Prerequisite. AVO 2100

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU
5. FAA-H-8083-25A Pilot's Handbook of Aeronautical Knowledge

AVO-2120	1.0	180	B, R	1	AN/VRC-103	G
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Goal. Utilize the AN/VRC-103 radio system.

Requirement. Given one AN/VRC-103 conduct the following:

1. Identify the characteristics of the listed radio as follows:
 - a. State the proper nomenclature
 - b. State the frequency spectrum
 - c. State the expected range and factors affecting range
 - d. State the output power requirements
 - e. State the associated cryptological equipment:
2. Set up the UHF/VHF/SATCOM radio
 - a. Configure antenna
 - b. Input frequencies
 - c. Toggle frequencies
 - d. Scan frequencies
3. Conduct a radio check:
 - a. Establish cipher text communications
 - b. Establish plain text communications
4. Zeroize the radio.

Performance Standard. Complete all requirement items IAW the references. Pass an oral exam and a practical application test with a minimum score of 80%. Instructor will verify proper configuration and successful radio check.

Instructor. BI, SI

External Syllabus Support. Field Radio Operator MOS 0621

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 10515-0109-4100 (VRC-103/PRC-117)

AVO-2130 2.0 180 B, R G

Goal. Perform mission planning procedures and prepare a brief.

Requirement. Prepare for a mission by utilizing the Mission Editor and performing the following:

1. Discuss the Air Tasking Order (ATO).
2. Discuss controlling agencies.
3. Collect and assess meteorological data.
4. Perform fuel planning calculations.
5. Discuss routes, altitude requirements, and airspeeds.
6. Calculate fuel time to target and compensate for in-flight winds.
7. Introduce Fire Support Coordination Measures and Airspace Control Measures.
8. Utilizing a map depict the following:
 - a. Routing
 - b. Fuel/time plan
 - c. Distance/heading
 - d. Altitude/airspeed
 - e. Joker/Bingo Fuel calculation
9. Prepare and present a brief.

Performance Standard. Without error, complete the required items with minimal aid from an instructor. Brief will be presented to the instructor. Instructor will question the student during the brief to assess understanding.

Instructor. BI, SI

Prerequisite. AVO 2110

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

AVO-2140 2.0 180 B, R 1 SIM S

Goal. Perform AVO software application procedures.

Requirement. Utilize software applications to execute the following:

1. Conduct map data loading.
2. Use Coverage Setup to identify Line of Sight Restrictions.

3. Use Overlay Editor to create the following overlays:
 - a. Line Overlay
 - b. Label Overlay
 - c. Airspace Coordination Overlay
4. Use task editor to create the following:
 - a. Mission Task
 - b. Return Home Task
5. Use CD burning software to burn files to a blank CD-R/CD-RW

Performance Standard. Without error, load maps, identify line of sight conflicts, and create required overlays with minimal aid from an instructor.

Instructor. BI, SI

Prerequisite. AVO 2130

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU

AVO-2150	2.0	180	B, R	1	SIM	S/A	(N)
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Goal. Conduct Course Rules and Flight Procedures.

Requirement. Given applicable technical publications and simulator or flight, complete operations and flight procedures:

1. Conduct presets/pre-flight, engine start, AV launch, and post-launch, and landing procedures IAW checklist.
2. Conduct flight IAW course rules.
3. Discuss/Describe all AVO menus and functions.
4. Discuss and demonstrate emergency procedures.
5. Conduct TALS Recovery and Post-Flight procedures.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Perform presets/pre-flight within 45 minutes.
3. Without error, execute normal procedures from engine start to recovery with minor assistance from instructor.
4. Conduct appropriate simulated emergency procedures.
5. Make appropriate flight leadership decisions.

Instructor. BI, SI

Prerequisite. AVO 2120, 2140

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU
5. Squadron SOP / Local Course Rules

AVO-2160	3.0	180	B, R	1	UAS	A/S	(N)
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Goal. Conduct a mission as an AVO.

Requirement. Utilizing the following requirements, execute a preplanned mission:

1. Build and execute a flight plan.
2. Employ an UAS to conduct a flight in support of a preplanned mission.
3. Conduct point-to-point navigation to 5 target areas utilizing:
 - a. Knobs roll
 - b. Knobs heading
4. Conduct Points-Nav flight mode and adjust orbit dimensions
5. Discuss and perform emergency procedures:
 - a. Communications
 - b. Electrical
 - c. Fire
 - d. Hydraulic
 - e. Landing and Ditching
 - f. Flight Controls
 - g. Ground Controls
6. Conduct TALS loiter and wave-off.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Conduct a pre-planned mission while adhering to the established airspace control measures (ACM), Fire Support Coordination Measures (FSCM), and IAW with local course rules and regulations.
3. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. AVO 2150

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU
5. Range flight operation procedures from range control

AVO-2170 1.0 365 B, R 1 UAS A (N)

Goal. Conduct a launch, control station transfers and recovery from the PGCS.

Requirement. Given the applicable technical publications and equipment:

1. Identify differences in operation between GCS and PGCS flight.
2. Perform a launch and navigate to briefed points.
3. Conduct a control station transfer to and from another control station.
4. When control is regained, RTB for recovery of AV.

Performance Standard.

1. Complete the requirement items IAW the references while conducting a mission from the PGCS. Training should emphasize distributed or dispersed operational employment.
2. Demonstrate effective CRM throughout the flight.
3. Adhere to SOP.

Note: For initial qualification, a PGCS will be utilized. For follow-on proficiency, a PGCS or a dual-configured GCS may be utilized.

Instructor. BI, SI

Prerequisite. AVO 2160

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

AVO-2180 2.0 365 B, R 1 UAS A (N)

Goal. Conduct On-Station-Relief (OSR).

Requirement.

1. Plan for an OSR mission.
2. Employ an UAS to conduct an OSR.
3. Identify the differences and purposes of OSR, on-target-relief (OTR), and en-route-relief (ERR).
4. Review squadron and local SOP for additional instructions and special procedures involving simultaneous UAS operations.
5. Discuss and demonstrate procedures for transferring control of the UAS to include:
 - a. Checklist
 - b. Frequency requirements

- c. Specific emergency procedures
- d. Crew resource management

Performance Standard.

1. Complete all requirement items IAW the references.
2. Execute simultaneous, concurrent, and/or complementary tactics and perform requisite employment techniques (control station transfer) per applicable references.
3. Demonstrate effective CRM.

Instructor. BI, SI

Prerequisite. AVO 2170

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. Range flight operation procedures from range control

AVO-2199	3.0	365	B, R	E	1	UAS	A	(N)
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Goal. Complete an Air Vehicle Operator (AVO) Evaluation Flight.

Requirement. Be evaluated as an AVO while conducting a flight:

1. Conduct mission planning and brief UAS crew as applicable.
2. Complete presets and preflight in a time limit of 30 minutes.
3. Complete one launch and recovery, 5 simulated emergencies, and navigate to a minimum of 4 points within the confines of an ACM.
4. Execute AVO procedures in all flight modes utilizing all methods of navigation.
5. Perform effective crew resource management during normal operations and simulated emergencies.

Performance Standard. Without error, conduct a flight and complete the required items without the aid of an instructor.

Instructor. BI, SI

Prerequisite. AVO 2180

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. Course rules
2. Squadron SOP
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)

5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTTP 3-22.3-VMU

211. MISSION SKILL TRAINING (3000).

1. General

a. Purpose. To provide the operator with proficiency on aerial reconnaissance, terminal guidance operations, and control of indirect fires. Mission Skills are designed to fulfill the requirements of the VMUs Mission Essential Task List as defined by the associated Marine Corps Task (MCT).

b. Prerequisite. MPO and AVO qualifications.

c. Administrative Note. Events in this phase of training should be based on tactical scenarios designed to focus on the specific items delineated in the different training codes and will be developed by the squadron WTI. To the greatest extent possible the scenarios should incorporate the employment of fixed wing, rotary wing, and surface fires. On certain events, integration with other ACE assets is required and airspace integration should be stressed. Mission Skill training should be focused on enhancing the effective and efficient accomplishment of the squadron's mission essential tasks.

d. Academic Training. During this phase, Aviation Career Progression Module (ACPM) 8040 (Threat) will be conducted in parallel with the AR stage. Completion of ACPM-8040 (Threat) is required to obtain AR qualification.

e. Mission Skill Stages

- (1) Aerial Reconnaissance (AR)
- (2) Terminal Guidance Operations (TGO)
- (3) Control of Indirect Fires (IDF)
- (4) Analyze and Synthesize Information (ASI)

2. AERIAL RECONNAISSANCE (AR)

a. Purpose. To provide the operator the necessary skill proficiency to conduct effective aerial reconnaissance in order to support intelligence collections and fire support tasks by recognizing potential targets and threats in a tactical environment.

b. Administrative Note. See MAWTS-1 Course Catalog for additional ground/academic training. Specific training environments are desired in order to sharpen unmanned aerial reconnaissance techniques. To the greatest extent possible, ranges appropriate for all live flights training codes should be utilized..

c. Prerequisite. Complete the following MarineNet courses:

- (1) TRCK 6200: Fire Support Coordination (0801AO)
- (2) TRCK 6210: Six Functions of Marine Aviation Course (7204AO)
- (3) TRCK 6220: Marine Air Command and Control System (7202AO)

AR-3000	2.0	180	B, R		G
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Goal. Demonstrate an understanding of sensor operations, air reconnaissance and targeting.

Requirement.

1. Discuss and demonstrate an understanding of sensor operations and employment (chapter 6 of the reference).
2. Discuss and demonstrate an understanding of VMU mission sets for aerial reconnaissance and targeting (chapter 9.1-9.3 of the reference).

Performance Standard. Demonstrate a working understanding of the requirement items. Instructor shall ask questions directly from the reference.

Instructor. SI

Prerequisite. Read chapters 6 and 9.1-9.3 of the reference.

Reference. NTP 3-22.3-VMU

AR-3010	2.0	365	B, R	1 SIM	S/A (N)
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Goal. Practice low altitude (2,000'-3,000' AGL) target acquisition in a complex environment using multi-sensor (EO/IR) payload.

Requirement.

1. Employ the UAS/SIM to conduct low altitude target acquisition flight.
2. Acquire targets for prosecution using charts and imagery, sensor acquisition techniques, imagery predictions, and environmental planning factors.
3. Classify and identify components of infrastructure, military/non-military fortifications, and NATO-sized targets of opportunity.
4. Recognize, detect, and identify at a minimum (2) EO and (3) IR, targets of opportunity.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Adhere to applicable SOP.
3. Use all available mission planning tools (PFPS, charts, imagery) to brief planned targets/DMPIs.
4. Acquire and identify selected DMPIs within area of interest.
5. Communicate position and description of target.
6. Manage sensor search to minimize time to detect.
6. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. AR 3000

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

AR-3020	2.0	180	B, R	1	UAS	A	(N)
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Goal. Practice medium altitude (3,000' - 6,000' AGL) target acquisition in a complex environment using multi-sensor (EO/IR) payload.

Requirement.

1. Employ an UAS to conduct medium altitude target acquisition flight.
2. Acquire targets for prosecution using charts and imagery, sensor acquisition techniques, imagery predictions, and environmental planning factors.
3. Classify and identify components of infrastructure, military/non-military fortifications, and building-sized targets of opportunity.
4. Recognize, detect and identify a minimum of (2) EO and (3) IR targets of opportunity.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Adhere to applicable SOP.
3. Use all available mission planning tools (PFPS, charts, imagery) to brief planned targets/DMPIs.
4. Acquire and identify selected DMPIs within area of interest.
5. Communicate position and description of target.
6. Manage sensor search to minimize time to detect.
7. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. AR 3000

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY, STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

c. Administrative Notes. See MAWTS-1 Course Catalog for additional ground/academic training. Exposure to training aids such as "chalk talks", fires synchronization meetings, and combined arms rehearsals are highly encouraged during this stage.

TGO-3100	2.0	365	B, R			G
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Goal. Conduct mission analysis.

Requirement. Given a tactical scenario, warning order, Mission Analysis Guide, and Mission Analysis Template, perform the following:

1. Review METT-T.
2. Discuss and demonstrate an understanding of fire integration tactics (chapter 7) and terminal guidance operations (chapter 9.4) of NTTP 3-22.3 VMU.
3. Determine commander's intent - purpose, method, end-state.
4. Draft mission statement.
5. Demonstrate a working knowledge in coordinating the development of a local Decision Support Matrix (DSM).

Performance Standard. Complete each requirement item IAW the references; the trainee may self correct. Instructor shall ask the trainee questions during the brief to check for understanding of mission analysis process.

Instructor. BI, SI

Prerequisite. Read chapters 7 and 9.4 of NTTP 3-22.3 VMU.

Reference.

1. JP 3-60 Joint Doctrine for Targeting
2. MCWP 3-42.2
3. MCWP 3-16 Fire Support Coordination in the GCE
4. NTTP 3-22.3-VMU

TGO-3110	2.0	365	B, R	1	SIM	S/A (N)
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Goal. Introduction to TGO procedures in a permissive threat environment.

Requirement.

1. Practice sensor reconnaissance on three separate targets, generating target coordinates with onboard systems.
2. Discuss the processes involved in generating precision targeting coordinates and key information for exchange during target briefs.
3. Discuss terminal guidance for attacks from either fixed-wing (FW) or rotary-wing (RW) platforms utilizing low threat tactics.
4. Discuss authentication procedures.
5. Discuss appropriate tactics for target marking during low-light/night operations.

6. Discuss the procedures involved in marking target.
7. Discuss the required procedural compliance with established airspace restrictions and fire support coordination measures.
8. Introduce techniques that enable timely and accurate corrections for attack aircraft, and the ability to provide a 'talk-on'.
9. Discuss BDA.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Execute appropriate Search/Detection/ID profiles.
3. Use targeting systems and mission tools for generating target coordinates.
4. Demonstrate proper coordination and approval for FW and RW attacks.
5. Provide accurate verbal description during talk-on.
6. Practice TGO TTPs IAW the reference.
7. Practice LASER/IR mark using proper J-LASER terminology.

Instructor. BI, SI

Prerequisite. TGO 3100

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, LSR, MOCK, TGT-MOVE, RECCE ARRAY, IR TGT, STRUCTRL

Reference.

1. JP 3-09.3 CAS
2. NTP 3-22.3-VMU

TGO-3120	2.0	365	B, R	1	UAS	A	N
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Goal. Conduct TGO procedures in a permissive threat environment.

Requirement.

1. Employ an UAS to conduct TGO.
2. Perform sensor reconnaissance of three separate targets, generating target coordinates with onboard systems.
3. Plot and prepare to coordinate information exchange for target briefs.
4. Provide terminal guidance for three coordinated attacks from either fixed-wing (FW) or rotary-wing (RW) platforms utilizing low threat tactics.
5. Perform authentication procedures.
6. Use appropriate tactics for target marking.
7. Coordinate and utilize IR marking of target.
8. Ensure compliance with established airspace restrictions and fire support coordination measures.
9. Demonstrate the ability to provide timely, accurate corrections for attack aircraft, and the ability to provide a 'talk-on'.
10. Provide limited BDA.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Execute appropriate Search/Detection/ID profiles.
3. Use targeting systems and mission tools for generating target coordinates.
4. Ensure proper coordination and approval for FW and RW attacks.
5. Provide accurate verbal description during talk-on.
6. Execute TGO TTPs IAW reference.
7. Provide LASER/IR mark using proper J-LASER terminology.
8. Utilize proper terminology and brevity terms during information exchange/radio communications.

Instructor. BI, SI

Prerequisite. TGO 3110

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTP 3-22.3-VMU

TGO-3130	2.0	365	B, R	1	UAS	A/S	N
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Goal. Conduct navigation and integration techniques in support of TGO.

Requirement.

1. Employ an UAS to conduct TGO.
2. Use appropriate flight tactics to support target marking.
3. Ensure compliance with established airspace restrictions and fire support coordination measures.
4. Demonstrate the ability and spacial understanding to integrate within an objective area.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Ensure proper coordination with FW and RW attacks.
3. Execute TGO TTPs IAW reference.
4. Execute TGO flight profiles appropriate for threat, friendly forces and environment.

Instructor. BI, SI

Prerequisite. TGO 3110

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTP 3-22.3-VMU

4. CONTROL OF INDIRECT FIRES (IDF)

a. Purpose. To develop tactical and technical proficiency in supporting surface-to-surface fires. This stage focuses on utilization of the ground control station software and associated Command, Control, Communication, Computers and Intelligence (C4I) components.

b. Prerequisite. AR qualification.

c. Administrative Notes. See MAWTS-1 Course Catalog for additional ground/academic training. Exposure to training aids such as "chalk talks", fires synchronization briefs/roundtables, and combined arms rehearsals are highly encouraged during this stage.

IDF-3200	2.0	365	B, R	1	SIM	S
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Goal. Introduce artillery, mortar, Naval Surface Fire Support (NSFS) and HIMARS spotter Tactics, Techniques, and Procedures (TTPs) to control indirect fires.

Requirement.

1. Perform sensor reconnaissance on (3) targets.
2. Generate target coordinates with onboard systems.
3. Plot targets and prepare a call-for-fire brief. Emphasize accurate call-for-fire communications and adjustment procedures.
4. Discuss the appropriate practices for control of adjust fire missions utilizing:
 - a. Artillery
 - b. Mortar
 - c. Naval Surface Fire Support (NSFS)
 - d. HIMARS

Performance Standard.

1. Complete all requirement items IAW the references.
2. Execute appropriate Search/Detection/ID profiles.
3. Use targeting systems and mission tools for generating target coordinates.
4. Discuss proper communications format with the firing unit.
5. Discuss timely and accurate corrections to the firing unit.

Instructor. BI, SI

Prerequisite. Read chapters 7 and 9.5 of NTP 3-22.3 VMU

External Syllabus Support. Indirect Fire Support (IDFS) asset (mortars or artillery) and a ground FAC or FO. IDFS asset requires a minimum of 10 HE rounds, 2 WP rounds, and 8 Illumination rounds.

Reference.

1. MCWP 3-16.6 Supporting Arms Observer, Spotter, and Controller
2. NTTP 3-22.3 VMU

IDF-3210 2.0 365 B, R 1 UAS A (N)

Goal. Conduct mortar/artillery observer TTPs and control of indirect fires.

Requirement.

1. Perform sensor reconnaissance on (3) targets.
2. Generate target coordinates with onboard systems.
3. Plot targets and prepare a call-for-fire brief.
4. Emphasize accurate call-for-fire communications and adjustment procedures.
5. Control three adjust fire missions.
6. Discuss and demonstrate an understanding of fires integration tactics (chapter 7) and control of indirect fires (chapter 9.5) of NTTP 3-22.3 VMU.

Performance Standard.

1. Execute appropriate Search/Detection/ID profiles.
2. Use targeting systems and mission tools for generating target coordinates.
3. Employ proper communications format with the firing unit.
4. Provide timely and accurate corrections to the firing unit.

Instructor. BI, SI

Prerequisite. IDF 3200

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL. Ranges must include polygons supportive of ordnance required.

Ordnance. 155mm HE rounds (or equivalent Artillery/Mortar ordnance): (18) rounds for Basic POI, and (12) for Refresher POI

External Syllabus Support. Indirect Fire Support (IDFS) asset (mortars or artillery) and a ground FAC or FO. IDFS asset requires a minimum of 18 HE rounds.

Reference.

1. MCWP 3-16.6 Supporting Arms Observer, Spotter and Controller
2. NTTP 3-22.3-VMU

IDF-3220 2.0 365 B, R 1 SIM S/A (N)

Goal. Conduct navigation and integration techniques in support of IDF.

Requirement.

1. Employ a UAS to conduct IDF.
2. Use appropriate flight tactics to support indirect fires integration.
 - a. Identify max ordinate and altitude separation and associated minima.
 - b. Identify lateral separation and associated minima.
3. Ensure compliance with established airspace restrictions and fire support coordination measures.
4. Demonstrate the ability and spacial understanding to integrate within an objective area.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Ensure proper coordination with FW and RW attacks.
3. Execute IDF TTPs IAW reference.
4. Execute IDF flight profiles appropriate for threat, friendly forces and environment.

Instructor. BI, SI

Prerequisite. IDF 3200

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. MCWP 3-16.6 Supporting Arms Observer, Spotter and Controller
2. NTP 3-22.3-VMU

5. Analyze and Synthesize Information (ASI). Intelligence personnel (MOS 0231 and 0241) are assigned to the VMUs and are an integral part of VMU operations. Their training is governed by NAVMC 3500.101, Intelligence Training and Readiness Manual.

212. CORE PLUS TRAINING (4000).

1. General

a. Purpose. To train a UAS operator to perform in a combat environment, employ support systems, and perform advanced flight operations. Although these events may provide valuable training opportunities, they are not considered essential to achieve unit CMMR. Core Plus training is conducted at the discretion of operational commanders and allows unit training flexibility.

b. Academic Training. During this phase, Aviation Career Progression Modules (ACPM) 8060 (MAGTF) and 8080 (Joint Air Operations) will be conducted in parallel with the MSSO and AFO stages respectively. Completion of ACPM-8060 (MAGTF) is required to obtain MSSO qualification. Completion of ACPM-8080 (Joint Air Operations) is required to obtain AFO qualification.

c. Prerequisite. MPO and AVO qualifications.

d. Core Plus Skill Stages

(1) Chemical, Biological, Radiological or Nuclear (CBRN)

(2) Mission Support Systems Operator (MSSO)

(3) Advanced Flight Operations (AFO)

2. CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR (CBRN).

a. Purpose. This stage is designed to develop tactical and technical skills to support flight operations being conducted in a chemical, biological, radiological, or nuclear environment.

b. Administration Notes. This training should be completed prior to OCONUS assignment.

CBRN-4000 2.0 365 B, R 1 SIM S/A (N)

Goal. Conduct UAS operations in CBRN environment.

Requirement.

1. Demonstrate the ability to perform operator assigned responsibilities in a simulated/live CBRN environment.
2. Demonstrate crew resource management while wearing mission oriented protective posture (MOPP) gear.

Performance Standard. Demonstrate the ability to effectively communicate with the crew and perform assigned operator duties while in MOPP level 4 IAW the reference and without degradation of the mission.

Instructor. SI

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

3. Mission Support Systems Operator (MSSO).

a. Purpose. To develop the operator's tactical and technical skills to support flight operations through a variety of C3 Systems and qualifications.

b. Prerequisite. MPO and AVO qualifications.

4. Perform operational level preventative maintenance checks and services on hardware and software as required.

Performance Standard. Complete the required items IAW the reference. Complete Virtual MISTC AFATDS POI located in the TECOM Center Of Excellence website.

Instructor. SI

Reference

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. Manufacturer's Operating Instructions
6. Manufacturer's Technical Instructions and Publications
7. Virtual MISTC website

MSSO-4120 2.0 * B G

Goal. Operate target precision coordinate generation software and associated components.

Requirement. Given a tactical situation, valid targets, requisite maps, and current digital point positioning database (DPPDB) products uploaded to the target precision coordinate generation software (i.e. Precision Strike Suite-Special Operating Forces(PSS-SOF), Precision Fires Imagery Viewer ((PFIV) handheld), perform the following:

1. Identify the capabilities and limitations of applicable systems.
2. Plan for the integration of employment of applicable systems.
3. Operate, utilize, and manage precision coordinate generation software and associated components.
4. Perform operational level preventative maintenance procedures on hardware and software as required.

Performance Standard. Complete the required items IAW the reference. Demonstrate proper operation of the software.

Instructor. SI

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. Manufacturer's Operating Instructions
6. Manufacturer's Technical Instructions and Publications

MSSO-4130 2.0 * B G

Goal. Set up and establish communications utilizing an IRC network.

Requirement. Given operational data architecture and the IRC application, perform the following:

1. Initiate the IRC application.
2. Connect to an IRC server.
3. Set up user preference.
4. Access IRC channels.
5. Utilize appropriate IRC language IAW ALSA Publication.
6. Terminate application.

Performance Standard. Complete the required items IAW the reference without error. Self corrections allowed.

Instructor. SI

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. ALSA Publication (Tactical Chat)
6. Local SOP

MSSO-4140 2.0 365 B, R G

Goal. Perform the functions of a systems planner.

Requirement. Given a tactical scenario and a fully functional combat operations center (COC), perform the following:

1. Demonstrate a working knowledge in managing and troubleshooting all requisite C3 systems configured in the COC.
2. Demonstrate a working knowledge and understanding of the processes involved when communicating and coordinating with higher, adjacent, supported units and controlling agencies during flight operations, while assisting the aircrew in the execution of the mission IAW the reference.
3. Utilizing the resources available, gather relevant operational data and update the Unmanned Aircraft Commander (UAC) or Mission Commander (MC) as appropriate.
4. Assist, as able, in facilitating the execution of the mission.

Performance Standard. Complete the requirement items IAW the reference and without error while performing as a systems planner.

Instructor. SI

Prerequisite. MSSO 4100, 4110, 4120, 4130

Reference.

1. Squadron SOP/Local Course Rules
2. NTP 3-22.3-VMU

3. ADVANCED FLIGHT OPERATIONS (AFO).

a. Purpose. To develop advanced tactical and technical proficiency in supporting both aviation and surface fires. This stage focuses on internal and external communication and coordination in the support of fire support tasks.

b. Prerequisite. TGO qualification; MarineNet Joint Terminal Attack Controller (JTAC) Primer Curriculum (JTACPC) Course

c. Administrative Notes.

(1) Initially, Senior Instructors (SIs) may conduct training on AFO events. As SIs are MAWTS-1 certified in Advanced Flight Operations (AFO-SI), then the AFO-SI should be considered the primary instructor to conduct AFO training.

(2) See MAWTS-1 Course Catalog for additional ground/academic training. Exposure to training aids such as "chalk talks", fires synchronization briefs/roundtables, and combined arms rehearsals are highly encouraged during this stage.

AFO-4200	2.0	365	B, R	1	SIM	S/A	(N)
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Goal. Introduce TGO procedures in a restrictive threat environment.

Requirement.

1. Introduce and discuss advanced TGO planning to include IR pointer utilization, timing, and target/objective area tactics.
2. Discuss and demonstrate an understanding of laser employment (chapter 6.4) and fire integration tactics (chapter 7) of NTTP 3-22.3 VMU.
3. Discuss and demonstrate an understanding of chapter 5 of JP 3-09.03 CAS.

Performance Standard. Complete the requirement items IAW the references. Demonstrate an understanding of TGO to include:

1. Target acquisition and TGO with the IR laser pointer.
2. J-LASER terminology and brevity terms during information exchange/radio communications.

Instructor. AFO-SI

Prerequisite. Read and be prepared to discuss following readings from the NTTP 3-22.3 VMU:

1. Chapter 6.4: An understanding of laser employment
2. Chapter 7: Fire integration tactics (chapter 7)
3. Chapter 5 of JP 3-09.03 CAS.

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTPP 3-22.3-VMU

AFO-4210	2.0	365	B, R	1	SIM	S/A	(N)
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Goal. Conduct TGO procedures in a restrictive threat environment.

Requirement.

1. Perform sensor reconnaissance of three separate targets, generating target coordinates with onboard systems.
2. Plot and prepare to coordinate information exchange for target briefs.
3. Provide terminal guidance for three coordinated attacks from either fixed-wing (FW) or rotary-wing (RW) platforms utilizing low threat tactics.
4. Perform authentication procedures.
5. If at night, use appropriate tactics for target marking.
6. Coordinate for marking target.
7. Ensure compliance with established airspace restrictions and fire support coordination measures.
8. Demonstrate the ability to provide timely, accurate corrections for attack aircraft, and the ability to provide a 'talk-on'.
9. Provide phase 1 and 2 BDA.

Performance Standard.

1. Execute appropriate Search/Detection/ID profiles.
2. Use targeting systems and mission tools for generating target coordinates.
3. Ensure proper coordination and approval for FW and RW attacks.
4. Provide accurate verbal description during talk-on.
5. Execute TGO TTPs IAW reference.
6. Execute TGO flight profiles appropriate for threat, friendly forces, and environment.
7. Provide LASER/IR mark using proper J-LASER terminology.
8. Utilize proper terminology and brevity terms during information exchange/radio communications.

Instructor. AFO-SI

Prerequisite. AFO 4200

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTPP 3-22.3-VMU

AFO-4220 2.0 365 B, R G

Goal. Understand laser-guided weapons (LGW) employment.

Requirement.

1. Introduce and discuss LGW planning, laser deconfliction, DMPI acquisition, laser marksmanship, weaponeering, and target/objective area tactics.
2. Discuss and demonstrate an understanding of laser employment (chapter 6.4) and fire integration tactics (chapter 7) of NTTP 3-22.3 VMU
3. Discuss and demonstrate an understanding of chapter 5 of JP 3-09.03 CAS.

Performance Standard. Complete the requirement items IAW the references. Demonstrate an understanding of LGW employment to include:

1. Target acquisition with the laser designator and proper geometries for weapons support.
2. J-LASER terminology and brevity terms during information exchange/radio communications.

Instructor. AFO-SI

Prerequisite.

1. Read chapters 6.4 and 7 of NTTP 3-22.3 VMU
2. Read chapter 5 of JP 3-09.03 CAS

Reference.

1. JP 3-09.3 CAS
2. NTTP 3-22.3-VMU

AFO-4230 2.0 365 B, R 1 SIM S/A (N)

Goal. Practice hosting laser-guided weapons (LGW).

Requirement. Host LGWs to utilize appropriate techniques for guidance of laser weapons (dry run).

Performance Standard.

1. Complete all requirement items IAW the references.
2. Adhere to proper geometries and weapon support parameters/criteria.
3. Demonstrate familiarity with LD procedures and employment.
4. Adhere to tactical abort procedures.
5. Execute proper procedures for designation, deconfliction, weapons support, and guidance.

Instructor. AFO-SI

Prerequisite. AFO 4220

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTPP 3-22.3-VMU

AFO-4240	2.0	365	B, R	1	UAS	A/S	(N)
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Goal. Host laser-guided weapons (LGW).

Requirement. Employ UAS laser-guided weapons to host a minimum of two LGWs to impact.

Performance Standard.

1. Complete all requirements items IAW the references.
2. Adhere to proper geometries and weapon support parameters/criteria.
3. Demonstrate familiarity with LD procedures and employment.
4. Adhere to tactical abort procedures.
5. Execute proper procedures for designation, deconfliction, weapons support, and guidance.

Instructor. AFO-SI

Prerequisite. AFO 4230

External Syllabus Support. One or more FW or RW CAS elements, and a ground FAC/JTAC or FAC(A). Ground FAC/JTAC should have capability to receive video downlink via remote video terminal (RVT) or other datalink.

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTPP 3-22.3-VMU

AFO-4250	2.0	365	B, R			G	
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Goal. Understand Close Air Support (CAS) integration.

Requirement. Introduce and discuss:

1. Sensor reconnaissance on three tactical targets and generating target coordinates with onboard systems.
2. Plotting targets on gridded imagery/chart and preparing to coordinate information exchange for attack brief.
3. Handoff procedures given one target/laser spot to a FW/RW CAS platform.
4. Adherence to CAS briefing and control procedures.

5. Using appropriate tactics for target marking and coordinating for target marking at night.
6. Performance expectations involving requisite tasks in coordinating the delivery of ordnance during Type 2 or 3 control.
7. LASER mark on target and hosting/guiding one laser-guided weapon (LGW) to impact.
8. How to ensure compliance with established airspace restrictions and fire support coordination measures.
9. How to provide phase 1 and 2 BDA.

Performance Standard.

1. Understand and articulate appropriate Search/Detection/ID profiles.
2. Correctly explain how to use targeting systems and mission tools for generating target coordinates and CAS 9-line.
3. Distinguish relevant and accurate information for providing an accurate talk-on.
4. Articulate UAS CAS integration TTPs IAW reference.
5. Describe flight profiles appropriate for Type 2/3 control and respective CAS game plan.
6. Communicate LASER/IR mark using proper J-LASER terminology.
7. Make key distinctions when provided examples of proper terminology and brevity terms used during information exchange/radio communications.

Instructor. AFO-SI; MAWTS-1 evaluator during certification

Reference.

1. JP 3-09.3 CAS
2. NTPP 3-22.3-VMU

AFO-4260	2.0	365	B, R	1	UAS	A/S	(N)
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Goal. Introduce Close Air Support (CAS) integration.

Requirement.

1. Employ an UAS to conduct CAS integration operations.
2. Perform sensor reconnaissance on three tactical targets, generating target coordinates with onboard systems.
3. Plot targets on gridded imagery/chart and prepare to coordinate information exchange for attack brief.
4. Handoff one target/laser spot to a FW/RW CAS platform.
5. Follow CAS briefing and control procedures.
6. If at night, use appropriate tactics for target marking.
7. Coordinate for marking target.
8. Perform requisite tasks in coordinating the delivery of ordnance during Type 2 or 3 control.
9. Coordinate LASER mark on target and host/guide one laser-guided weapon (LGW) to impact.
10. Ensure compliance with established airspace restrictions and fire support coordination measures.
11. Provide phase 1 and 2 BDA.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Execute appropriate Search/Detection/ID profiles.
3. Uses targeting systems and mission tools for generating target coordinates and CAS 9-line.
4. Provide accurate verbal description during talk-on.
5. Execute UAS CAS integration TTPs IAW reference.
6. Execute flight profiles appropriate for Type 2/3 control and respective CAS game plan.
7. Provide LASER/IR mark using proper J-LASER terminology.
8. Utilize proper terminology and brevity terms during information exchange/radio communications.

Instructor. AFO-SI

Prerequisite. AFO 4210, 4240, 4250

External Syllabus Support. One or more FW or RW CAS elements, and a ground FAC/JTAC or FAC(A). Ground FAC/JTAC should have capability to receive video downlink via remote video terminal (RVT) or other datalink.

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTTP 3-22.3-VMU

AFO-4270	2.0	365	B, R	G
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Goal. Understand Strike Coordination and Reconnaissance (SCAR).

Requirement. Introduce and discuss the following:

1. Mission planning.
2. Mutual support.
3. Target acquisition.
4. Recognition and identification.
5. Target marking.
6. Strike asset coordination.
7. Proper information flow through the C3 system.
8. Locating targets IAW a target precedence list (TPL).
9. Notification of SCAR assets with target locations and current threat.
10. Responsibilities of assisting in the coordination of one element of SCAR.
11. Responsibilities of providing phase 1 and 2 BDA.

Performance Standard.

1. Explain processes involved in locating and passing targets to SCAR assets.
2. Explain how to prioritize targets IAW the PTL.

3. Explain processes involved in effectively coordinating target attacks.
4. Explain how to effectively pass target and threat information to SCAR assets and MACCS agencies.

Instructor. AFO-SI

Reference.

1. JP 3-09.3 CAS
2. NTTP 3-22.3-VMU

AFO-4280	2.0	365	B, R	1	UAS	A/S	(N)
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Goal. Conduct Strike Coordination and Reconnaissance (SCAR).

Requirement.

1. Employ an UAS to conduct SCAR operations.
2. Conduct mission planning, mutual support, target acquisition/recognition/identification, target marking, strike asset coordination and proper information flow through the C3 system.
3. Locate targets IAW a target precedence list (TPL).
4. Pass target locations and current threat to SCAR assets.
5. Assist in the coordination of one element of SCAR.
6. Provide phase 1 and 2 BDA.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Prioritize targets IAW the PTL.
3. Coordinate target attacks.
4. Pass target and threat information to SCAR assets and MACCS.

Instructor. AFO-SI

Prerequisite. AFO 4210, 4240, 4270

External Syllabus Support. One section of SCAR assets.

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. JP 3-09.3 CAS
2. NTTP 3-22.3-VMU

213. INSTRUCTOR TRAINING (5000)

1. General

a. Purpose. To provide qualified personnel the additional skills necessary to instruct and evaluate trainees. Upon completion of the required

training, an individual may be designated an instructor by the commanding officer.

b. Prerequisite. To ensure individual training is conducted by experienced instructors, personnel must be qualified on the position or be proficient in the skill in which they are conducting training.

c. Administrative Notes. There are six instructor designations. The BI and SI are governed by the Aviation T&R Program; the WTI is governed by MAWTS-1; ANI and NIs are governed by NATOPS; and CRMI is governed by CRM program.

(1) Basic Instructor (BI). Training requirements per the BIUT POI.

(2) Senior Instructor (SI). Training requirements per the SIUT POI.

(3) Weapons and Tactics Instructor (WTI). Training per the MAWTS-1 WTI POI. An operator that completes MAWTS-1 WTI Course is eligible to be assigned the 7277 MOS and be considered for designation as a squadron WTI.

(4) Assistant NATOPS Instructor (ANI). A highly qualified individual who has met OPNAVINST 3710.7 requirements.

(5) NATOPS Instructors (NI). A highly qualified individual whose primary duty is administering the NATOPS evaluation program within a squadron and who has met OPNAVINST 3710.7 requirements.

(6) Crew Resource Management Instructor (CRMI). A highly qualified individual who has met the OPNAVINST 1542.7 requirements.

(7) The intent is to train individuals with different levels and areas of experience to instruct personnel. Instructor experience is also gained while progressing through the different instructor designations.

(8) Upon being designated as an instructor, the instructor shall remain proficient in those skills or qualifications in which providing instruction or evaluating.

T&R Instructor	Event Training, Evaluation and Approval
BI	Train, evaluate and approve completion of events in which proficient for the following skills: - Core skills: MPO, AVO, AR - Mission skills: AR, TGO, IDF
SI	Train, evaluate and approve completion of events in: - Core skill: AVO and MPO - Mission skill: AR, TGO, IDF - Core Plus: MSSO - AFO-SI: AFO - All qualification events - Instructor Events: BI and SI
WTI	- Train, evaluate and approve completion of any event in a Core, Mission and Core Plus skill in which proficient,

6. Identify the structure and content of the training references, to include:
 - a. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
 - b. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
 - c. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
 - d. NTTP 3-22.3-VMU
 - e. Aviation T&R program manual
 - f. Local/squadron SOPs
 - g. Range SOPs
7. Describe Aviation T&R Program policy and requirements.
 - a. Describe training documentation requirements.
 - b. Describe UAS components and their functions.
 - c. Describe all administrative duties, NATOPS requirements, CRM training and readiness record keeping, and evaluation documentation.
 - d. Demonstrate mastery of CRM concepts.

Performance Standard.

1. Complete all items IAW the references.
2. Instructor will verbally assess the BIUT's understanding of the principles of instruction.
3. BIUT will answer the questions in detail and without error to demonstrate event required knowledge.
4. BIUT will demonstrate proper instruction and classroom techniques.

Note: Completion of the BITC, FSIC or ABIC satisfies this requirement.

Instructor. BI, SI

Reference.

1. NAVMC 3500.14
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
5. NTTP 3-22.3-VMU
6. Local/squadron SOPs
7. Range SOPs

BIUT-5010 1.0 * B G

Goal. Understand the structure of an event.

Requirement. Given a complete T&R event:

1. State the purpose of a T&R event.
2. Using the given event, explain each section of the event:
 - a. Explain the purpose and content of the goal
 - b. Explain the requirement condition and performance steps
 - c. Explain understand what actions must be taken to prepare to instruct the event.
 - d. Explain how the event performance standard is measured and when event requirement has been met.
 - e. State who can instruct the event.

- f. State the event prerequisite and how to verify that it was completed.
- g. Explain how the external syllabus support requirement will be resourced (if required).
- h. State the references required and how each would be used to aid in training the event.

Performance Standard. During a discussion session, the instructor shall review the event content and question the BIUT throughout the training session to ensure understanding. The BIUT must answer all questions correctly.

Instructor. BI, SI

Reference. NAVMC 3500.14, chapter 6.

BIUT-5020	2.0	*	B	1	SIM	S
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Goal. Operate Simulator for Training Mission.

Requirement. Given the appropriate technical publications and equipment, perform required procedures to set up the system for a training mission.

1. Set-up GCS for simulated flight operation.
2. Set-up Virtual Reality Scenario Generator (VRSG) software.
3. Employ configuration files.
4. Import VRSG target file.
5. Demonstrate weather station software simulation.
6. Demonstrate all procedures including preset, preflight, start/launch, emergency, and shutdown.
7. Prepare and configure simulator for student to practice flight operations.

Performance Standard. Complete setup of simulator IAW with reference without error; BIUT may self correct.

Instructor. BI, SI

Reference. TM 9-5895-YYY-10

BIUT-5030	2.0	*	B	1	UAS	A	(N)
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Goal. Conduct a period of instruction during MPO-2080 and AVO-2180.

Requirement. Conduct a period of instruction on MPO-2080 and AVO-2180 events. The BIUT will be able to:

1. State the instructor responsibilities.
2. Define goal and content of a selected T&R event.
3. Prepare to train the event.
 - a. Review a trainee's APR to identify required training for the event selected.
 - b. Ensure the student meets the event prerequisites.

- c. Develop a student training plan to ensure progression per this Manual.
 - d. Schedule the training event (facilities and students).
 - e. Gather the resources necessary to conduct the training (i.e. instructional materials, references and equipment).
 - f. Prepare an evaluation form for each student to be evaluated.
4. Conduct training on the event selected:
 - a. Ensure all training resources are properly staged and equipment is set up for training.
 - b. Instruct the student in a thorough manner so as to cover all requirements for the event.
 - c. Ensure continuous, objective assessment of the student's progress during training.
 5. Assess student performance:
 - a. Ensure student meets the performance standard.
 - b. Correct student deficiencies in a timely manner and provide the student feedback.
 - c. Complete an evaluation form on the student trained.
 - d. Debrief the student and provide critique of performance.
 6. Route evaluation form as required.

Performance Standard.

1. Conduct instruction during MPO-2080 and AVO 2180.
2. Complete all requirement items IAW the references.
3. Review the student APRs to ensure all prerequisites are met.
4. Ensure all event resources are available prior to instruction.
5. Demonstrate proper instruction techniques and deliver the instructional content in a clear manner.
6. Demonstrate effective task organization and mission planning.
7. Correct student deficiencies in a timely manner.

Instructor. SI

Prerequisite. BIUT 5000, 5010, 5020

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. NAVMC 3500.14
2. NAVMC 3500.34
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTP 3-22.3-VMU
7. Squadron SOP
8. Local and range SOP

3. Senior Instructor Under Training (SIUT)

a. Purpose. To provide the operator with the skills necessary to instruct core, mission, MSSO, and CBRN events. An SI is able to instruct, ensure T&R standardized requirements are met, and assist in implementing this T&R program within the squadron.

b. Prerequisite.

(1) TRCK 6240 (SAT)

(2) Be qualified as:

- (a) MPO
- (b) AVO
- (c) AR
- (d) TGO
- (e) IDF
- (f) CBRN
- (e) MSSO

(3) Be designated as a BI

(4) Be recommended for SIUT training by the standardization board to the CO for approval. Approval from the CO must be received before training can begin.

c. Administration Notes

(1) An SI must be certified in AFO core plus skill prior to being able to instruct any of these events, see paragraph 205 of this chapter for AFO-SI certification requirements.

(2) Upon completing the SIUT POI, the SIUT is recommended for SI designation by the standardization board to the CO for written approval.

(3) A SI or WTI will evaluate SIUT conducting TGO 3110 or IDF 3200.

SIUT-5100	2.0	*	B	G
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Goal. Understand Aviation Training and Readiness (T&R) Program concepts and their application to the UAS community proficiency and readiness requirements.

Requirement

1. State T&R policies pertinent to the UAS community.
2. State the purpose and structure of the Core Model.
3. Define and explain the purpose of the following:
 - a. Core and Mission Skills
 - b. Certifications (including one-time certs)
 - c. Qualification
 - d. Designations
 - e. Combat leadership
 - f. Core Mission Essential Task List (METL)
 - g. Core Model Minimum Requirements (CMMR)
 - h. Core Model Training Report (CMTR)
 - i. TEEP
 - j. Individual Aircrew Performance Record (APR)
4. Explain the requirements to achieve:
 - a. Proficiency in each core skill (CSP)
 - b. Proficiency in each mission skill (MSP)
 - c. Each certification

- d. Each qualification
- e. Each designation:
 - (1) Combat Leadership requirements
 - (2) Instructors
- 5. Explain unit CMMR, how it applies to each crew, and how to achieve it.
- 6. Demonstrate how to read a CMTR and determine training deficiencies.
- 7. Explain the training progression models for UAS officers and enlisted as it applies to each position.
- 8. Explain how to submit changes to the Aviation Program manual.

Performance Standard. Complete the requirements IAW the reference. Instructor will question the trainee to check for understanding of the aviation T&R program and how applies to the UAS T&R.

Instructor. SI or WTI

Reference.

- 1. NAVMC 3500.14
- 2. NAVMC 3500.34

SIUT-5110	2.0	*	B	G
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Goal. Understand T&R Administration.

Requirement. Explain how unit training is administered, to include:

- 1. Scheduling and conducting event training
- 2. Completing and processing an event evaluation form
- 3. Recommendation and approval of one-time certifications, qualifications, and designations.
- 4. Describe the process for documenting training to include
 - a. Evaluation forms
 - b. Certification, qualification and designation letters
 - c. Individual Performance records
 - d. M-SHARP

Performance Standard. Explain the requirement items IAW the reference. Instructor will question the trainee to check for understanding of the administration process.

Prerequisite. SIUT 5100

Instructor. SI or WTI

Reference.

- 1. NAVMC 3500.14
- 2. Local WTPP procedures

SIUT-5120	2.0	*	B	G
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Goal. Develop a crew training plan.

Requirement. Given a deployment scenario, determine individual, and crew training needed to meet crew manning requirements by developing a training plan.

1. Identify and schedule T&R training to achieve requirements.
2. Determine instructors required.
3. Determine equipment required.
4. Determine external support required.
5. Write and present a brief to the instructor that shows:
 - a. Crew manning and training requirements
 - b. Current training status
 - c. Identify the training deficiencies and resource shortfalls
 - d. Explain the training plan to correct the training deficiencies

Performance Standard. Complete the requirement IAW the reference. The training brief should address all requirement items and supports the given scenario. The instructor shall question and mentor the SIUT throughout the conduct of this event to ensure a clear understanding of how to develop the training plan.

Instructor. SI or WTI

Prerequisite. SIUT 5110

Reference.

1. NAVMC 3500.14
2. NAVMC 3500.34

SIUT-5130 2.0 * B 1 SIM S/A (N)

Goal. Conduct a period of instruction during TGO-3110 or IDF-3200.

Requirement. Conduct a period of instruction on TGO-3110 or IDF-3200 (instructor selected). SIUT will be able to:

1. Define the purpose and content of the instructor selected event.
2. Prepare to train the event.
 - a. Review the applicable POI of this syllabus to determine training requirements for event selected.
 - b. Ensure the student meets the event prerequisites.
 - c. Schedule the training event (facilities and students).
 - d. Gather the resources necessary to conduct the training (i.e., instructional materials, references and equipment)
 - e. Prepare an evaluation form for each student to be evaluated.
3. Conduct training on the event:
 - a. Ensure all training resources are properly staged and equipment is set up for training.
 - b. Instruct the student in a thorough manner so as to cover all requirements for the event.
 - c. Ensure continuous, objective assessment of the student's progress during training.
4. Correct student deficiencies in a timely manner and provide the student feedback.
5. Complete a student evaluation form.

6. Debrief the student and provide critique of performance.
7. Route evaluation form as required.

Performance Standard. Complete the requirements IAW the reference. The SIUT will be evaluated on demonstrated knowledge, instruction techniques used, and how well the information was conveyed to the student.

Instructor. SI or WTI

Prerequisite. 5120

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. NAVMC 3500.14
2. NAVMC 3500.34
3. JP 3-09.3 CAS
4. NTPP 3-22.3-VMU
5. MCWP 3-16.6 Supporting Arms Observer, Spotter, and Controller

214. REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (6000).

1. General.

a. Purpose. This phase provides for community standardization of UAS position NATOPS annual flight checks and track formal resident and nonresident courses. See tables in paragraph 205 of this chapter for certification, qualifications and designations requirements.

b. Administration Notes.

(1) Training specifics for annual NATOPS requirements are contained in OPNAVINST 3710.7.

(2) Formal courses event codes are intended to facilitate the tracking and management of formal course completions. Formal courses include resident and nonresident training. This POI contains formal courses as prerequisites for a phase, stage or event.

2. TRACKING (TRCK). These training events serve to track distance learning training.

TRCK 6200	*	B	G
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Goal. Tracking code for MarineNet Course - Fire Support Coordination (FSC).

Requirement. Complete FSC course (CID: 0801AO).

Performance Standard. IAW FSC POI.

14 Dec 2010

215. T&R SYLLABUS MATRIX. The syllabus matrix summarizes T&R syllabus information and provides old-to-new event conversion.

7314 SYLLABUS MATRIX																		
STAGE	EVENT CODE	EVENT DESCRIPTION	LIVE EVENT TOTAL	FLT HRS / LIVE	SIM EVENT TOTAL	SIM HRS	GROUND EVENT TOTAL	GROUND HRS	REFLY INTERVAL	POI	EVAL	TOTAL #	TYPE	OPTIONS	CONDITIONS	PREREQ	CHAINING	OLD EVENT CODE CONVERSION
CORE SKILL INTRODUCTION (1000)																		
SHADOW OPERATOR COURSE (SOC)																		
SOC	1000	Introduce RSTA Processes and Ops.						90.5	*	B				G				GRADUATE OF MOS 7314 UAS OPERATOR COMMON CORE AND UAS OPERATOR COURSE
SOC	1020	Understand Imagery Components of RSTA Ops.						86.4	*	B				G				
SOC	1040	Complete UAS Ground School						137.0	*	B				G				
SOC	1060	Understand Regs and Procedures for Operating UAS						14.4	*	B				G				
SOC	1080	Describe procedures and principles to be applied in simulator events						24.0	*	B				G				
SOC	1100	Complete solo simulator Flights				56.6			*	B		1	IMS	S				
SOC	1120	Complete AVO simulator Crew Rides				36.0			*	B		1	IMS	S				
SOC	1140	Complete MPO simulator Crew Rides				36.0			*	B		1	IMS	S				
SOC	1160	Complete AVO Flight Operations		7.0					*	B		1	RQ7B UAS	A				
SOC	1180	Complete MPO Flight Operations		6.0					*	B		1	RQ7B UAS	A				
SOC	1190	Initial CRM training						2.0	*	B				G				
			2	13.0	3	128.6	6	354.3										

CORE SKILL (2000)																	
MISSION PAYLOAD OPERATOR (MPO)																	
MPO	2000	Annual CRM training						2.0	365	B, R				G		TFO-221	
MPO	2010	Describe Area of Ops, Unit SOPs, Local Course Rules and Regs						2.0	365	B, R				G		TFO-220	
MPO	2020	Perform Mission Planning						2.0	180	B, R				G	2000, 2010	2010	TFO-222
MPO	2030	Utilize the AN/VRC-92 radio system						1.0	180	B, R		1	AN/VRC-92	G			NEW
MPO	2040	Perform MPO software application procedures				2.0			180	B, R		1	IMS OR MUSE	S	2000, 2020, 2030	2020, 2030	TFO-221
MPO	2050	Conduct sensor/targeting system operations and employment				2.0			180	B, R		1	IMS OR MUSE	S/A (N)	2040	2020, 2030, 2040	TFO-224
MPO	2060	Conduct sensor/targeting system operations and employment		2.0					180	B, R		1	RQ7B UAS	A (N)	2050	2020, 2030, 2040, 2050	TFO-224
MPO	2070	Employ sensor/targeting system and manage mission tools				2.0			180	B, R		1	IMS OR MUSE	S/A (N)	2060	2020, 2030, 2040, 2050, 2060	TFO-226
MPO	2080	Employ sensor/targeting system and manage mission tools		1.0					180	B, R		1	RQ7B UAS	A (N)	2070	2020, 2030, 2040, 2050, 2060, 2070	TFO-226
MPO	2099	Complete MPO Evaluation Flight		2.0						B, R	E	1	RQ7B UAS	A (N)	2080		POQM-250
			3	5.0	3	6.0	4	7.0									
AIR VEHICLE OPERATOR (AVO)																	
AVO STAGE PREREQS: 2000, 2010, 2020, 2030																	
AVO	2100	Understand associated flight procedures and documentation						1.0	180	B, R				G			TFO-223
AVO	2110	Describe UAS and associated flight characteristics						1.0	180	B, R				G	2100		TFO-225
AVO	2120	Utilize the AN/VRC-103 radio system						1.0	180	B, R		1		G			NEW
AVO	2130	Perform mission planning procedures and prepare a brief						2.0	180	B, R				G	2110		NAV-230

14 Dec 2010

AVO	2140	Perform AVO software application procedures				2.0			180	B, R		1	IMS OR MUSE	S		2130	2120	NAV-232
AVO	2150	Conduct Course Rules and Flight Procedures				2.0			180	B,R		1	IMS OR MUSE	S/A (N)		2120, 2140	2110, 2120, 2130, 2140	NAV-233
AVO	2160	Conduct a mission as an AVO				3.0			180	B,R		1	RQ7B UAS	A/S (N)		2150	2100, 2110, 2120, 2130, 2140, 2150,	TFO-234
AVO	2170	Conduct a launch, control station transfer and recovery from the PGCS				1.0			365	B,R		1	RQ7B UAS	A (N)		2160	2100, 2110, 2120, 2130, 2140, 2150	TFO-323 AND 325
AVO	2180	Conduct OSR				2.0			365	B,R		1	RQ7B UAS	A (N)		2170	2100, 2110, 2120, 2130, 2140, 2150	TFO-426
AVO	2199	Complete AVO Evaluation Flight				3.0			365	B,R	E	1	RQ7B UAS	A (N)		2180		IPQM-255
			4	9.0	2	4.0	4	5.0										
CORE SKILL (2000) TOTALS																		
			7	14.0	5	10.0	8	12.0										
MISSION SKILL (3000)																		
PHASE PREREQS: MPO, AVO																		
AERIAL RECONNAISSANCE (AR)																		
AR STAGE PREREQS: TRCK 6200 (FSC), 6210 (6 FUNCTIONS OF MAR AVN), 6220 (MACCS)																		
AR	3000	Demonstrate an understanding of sensor operations, AR and targeting						2.0	180	B, R				G				NAV-231
AR	3010	Practice low altitude (2,000'–3,000' AGL) target acquisition in a complex environment using multi-sensor (EO/IR) payload				2.0			365	B, R		1	IMS OR MUSE	S/A (N)		3000	2020, 2030, 2040, 2050, 2070, 3000	POQM-250

AR	3020	Practice medium altitude (3,000' – 6,000' AGL) target acquisition in a complex environment using multi-sensor (EO/IR) payload		2.0				180	B, R		1	RQ7B UAS	A	(N)	3000	2020, 2030, 2040, 2050, 2060, 2070, 2080, 3000	POQM-250	
AR	3030	Practice high altitude (6,000' and above AGL) target acquisition in a complex environment using multi-sensor (EO/IR) payload				2.0		365	B, R		1	IMS OR MUSE	S/A	(N)	3000	2020, 2030, 2040, 2050, 2070, 3000	POQM-250	
			1	2.0	2	4.0	1	2.0										
TERMINAL GUIDANCE OPERATIONS (TGO)																		
TGO STAGE PREREQ: AR																		
TGO	3100	Conduct mission analysis					2.0	365	B, R				G				TFO-421	
TGO	3110	Intro to TGO procedures in a permissive threat environment				2.0		365	B, R		1	IMS OR MUSE	S/A	(N)	3100	2020, 2030, 2040, 2050, 2070, 3100	NEW	
TGO	3120	Conduct TGO procedures in a permissive threat environment		2.0				365	B, R		1	RQ7B UAS	A	N	3110	2020, 2030, 2040, 2050, 2060, 2070, 2080, 3100, 3110	NEW	
TGO	3130	Conduct navigation and integration techniques ISO TGO		2.0				365	B, R		1	RQ7B UAS	A/S	N	3110	2100, 2110, 2120, 2130, 2140, 2150	NEW	
			2	4.0	1	2.0	1	2.0										
CONTROL OF INDIRECT FIRES (IDF)																		
IDF STAGE PREREQ: AR																		

14 Dec 2010

IDF	3200	Intro artillery, mortar, NSFS & HIMARS spotter TTPs to control indirect fires			2.0			365	B, R	1	IMS OR MUSE	S		2020, 2030, 2040, 2050, 2070	FC-435
IDF	3210	Conduct mortar/artillery observer TTPs and IDF		2.0				365	B, R	1	RQ7B UAS	A (N)	3200	2020, 2030, 2040, 2050, 2060, 2070, 2080, 3200	FC-436
IDF	3220	Conduct navigation and integration techniques ISO IDF			2.0			365	B, R	1	IMS OR MUSE	S/A (N)	3200	2100, 2110, 2120, 2130, 2140, 2150	TFO-321
			1	2.0	2	4.0	0	0.0							
CORE SKILL (3000) TOTALS															
			4	8.0	5	10.0	2.0	4.0							
CORE PLUS SKILL (4000)															
PHASE PREREQS: MPO, AVO															
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR (CBRN)															
CBRN STAGE PREREQ: NONE															
CBRN	4000	Conduct UAS operations in CBRN environment			2.0			365	B, R	1	IMS OR MUSE	S/A (N)			NBC-330
			0	0.0	0	2.0	0	0.0							
MISSION SUPPORT SYSTEMS OPERATOR (MSSO)															
MSSO STAGE PREREQ: NONE															
MSSO	4100	Operate battlespace C3 system workstation and equipment					2.0	*	B				G		NEW
MSSO	4110	Operate fires integration C3 system workstation and equipment					2.0	*	B				G		NEW
MSSO	4120	Operate target precision coordinate generation software and associated components					2.0	*	B				G		NEW
MSSO	4130	Set up and establish comm utilizing an IRC network					2.0	*	B				G		NEW
MSSO	4140	Perform the functions of a systems planner					2.0	365	B, R				G	4100, 4110, 4120, 4130	NEW
			0	0.0	0	0.0	5	10.0							
ADVANCED FLIGHT OPERATIONS (AFO)															

AFO STAGE PREREQ: TGO, TRCK 6230 (JTACPC)																		
AFO	4200	Introduce TGO procedures in a restrictive threat environment				2.0			365	B, R		1	IMS OR MUSE	S/A	(N)			NEW
AFO	4210	Conduct TGO procedures in a restrictive threat environment				2.0			365	B, R		1	IMS OR MUSE	S/A	(N)	4200	4200	NEW
AFO	4220	Understand LGW employment						2.0	365	B, R				G				NEW
AFO	4230	Practice hosting LGW				2.0			365	B, R		1	IMS OR MUSE	S/A	(N)	4220	4220	NEW
AFO	4240	Host LGW		2.0					365	B, R		1	RQ7B UAS	A/S	(N)	4230	4220, 4230	NEW
AFO	4250	Understand CAS integration						2.0	365	B, R				G				NEW
AFO	4260	Introduce CAS integration		2.0					365	B, R		1	RQ7B UAS	A/S	(N)	4210, 4240, 4250	4250	NEW
AFO	4270	Understand SCAR						2.0	365	B, R				G				NEW
AFO	4280	Conduct SCAR		2.0					365	B, R		1	RQ7B UAS	A/S	(N)	4210, 4240, 4270	4270	NEW
			3	6.0	3	6.0	3	6.0										
MISSION SKILL (4000) TOTALS																		
			3	6.0	3	8.0	8	16.0										
INSTRUCTOR (5000)																		
BASIC INSTRUCTOR UNDER TRAINING (BIUT)																		
BIUT STAGE PREREQ: MPO, AVO, AR																		
BIUT	5000	Demonstrate knowledge of principles of instruction and standardization/training tools.						2.0	*	B				G				IUT-520
BIUT	5010	Understand the structure of an event						1.0	*	B				G				POIUT-525
BIUT	5020	Operate Simulator for Training Mission				2.0			*	B		1	IMS OR MUSE	S				IPIUT-536
BIUT	5030	Conduct a period of instruction on MPO-2080 and AVO-2180		2.0					*	B		1	RQ7B UAS	A	(N)	5000, 5010, 5020		IPIUT-536
			1	2.0	2	2.0	2	3.0										
SENIOR INSTRUCTOR UNDER TRAINING (SIUT)																		
SIUT STAGE PREREQ: AR, TGO, IDF, CBRN, MSSO, TRCK 6240 (SAT)																		
SIUT	5100	Understand Avn T&R Program concepts and their application to UAS community proficiency and readiness requirements.						2.0	*	B				G				NEW

14 Dec 2010

SIUT	5110	Understand T&R Administration					2.0	*	B				G		5100		NEW
SIUT	5120	Develop a crew training plan					2.0	*	B				G		5110		NEW
SIUT	5130	Conduct instruction on TGO-3100 or IDF-3200				2.0		*	B		1	IMS OR MUSE	S/A	(N)	5120		NEW
			0	0.0	0	2.0	3	6.0									
INSTRUCTOR (5000) TOTALS																	
			1	2.0	2	4.0	5	9.0									
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS																	
TRACKING (TRCK)																	
TRCK	6200	Tracking code for MarineNet Course - FSC						*	B				G				NEW
TRCK	6210	Tracking code for MarineNet Course - Six Functions of Marine Aviation						*	B				G				NEW
TRCK	6220	Tracking code for MarineNet Course - MACCS						*	B				G				NEW
TRCK	6230	Tracking code for MarineNet Course - JTACPC						*	B				G				NEW
TRCK	6240	Tracking code for MarineNet Course - SAT						*	B				G				NEW
REQUIREMENTS (RQD)																	
RQD	6300	Complete open book NATOPS eval and admin requirements					2.0	365	B, R	E			G		OPNAVINST 3710.7		RQD 660 (as applicable)
RQD	6310	Complete closed book NATOPS eval and admin requirements					2.0	365	B, R	E			G		6300, OPNAVINST 3710.7		RQD 660 (as applicable)
RQD	6320	Demonstrate proficiency flying an annual MPO NATOPS check		2.0				365	B, R	E	1	RQ7B UAS	A	(N)	6310, OPNAVINST 3710.7		RQD 660 (as applicable)
RQD	6330	Demonstrate proficiency flying an annual AVO NATOPS check		2.0				365	B, R	E	1	RQ7B UAS	A	(N)	6310, OPNAVINST 3710.7		RQD 660 (as applicable)
			2	4.0	0	0.0	2	4.0									

NAVMC 3500.34A
14 Dec 2010

216. SYLLABUS EVALUATION FORM. The syllabus evaluation form posted on the MAWTS-1 website at <https://www.intranet.tecom.usmc.mil/sites/mawts1/departments1/newc3/uas/Shared%20Documents/Forms/AllItems.aspx> shall be used to evaluate all training events in this Manual.

217. SIMULATOR MISSION ESSENTIAL SUBSYSTEMS MATRIX (MESM). None.

CHAPTER 3

UNMANNED AIRCRAFT COMMANDER / MOS 7315

INDIVIDUAL TRAINING AND READINESS (T&R) REQUIREMENTS

	<u>PARAGRAPH</u>	<u>PAGE</u>
INDIVIDUAL TRAINING AND READINESS REQUIREMENTS.....	300	3-3
TRAINING PROGRESSION MODEL.....	301	3-3
INDIVIDUAL CORE SKILL PROFICIENCY (CSP) REQUIREMENTS.....	302	3-4
INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS....	303	3-4
INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS.....	304	3-5
CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS.....	305	3-6
PROGRAMS OF INSTRUCTION (POIs).....	306	3-7
ACADEMIC TRAINING.....	307	3-7
SYLLABUS NOTES.....	308	3-11
CORE SKILL INTRODUCTION TRAINING (1000).....	309	3-14
CORE SKILL TRAINING (2000).....	310	3-19
MISSION SKILL TRAINING (3000).....	311	3-27
CORE PLUS SKILL TRAINING (4000).....	312	3-37
INSTRUCTOR TRAINING (5000).....	313	3-42
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (6000).....	314	3-52
T&R SYLLABUS MATRIX	315	3-54
SYLLABUS EVALUATION FORMS.....	316	3-59
SIMULATOR MISSION ESSENTIAL SUBSYSTEMS MATRIX (MESM).....	317	3-59

NAVMC 3500.34A
14 Dec 2010

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CHAPTER 3

UNMANNED AIRCRAFT COMMANDER (UAC) MOS 7315

INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

300. INDIVIDUAL TRAINING AND READINESS REQUIREMENTS. This T&R syllabus is based on specific goals and performance standards designed to ensure individual proficiency in core and mission skills. The goal of this chapter is to develop individual and unit warfighting capabilities.

301. TRAINING PROGRESSION MODEL. This model represents the recommended training progression for the average Unmanned Aircraft Commander. Units should use the model as a point of departure to generate individual training plans.

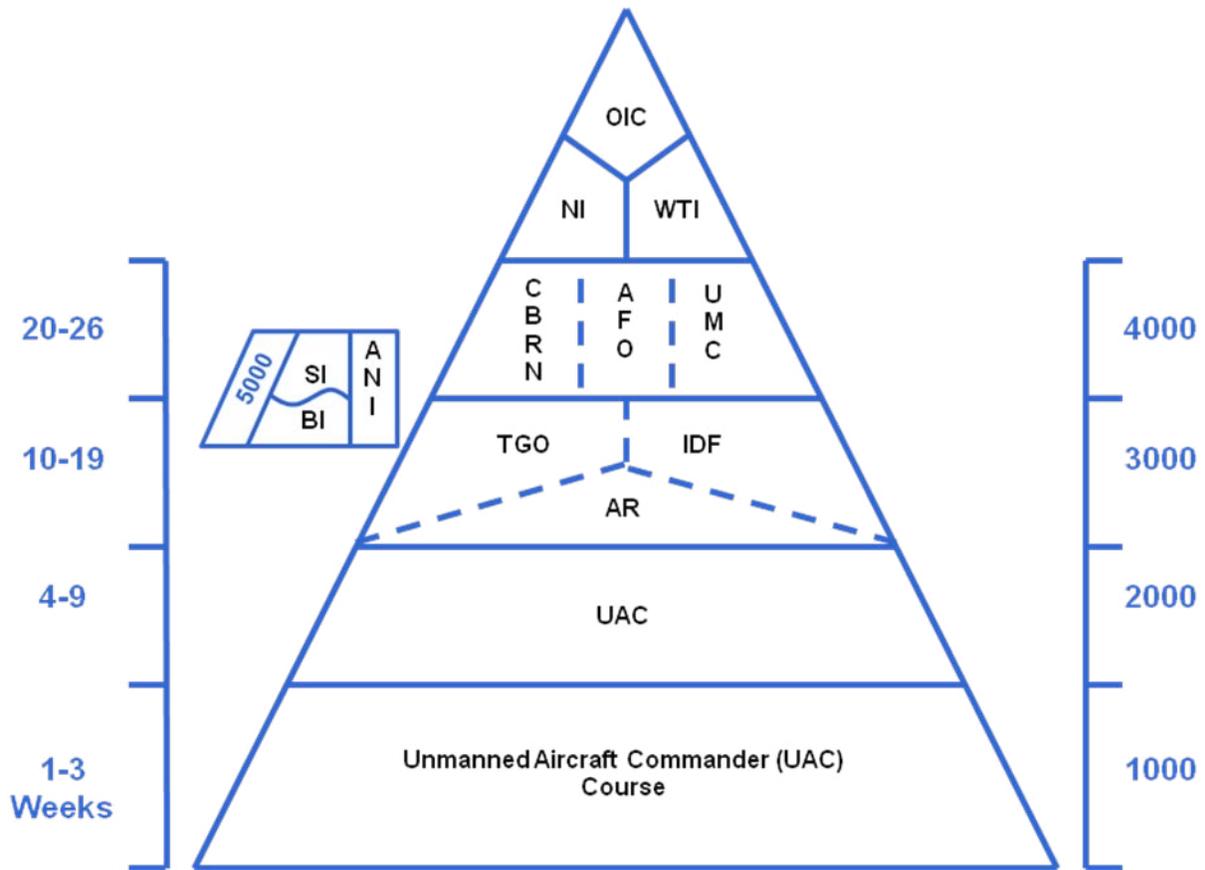


Figure 1. Unmanned Aircraft Commander (UAC) Training Progression Model

302. INDIVIDUAL CORE SKILL PROFICIENCY (CSP) REQUIREMENTS. A CSP crew consists of individuals representing each crew position who have achieved and currently maintain individual CSP. In order to be considered proficient in a core skill, an individual must attain and maintain proficiency in Core Skill events as delineated in the below.

1. Events Required to Attain Individual CSP. To initially attain CSP in a core skill, an individual must simultaneously have a proficient status in all 2000 phase T&R events listed for that core skill:

INDIVIDUAL CORE SKILL PROFICIENCY (CSP) ATTAIN TABLE		
	UAC	
7315 Unmanned Aircraft Commander (UAC)	2500R	2550R
	2510R	2560R
	S2520	2570R
	2530	2599R
	2540R	
R = Refresher POI S = Event Conducted in Simulator		

2. Events Required to Maintain Individual CSP. To maintain CSP in a core skill, an individual must maintain proficiency in all 2000 phase T&R events listed for that core skill:

INDIVIDUAL CORE SKILL PROFICIENCY (CSP) MAINTAIN TABLE		
	UAC	
7315 Unmanned Aircraft Commander (UAC)	2500R	2550R
	2510R	2560R 2570R
R = Refresher POI		

303. INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS. A MSP crew consists of individuals representing each crew position who have achieved and currently maintain individual MSP. To be considered proficient in a mission skill, an individual must attain and maintain proficiency in mission skill events as delineated below.

1. Events Required to Attain Individual MSP. To initially attain MSP in a mission skill, an individual must simultaneously have a proficient status in all 3000 phase T&R events listed for that mission skill:

INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) ATTAIN TABLE			
	AR	TGO	IDF
7315 Unmanned Aircraft Commander (UAC)	S3500R		3700R
	3510R	3600R	S3710R
	3520R	3610R	3720R
	3530R		
R = Refresher POI S = Event Conducted in Simulator			

2. Events Required to Maintain Individual MSP. To maintain MSP in a Mission Skill, an individual must maintain proficiency in all 3000 phase T&R events listed for that Mission Skill:

INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) MAINTAIN TABLE			
	AR	TGO	IDF
7315 Unmanned Aircraft Commander (UAC)	S3500R 3510R 3520R 3530R	3610R	3720R
R = Refresher POI S = Event Conducted in Simulator			

304. INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS. Proficiency in core plus skills is not required to achieve unit CSP or MSP. This phase contains training standards applicable to integrated missions, unique mission areas, geographic specific training, or mission areas having a low probability of execution. Although core plus training may provide valuable training opportunities, it does not affect unit readiness.

1. Events Required to Attain Individual Proficiency in Core Plus Skills. Proficiency in core plus skills is not required to obtain unit CSP/MSP. Training to core plus skills is at the discretion of the unit commanding officer. To initially attain proficiency in a core plus skill, an individual must simultaneously have a proficient status in all T&R events listed for that core plus skill:

INDIVIDUAL CORE PLUS SKILL PROFICIENCY ATTAIN TABLE			
	CBRN	AFO	UMC
7315 Unmanned Aircraft Commander (UAC)	S4500R	4600R S4610R 4620R	4700R 4710R
R = Refresher POI S = Event Conducted in Simulator			

2. Events Required to Maintain Individual Proficiency in Core Plus Skills. To maintain proficiency in a Core Plus Skill, an individual must maintain proficiency in all T&R events listed in the table below for that Core Plus Skill:

CORE PLUS SKILL PROFICIENCY MAINTAIN TABLE			
	CBRN	AFO	UMC
7315 Unmanned Aircraft Commander (UAC)	S4500R	4620R	4710R
R = Refresher POI S = Event Conducted in Simulator			

305. CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS.

1. The tables below delineate the requirement to attain proficiency for qualifications or designations. The 7315 syllabus does not contain "one time" certification training requirements.
2. The squadron WTI shall review the individual performance records to ensure all required training, documentation and administrative actions have been completed prior to forwarding any qualification or designation recommendation to the standardization board who will forward their recommendation to the CO for written approval.
3. Qualification and designation letters signed by the commanding officer shall be placed in the performance records and appropriate M-SHARP entries made. Policy on qualifications and designations is contained in paragraph 215 of the Aviation T&R Program Manual, reference (a).
4. Once an individual is certified, qualified or designated in writing, the signed letter is filed in the training performance record, all administrative actions are completed and the event code has been logged in M-SHARP will the certification, qualification or designation become effective. ACPM and SCHL codes are located in the MAWTS-1 C3 Course Catalog.

INDIVIDUAL QUALIFICATION (QUAL) REQUIREMENTS	
QUALS	Event Requirements
UAC	UAC: 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2599
AR	TRCK: 6200 (FSC) AR: 3500, 3510, 3520, 3530; QUALS: UAC
TGO	TRCK: 6230 (JTACPC) TGO: 3600, 3610; QUALS: UAC AND AR
IDF	TRCK: 6230 (JTACPC) IDF: 3700, 3710, 3720; QUALS: UAC AND AR
CBRN	CBRN: 4500 QUAL: UAC
AFO	TRCK: 6230 (JTACPC) AFO: 4600, 4610, 4620; QUALS: TGO AND IDF
UMC	UMC: 4500, 4700, 4710; QUALS: AFO, TGO and IDF

INDIVIDUAL DESIGNATION (DESG) REQUIREMENTS	
DESG	Event Requirements
CRMF	Complete CRMF training per OPNAVINST 1542.7 from a designated CRMI
CRMI	SCHL: 6061
BI	BIUT: 5500, 5510, 5520, 5530 QUALS: UAC and AR
SI	TRCK: 6240 (SAT) SIUT: 5600, 5610, 5620, 5630, 5640 QUALS: UAC, AR, TGO, IDF, AFO, UMC DESG: BI
ANI	PER OPNAVINST 3710.7
NI	PER OPNAVINST 3710.7
NE	PER OPNAVINST 3710.7
WTI	SCHL: 6000
UAC	QUAL: UAC
AFO	QUAL: AFO
UMC	QUAL: UMC
JFO	SCHL: 6080 or equivalent

NATOPS ANNUAL REQUIREMENTS	
	Event Requirements
UAC	RQD: 6500, 6510, 6520

306. PROGRAMS OF INSTRUCTION (POIs).

1. Basic POI.

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-3	Core Skill Introduction: Unmanned Aircraft Commander Course	UASTB
4-9	Core Skill	Tactical Squadron
10-19	Mission Skill	Tactical Squadron
20-26	Core Plus Skill	Tactical Squadron

2. Refresher POI.

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-3	Core Skill	Tactical Squadron
4-6	Mission Skill	Tactical Squadron
7-9	Core Plus Skill	Tactical Squadron

307. ACADEMIC TRAINING.

1. Academic training shall be conducted for each phase/stage of the syllabus, as required. Where indicated, standardized academic training materials exist

and may be obtained from the sponsoring activity. The proficiency attained by completing select courses provides units with the relevant skills essential to the accomplishment of unit mission essential tasks. Commanders are highly encouraged to ensure personnel attend skills enhancement formal courses to the extent possible.

2. TECOM ATB publishes an annual MACCS/UAS Skills Enhancement message that lists most formal courses offered to Marine Air Control Group (MACG) units. Certain courses are TECOM funded while others require unit funding. Training personnel should read this message in its entirety to ensure they maximize these training opportunities. Instructors and administrators are encouraged to post this message in the VMU work sections.

3. Chapter 2 of the MAWTS-1 C3 Course Catalog (reference (b)) provides a list of formal resident courses, distance learning sites, and Marine Corps regional training centers that offer skills enhancement courses that support the training requirements of this Manual and professional development. The C3 Course Catalog is available from the C3 Department Section of the MAWTS-1 website: <https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx>.

4. Aviation Career Progression Model (ACPM). Officers in the 72XX and 75XX communities will comply with ACPM requirements as proscribed in their respective primary MOS community T&R manual.

5. Formal Courses.

a. External academic resident courses of instruction (with associated T&R tracking codes) available to complete the syllabus are listed below. A comprehensive list for UAS training is located in chapter 2 of the MAWTS-1 C3 Course Catalog (reference (b)). Catalog is available from the C3 Department, MAWTS-1 website: <https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx>.

COURSE	ACTIVITY
Unmanned Aircraft Commander (UAC) Course	UASTB, Ft Huachuca, AZ
EWTGPAC FAC(A) Ground School	EWTGPAC, EWTGLANT
Joint Fires Observer Course	EWTGPAC, EWTGLANT
Tactical air Control Party (TACP) Course	EWTGPAC, EWTGLANT
Joint Fires Observer Course (JFOC)	EWTGPAC, EWTGLANT
Weapons and Tactics Instructor	MAWTS-1
Senior Watch Officer's Course	MAWTS-1
Air Command and Control Officer Course	MAWTS-1
ACE Battlestaff Officer Course (ABOC)	MAWTS-1
Airspace Course	505 th Training Sqdn, Hurlburt Field
Personnel Recovery Course	505 th Training Sqdn, Hurlburt Field
Airspace Operations Center Initial Qualification Course, Joint Personnel Recovery Course	505 th Training Sqdn, Hurlburt Field
Advanced Field Artillery Tactical Data Systems (AFATDS) Course	Regiment Schools, Ft Sill, OK

b. Marine Corps regional training centers that offer resident courses or mobile training teams (MTTs) are noted below:

ACTIVITY	WEBSITE / URL
Communications Training Centers (CTC)	https://www.29palms.usmc.mil/ctc/trngschedule.asp
COC	https://www.intranet.tecom.usmc.mil/sites/c2tecoe/default.aspx
MAGTF Integrated System Training Center (MISTC)	https://www.intranet.tecom.usmc.mil/sites/c2tecoe/default.aspx
Command and Control Training and Education Center of Excellence (C2 TECOM)	https://www.intranet.tecom.usmc.mil/sites/c2tecoe/default.aspx
1 ST Marine Division Schools	http://www.i-mef.usmc.mil/div/hqbn/hq/DivSchools.asp
2 nd Marine Division Schools	http://www.lejeune.usmc.mil/iimef
Expeditionary Warfare Training Group, Atlantic (EWTGLANT)	http://ewtglant.ahf.nmci.navy.mil/courses/index.html
Expeditionary Warfare Training Group, Pacific (EWTGPAC)	http://ewtgpac.ahf.nmci.navy.mil/academics/courses/courses.html

c. A list of DL opportunities that compliment this syllabus (it is not all inclusive) is provided below.

ACTIVITY	COURSE NUMBER	COURSE TITLE
JKO	N/A	Joint Fires Observer Familiarization Course
MarineNet	JTACPC	Joint Terminal Attack Controller (JTAC) Primer Course
MarineNet	0801AO	Fire Support Coordination
MarineNet	CC03AO	Graphic and Airspace Control Measures
MarineNet	7201AO	Marine Air Command and Control System
MarineNet	BFT001	Blue Force Tracking
MarineNet	MAGTAA	MAGTF Fires
MCI	0416B	Marine Corps Publications and Directives System
MCI	0861	Basic Forward Observation Procedures

d. An abbreviated list of activities that offer distance learning courses is provided below.

ACTIVITY	WEBSITE / URL
MARINENET	https://www.marinenet.usmc.mil/marinenet
Total Force Structure Management System (TFSMS)	https://tfsms.mccdc.usmc.mil
Defense Acquisition University (DAU)	http://www.dau.mil/
MAWTS-1	https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx
Defense Knowledge On Line (DKO)	https://www.us.army.mil/appiansuite/login/login
Navy Knowledge Online (NKO)	https://www.nko.navy.mil
Army Knowledge On Line (AKO)	https://www.us.army.mil
Air Force Knowledge Now (AFKN)	https://afkn.wpafb.af.mil

6. Aircrew Training References. Aircrews shall use the following references to standardize training and grading criteria in order to ensure safety of flight, proper maintenance procedures and aircraft operations. Each event in this syllabus lists references pertinent to its training.

<u>Identification Codes</u>	<u>Title</u>
JP 3-60	Joint Doctrine for Targeting
JP 3-09.3	Close Air Support (CAS)
JP 3-9	Joint Fire Support
MCO P4790.12	Individual Training Standards Systems (MATMEP)
MCO 3500.109	Weapons and Tactics Training Program (WTPP)
MCO 3500.27/OPNAV 3500.39	Operational Risk Management (ORM)
OPNAVINST 1542.7	Crew Resource Management Program
OPNAVINST 3710.7_	NATOPS Gen Flt & Operating Inst
OPNAVINST 4790.2_	Naval Aviation Maintenance Program
NAVMC 3500.14	Aviation T&R Program Manual
NTTP 3-22.3-VMU	VMU Tactics, Techniques, and Procedures
AFTTP 3-1	Air Force Tactics, Techniques and Procedures
TM 1-1550-689-10-1	(NAVY A1-RQ7BA-NFM-000)
TM 1-1550-689-10-2	(NAVY A1-RQ7BA-NFM-010)
TM 1-1550-689-10-CL	(NAVY A1-RQ7BA-NFM-500)
TM 11-5820-890-10-8	SINGARS GROUND COMBAT NET RADIO ICOM MANUAL
TM 10515-0109-4100	AN/PRC-117 Operations Manual
FMFM 7-30	Raids
MCWP 3-16.6	Supporting Arms Observer, Spotter, and Controller
MCWP 3-42.1	UAV Operations
MCWP 3-43.1	Raid Operations
MCRP 3-23C	Offensive Air Support
MAWTS-1 C3 Course Catalog	ACPM Training
MAWTS-1	FAC(A) Handbook
FAA-H-8083-25A	Pilot's Handbook of Aeronautical Knowledge

308. SYLLABUS NOTES.

1. General.

a. The purpose of this syllabus is to provide the commander with standardized programs of instruction (POI) for MOS 7315 personnel. The goal is to develop unit warfighting capabilities. Syllabi are based on specific performance standards designed to ensure proficiency in core competencies.

b. An effective T&R program is the first step in providing the commander with a unit capable of accomplishing any and all of its stated mission essential tasks (MET). The Aviation T&R Program provides the fundamental tools for commanders to build and maintain unit combat readiness. Using these tools, training managers can construct and execute an effective training plan that supports the unit Mission Essential Task List (METL).

c. The 7315 training syllabus:

(1) Consists of academic/ground, simulator, and live training. All scenario driven events may be accomplished during actual exercises, contingency or combat operations.

(2) Complies with Basic UAS Qualifications (BUQ) and Joint Mission Qualifications (JMQ) training requirements set forth in CJCSI 3255.01, Joint UAS Minimum Training Standards (JUMTS).

(3) Does not include ACPM training for officers. Officer will complete the ACPM requirements as set forth in the T&R manual of their primary MOS.

d. Command and control systems (C2SYS) training is available through various training sources. Personnel are encouraged to participate in C2SYS training. See the MAWTS-1 C3 Course Catalog, chapter 3, for further information.

2. POI Assignment.

a. Basic POI. Officers shall attend the Unmanned Aircraft Commander (UAC) Course prior to being assigned MOS 7315. A 7315 shall be assigned to the Basic POI to complete all events in the respective core, mission, or core plus attain tables to achieve required proficiency in these skills, and prerequisites necessary to be eligible for certifications, qualifications and designations.

b. Refresher POI. The refresher POI is predicated on experience. A 7315 assigned to the refresher POI shall complete all R-coded events in the respective core, mission or core plus skill tables and those applicable events not previously completed in the Basic POI.

(1) 7315 personnel who have completed the Basic POI and attained proficiency for a core, mission or core plus skill and are subsequently assigned to duties outside of the VMU community for greater than 36 months shall be assigned to the Refresher POI to complete the R-coded events in the Attain tables in order to regain proficiency for the respective skill(s).

(2) 7315 personnel who have completed the Basic POI and attained proficiency for a core, mission or core plus skill and remain at a VMU unit will be assigned to the Refresher POI to complete the R-coded events in the Maintain tables to maintain proficiency for the respective skill(s).

(3) If the 7315 has no previous proficiency in a specific core, mission or core plus skill then all applicable events for that skill not current or not previously completed must be completed. The refresher POI applies only to events in the Attain table(s) previously completed by the individual. Event or academic training not previously completed shall be completed in their entirety.

3. T&R Phases. This Manual is divided into seven distinct phases with an additional phase placeholder for future use, see chapter 6 of reference (a) for a detailed description of each training phase.

PHASE	TITLE
1000	Core Skill Introduction
2000	Core Skills
3000	Mission Skills
4000	Core Plus
5000	Instructor Training
6000	Certification, Qualification, Designation
7000	Reserved for future TECOM/ATB use
8000	Academic Training (ACPM)

4. Training Personnel.

a. Trainee. A trainee is an individual who is undergoing training to achieve a particular skill set essential to the accomplishment of unit mission essential tasks. The trainee shall complete all event prerequisites before commencing training in the event, stage, phase, core, mission, or core plus skill for which the prerequisite applies.

b. Instructor. An instructor is someone who has been certified and designated to conduct training and evaluations on subject areas for which they are proficient and current in. Events in this POI can only be trained and evaluated by someone who is designated as an instructor per the requirements specified in the 5000-phase and who is proficient in the event for which training is being conducted. All event training shall terminate with the instructor debriefing the trainee on performance. This debrief will include at a minimum a comprehensive review of the trainee's performance, corrective action required to meet the standard, and a plan on how to proceed with the training. Instructors are encouraged to mentor the trainee and enter into discussions that solidify and/or broaden their understanding. Once able to perform the event proficiently, the instructor shall evaluate the trainee and ensure the event is performed to standard.

c. Squadron WTI. The squadron WTI is someone who has been trained to manage the unit T&R program and has completed M-SHARP training provided by the local M-SHARP representatives. M-SHARP technical support and training can be found at <http://msharpsupport.com>. Managing unit training requirements is essential to ensure the unit CMMR is achieved. See the WTTP order, MCO 3500.109 for duties and responsibilities.

5. Individual and Crew Training.

a. Academic Training. Academic training will be conducted prior to or concurrently with required events, unless otherwise stated. An academic training event, once completed, can be credited as a prerequisite for follow-on training events.

b. Devices. Events conducted on a simulator can use either the Institutional Mission Simulation (IMS) or the Multiple Unified Simulation Environment (MUSE). Therefore, device requirements are noted as "SIM" to allow the command to use either simulator devices. Events conducted as live flight events can be conducted in the RQ-7B UAS. This device is listed in applicable events as "UAS."

c. Prerequisites. All prerequisites shall be completed prior to beginning training in an event. Distance learning courses completed as a prerequisite to event training will be documented by filing the completion certificate in the APR and entering the event/tracking code in M-SHARP.

d. Event References. Trainees will be provided required references during training to ensure they read and understand them. However, unless otherwise stated, all event performance standards are to be evaluated without the aid of reference.

e. Multiple Event Logging. There may be opportunities for crewmembers to accomplish the requirements of more than one event during a scheduled training evolution. Units are encouraged to take advantage of complex training opportunities that allow multiple event completion. Under all circumstances, post-event logging (single or multiple) is allowable if the requirement for each event is accomplished per the performance standard. If multiple events are scheduled to be accomplished during a single training evolution, appropriate planning, briefing, and debriefing time must be allotted to ensure that requisite training objectives are met. Evaluators shall strictly scrutinize to ensure the performance standard for each event code was clearly met.

f. Crew Training Requirements.

(1) At a minimum, one Unmanned Aircraft Commander (UAC), one Mission Payload Operator (MPO), one Air Vehicle Operator (AVO) are required to conduct position training. Additionally as needed, one Intelligence Analyst and/or one Imagery Analyst.

(2) If crew members are required to assist in the conduct of an event, the crew shall be core or mission capable in the position they are filling. Training will be executed as individual training with appropriate assistance at the crew level as needed and as dictated by the conditions listed for each event. Crewmember assistance must be restricted to those actions required to support or facilitate individual training so as not to detract from the individual trainee properly demonstrating the event performance standard.

6. Syllabus Evaluation Form.

a. The standardized syllabus evaluation form that shall be used to document all training conducted per this Manual is posted on the MAWTS-1

website at

<https://www.intranet.tecom.usmc.mil/sites/mawts1/departments1/newc3/uas/Share%20Documents/Forms/AllItems.aspx>. This form is maintained by the syllabus sponsor.

b. If the commanding officer waives an event per chapter 2 of the Aviation T&R Program Manual, the waiver letter shall be placed in section 3 of the individual performance record. The individual proficiency date for the waived event shall be manually updated in M-SHARP

7. Training Administration.

a. Core, Mission, and Core Plus Events. Once the evaluation form is approved and signed by required signatories, the event code is logged in M-SHARP, and form/accompanying documentation is filed in the APR, only then will the trainee be credited for completing the event.

b. Certification, Qualification and Designation Events. These events shall have an evaluation form completed, approved and signed by required signatories, the individual performance record reviewed by the squadron WTI to ensure all requirements were met, letter signed by the commanding officer, event code logged in M-SHARP, and signed letters/accompanying documentation filed in the APR. Only then is the trainee considered certified, qualified or designated.

309. CORE SKILL INTRODUCTION TRAINING (1000).

1. General.

a. Purpose. To develop the basic knowledge, skills and experience in tactical UAS operations emphasizing crew resource management, system operations, navigation, and emergency procedures. The course provides instruction on Marine Corps Aviation structure and organization; UAS planning, operations overview and operational environment; UAS operations and flight modes; emergency procedures; NATOPS program; and flight operations. Upon completion of the Unmanned Aircraft Commander (UAC) Course at Ft. Huachuca, Arizona, the graduate is assigned MOS 7315.

b. Prerequisite.

(1) Per 7314 MOS requirements delineated in the MOS Manual, MCO 1200.17B.

(2) Meet physical requirements per NAVMED P-117 (Manual of the Naval Medical Department), section IV, article 15-65, paragraph 1.15, as MOS 7314, with the following addition: Depth Perception-AFVT A-D.

(3) Have a Class III flight physical.

c. Administration Notes. Student must complete all ground school training requirements prior to beginning solo simulator flights, simulator crew rides, and live flight operations. At a minimum 2 flight events will be conducted live.

d. Academic Training. Unmanned Aircraft Commander (UAC) Course (CID: A12VAP1).

e. Stage. Unmanned Aircraft Commander (UAC).

UAC-1500	107.0	*	B		G
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Goal. Complete UAC ground school.

Requirement. Ground training in this course must include introduction and review of the following:

1. Marine Corps UAS Operations
2. Safety and Hazards
3. Marine Corps Aviation Structure and Organization
4. VMU Structure and Organization
5. Airspace
6. Aerodynamics and Meteorology
7. ISR and Targeting
8. UAS Operations Planning
9. UAS Publications
10. Airframe
11. Airborne Computing Equipment (ACE) and Electrical System
12. Ground System Components
13. System Datalink Communication
14. Air Vehicle Transport (AVT)
15. Launcher, Tactical Automated Landing System (TALS), and Arresting Gear (AG)
16. System Limitations
17. System Records
18. Site Survey and System Setup
19. AVO and MPO Workstations
20. Payload
21. Communication Procedures and Terminology
22. Engine Start and Shutdown, Launch, Station Transfer, and Recovery Procedures and Demonstration
23. Mission Planning and Briefing
24. OSRVT Overview
25. AFATDS Overview
26. Communication and Electrical Emergencies
27. Ground Emergencies
28. In-Flight Emergencies
29. Crew Resource Management
30. Introduction to NATOPS Program
31. NATOPS Examinations
32. Flight Operations

Performance Standard. Complete all written exams with a minimum score of 80%.

UAC-1510	1.0	*	B	1 SIM	S
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Goal. Introduction to Launch and Recovery Flight.

Requirement. Given the applicable technical publications and required equipment, complete the following:

1. Observe all checklist items and flight procedures.
2. Discuss:
 - a. Local course rules and FAA Certificate of Authorization (COA)
 - b. Safety considerations
3. Conduct mission planning.
4. Perform system records procedures.
5. Observe mission brief and debrief.
6. Observe navigation and coordination of AV to TALS loiter point.
7. Assist in recovery procedures with a minimum of 1 wave-off.
8. Perform communication procedures.

Performance Standard. Complete all written exam with a minimum score of 80%.

Prerequisite. UAC-1500

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. Local and Range SOP

UAC-1520	1.0	*	B	1 SIM	S
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Goal. Introduction to Flight Operations.

Requirement. Given the applicable technical publications and required equipment, complete the following:

1. Conduct mission planning.
2. Perform system records procedures.
3. Conduct mission brief and debrief.
4. Perform/assist with all checklist items and flight procedures.
5. Direct the crew to locate and identify 3 targets using EO and IR modes.
6. Observe various search patterns and AV flight profiles.
7. Observe navigation and coordination of AV to TALS loiter point.
8. Perform communication procedures.
9. Discuss local airspace and operational area flight procedures IAW appropriate directives and local SOP.

Performance Standard. Complete the simulator flight requirement with a minimum score of 80%.

Prerequisite. UAC-1510.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. Local and Range SOP

UAC-1530	2.0	*	B	1 SIM	S
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Goal. Introduction to Emergency Procedures.

Requirement. Given the applicable technical publications and required equipment, complete the following:

1. Conduct mission planning.
2. Perform system records procedures.
3. Conduct mission brief and debrief.
4. Perform/assist with all checklist items and flight procedures.
5. Perform the following emergencies:
 - a. 3 Communication and Electrical Emergencies
 - b. 3 Ground Emergencies
 - c. 4 In-flight Emergencies
6. Perform communication procedures.

Performance Standard. Complete the simulator flight requirement with a minimum score of 80%.

Prerequisite. UAC-1520.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. Local and Range SOP

UAC-1540	2.0	*	B	1 UAS	A/S (N)
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Goal. Conduct Flight Operations.

Requirement. Given the applicable technical publications and required equipment, complete the following:

1. Conduct mission planning.
2. Perform system records procedures.
3. Conduct mission brief and debrief.
4. Perform/assist all checklist items and flight procedures.
5. Perform 4 instructor selected emergency procedures.
6. Observe navigation and coordination of AV to TALS loiter point.
7. Assist in recovery procedures with a minimum of 1 wave-off.
8. Perform communication procedures.

Performance Standard. Complete the flight requirement with a minimum score of 80%.

Prerequisite. UAC-1530.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. Local and Range SOP

UAC-1550	2.0	*	B	1 UAS	A/S	(N)
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Goal. Conduct an Aerial Reconnaissance Mission.

Requirement. Given the applicable technical publications and required equipment, complete the following:

1. Conduct mission planning.
2. Perform system records procedures.
3. Conduct mission brief and debrief.
4. Perform/assist with all checklist items and flight procedures.
5. Direct the crew to locate and identify 3 targets using EO and IR modes.
6. Observe various search patterns and AV flight profiles.
7. Observe navigation and coordination of AV to TALS loiter point.
8. Perform communication procedures.
9. Describe UAC requirements for the conduct and coordination of flight operations.

Performance Standard. Complete the flight requirement with a minimum score of 80%.

Prerequisite. UAC-1540.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. Local and Range SOP

UAC-1560	2.0	*	B	1 UAS	A/S	(N)
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Goal. Conduct Emergency Procedures.

Requirement. Given the applicable technical publications and required equipment, complete the following:

1. Conduct mission planning
2. Perform system records procedures
3. Conduct mission brief and debrief
4. Perform/assist with all checklist items and flight procedures.
5. Perform the following emergencies:
 - a. 2 Communication and Electrical Emergencies
 - b. 2 Ground Emergencies
 - c. 2 In-flight Emergencies
6. Perform communication procedures.

Performance Standard. Complete the flight requirement with a minimum score of 80%.

Prerequisite. UAC-1550.

flight is mandatory. Ground events cannot update or replace the corresponding flight event.

(2) Refresher training is required once UAC has been absent from a VMU assignment for more than 365 days. Upon return to a VMU billet, the UAC will complete the R-coded events in this syllabus.

d. Core Skill Stage. Unmanned Aircraft Commander (UAC).

2. UNMANNED AIRCRAFT COMMANDER (UAC).

a. Purpose. To provide the core skills necessary to carry out the responsibilities of a UAC. This stage will develop proficiency and experience in tactical UAS operation and emphasizes the importance of crew resource management, system operations, emergency procedures, operational terminology, and familiarization with squadron SOPs.

b. Prerequisite. Pass required local SOP, Course Rules and Emergency Procedures exams.

UAC-2500	2.0	365	B, R	G
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Goal. Annual Crew Resource Management (CRM) Training.

Requirement. Complete annual CRM Training.

Performance Standard. Per the reference.

Instructor. CRMI

Prerequisite. Use most recent date this training was completed. Recent graduates of the UAC course will use the date "Crew Resource Management" academics was completed during ground school.

Reference. OPNAVINST 1542.7

UAC-2510	2.0	365	B, R	G
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Goal. Describe Area of Operation, Unit SOPs, Local Course Rules and Regulations.

Requirement. Conduct the following:

1. Describe the area of operation, unit SOP's, local course rules and regulations.
2. Describe the phases of flight.
3. Describe the procedures to perform during the following phases of flight:
 - a. Departure
 - b. Climb
 - c. Return to Base (RTB)
 - d. Descent and landing procedures.
4. Complete the local course rules exam.
5. Complete the squadron SOP exam.

Performance Standard. Pass required local exams with a score of 100%.

Note: This event shall have been completed within one year for the location where UAS operations will be conducted.

Instructor. BI, SI

Reference.

1. Unit SOPs
2. Local course rules and regulations
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTTP 3-22.3-VMU

UAC-2520	3.0	*	B	1	SIM	S/A	(N)
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Goal. Introduction to flight operations.

Requirement.

1. Employ an UAS to conduct flight operations.
2. Discuss UAS engine:
 - a. Characteristics
 - b. Components.
 - c. Emergencies.
3. Discuss pertinent OPNAV 3710.7 sections applicable to UAS flight operations.
4. Describe the local flight pattern to include launch and recovery procedures.
5. Coordinate with the local controlling agency.
6. Conduct a flight in the local operating area.
7. Perform local course rules procedures.
8. Adhere to SOP.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Plan, brief, execute and debrief a UAS mission IAW applicable reference with minimal instructor assistance.
3. Coordinate airspace with minimal instructor assistance.
4. Perform instructor selected emergency memorized action procedures without the aid of a reference and completes required checklist.
5. Demonstrate effective CRM throughout the flight.
6. Adhere to SOP.

Instructor. BI, SI

Prerequisite. UAC-2510

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. Unit SOPs
2. Local course rules and regulations
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)

UAC-2530	3.0	*	B	1	UAS	A/S	(N)
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Goal. Introduction and review of flight operations.

Note: Basic POI should be conducted during daylight hours. Refresher POI may be conducted day or night.

Requirement. Given the applicable technical publications and equipment, complete the following:

1. Discuss the Digital Interface Box (DIB) to include:
 - a. DIB-related emergencies and environmental considerations.
 - b. Datalink systems and UAS C2.
2. Discuss and review the following NTP 3-22.3-VMU chapters:
 - a. Chapter 5: Ground operation launch and recovery
 - b. Chapter 6: Sensor operations and employment.
3. Conduct a range flight.
4. Review local area flight procedures to include any exit/entry procedures.
5. Coordinate with appropriate controlling agencies.
6. Perform map to video correlation and terrain association.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Plan, brief, execute and debrief a UAS mission IAW applicable reference.
3. Coordinate airspace without instructor assistance.
4. Perform instructor selected emergency memorized action procedures without the aid of a reference and complete required checklist.
5. Demonstrate effective CRM throughout the flight.
6. Demonstrate an understanding of chapters 5 and 6 discussed in the requirement.

Instructor. BI, SI

Prerequisite.

1. UAC-2520
2. Read chapters 5 and 6 of NTP 3-22.3-VMU

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. Unit SOPs
2. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)

3. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
4. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
5. NTTP 3-22.3-VMU

UAC-2540	5.0	365	B, R	1	UAS	A	(N)
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Goal. Conduct basic flight operations.

Note: Basic POI should be conducted during daylight hours, if practical.

Requirement. Given a UAS mission, applicable references and required equipment, complete the following:

1. Discuss:
 - a. Instructor selected system component.
 - b. Instructor selected emergency procedure.
 - c. Lost communications considerations.
2. Discuss and demonstrate an understanding of mission preparation (chapter 2) of NTTP 3-22.3-VMU.
3. Conduct mission analysis and planning.
4. Conduct a brief of the mission.
5. Calculate time, distance, and fuel requirements appropriate for the mission.
6. Determine routes, altitude and airspeed requirements appropriate for the mission.
7. Coordinate with an actual or instructor simulated supported unit and controlling agencies.
8. Coordinate airspace.
9. Conduct a range flight.
10. Perform emergency procedures.
11. Conduct a mission debrief.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Plan, brief, execute and debrief the UAS mission IAW applicable reference.
3. Conduct a flight.
4. Navigate and coordinate airspace.
5. Perform instructor selected emergency memorized action procedures without the aid of a reference and complete required checklist.
6. Demonstrate effective CRM throughout the flight.
7. Effectively coordinate with supported unit and integrate with the ground scheme of maneuver.
8. Demonstrate an understanding of chapter 2, NTTP 3-22.3-VMU.

Instructor. BI, SI

Prerequisite.

1. UAC-2530
2. Read chapter 2 - NTTP 3-22.3-VMU

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

UAC-2550	3.0	365	B, R	1	UAS	A	(N)
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Goal. Perform UAS communications relay mission.

Requirement. Given the applicable technical publications and equipment, plan for and utilize the UAS communications relay package to include the following:

1. Employ a UAS to conduct a communications relay mission.
2. Discuss:
 - a. Engine limitations.
 - b. Engine emergencies.
 - c. Flight currency requirements.
3. Describe the capabilities and limitations of the UAS Communication Relay Package (CRP).
4. Identify the purpose of and describe the guard chart.
5. Discuss the purpose of and content/structure of the Aviation Communication Electronic Operating Instruction (ACEOI).
6. Discuss the purpose and content/structure of an operations order (emphasize on Annexes K and W).
7. Describe frequency deconfliction information as it pertains to the communications relay mission.

Performance Standard.

1. Complete the requirement items IAW with the references.
2. Conduct UAS communications relay during the flight.
3. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. UAC-2540

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU
5. ACEOI
6. OPORDER

UAC-2560 3.0 365 B, R 1 UAS A (N)

Goal. Coordinate split site operations with a control station transfer.

Requirement. Given the applicable technical publications and equipment, complete the following:

1. Discuss:
 - a. Portable Ground Data Terminal (PGDT) components.
 - b. PGDT emergencies and procedures.
 - c. Split site considerations.
 - d. GCS/PGCS LOS limitations.
2. Discuss and demonstrate an understanding of VMU employment configuration (chapter 3 of NTTP 3-22.3-VMU).
3. Plan and execute a minimum of two control station transfers.
4. Monitor split site mission (up to hand off point) from launch and recovery site.
5. Develop a plan that meets time, distance, altitude, and airspace requirements.
6. Demonstrate a control station driven by an emergency.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Coordinate and supervise split site operations during the completion of at least two station transfers IAW checklist [TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)] while demonstrating the procedures outlined in NTTP 3-22.3-VMU.
3. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite.

1. UAC-2540
2. Read chapter 3 of NTTP 3-22.3-VMU

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

UAC-2570 3.0 365 B, R 2 UAS A (N)

Goal. Conduct On Station Relief (OSR).

Requirement. Plan and execute OSR operations in support of continuous mission support.

1. Employ an UAS during the conduct of an on-station relief.
2. Discuss:
 - a. MPO payload hotkeys.
 - b. GCS environmental limitations.
 - c. Relief on station considerations.
 - d. Remote Video Terminal (RVT) frequency plan.
3. Discuss considerations for fuel planning, timing, and mission requirements when developing a relief on station plan.
4. Discuss target handoff considerations.
5. Discuss and demonstrate an understanding of communications relay (chapter 9.6.1 of NTTP 3-22.3-VMU).
6. Coordinate frequencies and airspace.
7. Determine return home points, routes, and altitudes.
8. Evaluate considerations for emergencies during a relief on station.
9. Manage inter-flight communications.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Conduct preflight brief including a relief on station plan to UAS aircrew IAW the reference.
3. Complete one relief on station IAW the reference with minimal mission degradation.
4. Conduct post flight brief.
5. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite.

1. UAC-2560
2. Read chapter 9.6.1 of NTTP 3-22.3-VMU

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

UACQM-2599	3.0	1095	B, R	E	1	UAS	A	(N)
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Goal. Conduct a tactical mission.

Note: Basic POI should be conducted during daylight hours.

Requirement. Given the applicable technical publications and equipment, complete the following:

1. Employ an UAS to conduct a tactical mission.
2. Discuss:
 - a. ACE box.

- b. Autopilot malfunction emergencies and procedures.
 - c. Fuel planning considerations.
 - d. MISREPS and BDA reporting.
3. Describe day/night route, area, and point reconnaissance techniques.
 4. Conduct mission analysis, mission planning, brief, and debrief.
 5. Calculate time, distance, and fuel requirements.
 6. Determine routes, altitude and airspeed requirements.
 7. Coordinate with supported unit and controlling agencies.
 8. Coordinate for and navigate within assigned airspace.
 9. Utilize the UAS communications relay package
 10. Coordinate with the MPO and intelligence representative to locate three NATO-sized targets within a designated area (5X5km) and record the location in MGRS & Lat/Long formats.
 11. Conduct emergency action procedures.
 12. Conduct one route reconnaissance of at least 15km.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Plan, brief, execute and debrief the mission IAW applicable reference.
3. Conduct coordination requirements without instructor assistance.
4. Perform instructor selected emergency memorized action procedures without the aid of reference and conclude with checklist as required.
5. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite.

1. UAC-2550, 2570
2. Complete a target recognition class from the intelligence section and pass required examination with a minimum score of 80%.

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

311. MISSION SKILL TRAINING (3000).

1. General.

a. Purpose. To provide the UAC with proficiency in aerial reconnaissance, terminal guidance operations, and control of indirect fires. Mission Skills are designed to fulfill the requirements of the VMUs Mission Essential Task List as defined by the associated Marine Corps Task (MCT).

b. Prerequisite. UAC qualification

c. Administrative Note. Events in this phase of training should be based on tactical scenarios designed to focus on specific items delineated in each event. Scenarios will be developed by the squadron WTI. To the greatest extent possible the scenarios should incorporate the employment of fixed wing, rotary wing and surface fires. On certain events, integration with other ACE assets is required and airspace integration should be stressed. Mission Skill training should be focused on enhancing the effective and efficient accomplishment of the squadron's mission essential tasks.

d. Mission Skill Stages.

- (1) Aerial Reconnaissance (AR)
- (2) Terminal Guidance Operations (TGO)
- (3) Control of Indirect Fires (IDF)
- (4) Analyze and Synthesize Information (ASI)

2. AERIAL RECONNAISSANCE (AR).

a. Purpose. To provide the UAC the necessary skills to conduct effective aerial reconnaissance in order to support intelligence collections and fire support tasks by recognizing and prosecuting potential targets and threats in a tactical environment.

b. Administrative Notes. See MAWTS-1 Course Catalog for additional academic/ground training. Specific training environments are desired in order to sharpen unmanned reconnaissance techniques.

c. Prerequisite. TRCK-6200 (FSC).

AR-3500	4.0	365	B, R	1	SIM	S/A	(N)
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Goal. Conduct threat survivability and counter detection.

Note: Basic POI should be conducted during daylight hours, if practical.

Requirement. Given the applicable technical publications and equipment, complete the following:

1. Conduct a threat survivability and counter detection flight.
2. Discuss:
 - a. (S) AFTTP 3-1 Threat reference guide and counter tactics volume 1.
 - b. AAA.
 - c. MANPADS.
 - d. SAM.
 - e. Visual acquisition.
3. Discuss and demonstrate an understanding of mission preparation (chapter 2, NTTP 3-22.3-VMU).
4. Plot threat and WEZ to include overlays.

5. Plan a route considering known threats.
6. Coordinate for and navigate within assigned airspace.
7. Coordinate for a threat scenarios brief from S-2 or instructor.
8. Describe ground scheme of maneuver.
9. Determine routes, altitude and airspeed requirements
10. Use appropriate techniques for threat counter-tactics (Sun/Maneuver).
11. Coordinate with the MPO and intelligence representative to locate (10) tactical-sized targets within two separate designated areas.
12. Record the location of the 10 targets using the 10-digit grid format.
13. Conduct emergency action procedures.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Plan, brief, execute and debrief the mission IAW applicable reference.
3. Conduct coordination without instructor assistance.
4. Perform instructor selected emergency procedures without the aid of a reference.
5. Locate 10 tactical targets within a 10-digit grid format.
6. Demonstrate effective CRM throughout the flight.
7. Demonstrate an understanding of chapter 2, NTTP 3-22.3-VMU.

Instructor. BI, SI

Prerequisite. Read chapter 2 of NTTP 3-22.3-VMU

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU
5. AFTTP 3-1

AR-3510	4.0	365	B, R	1	UAS	A/S	(N)
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Goal. Conduct reconnaissance in an urban environment.

Requirement.

1. Employ an UAS in support of urban operations.
2. Discuss:
 - a. Day/night planning considerations
 - b. Remote Video Terminal.
 - c. Fuel emergencies.
 - d. Video dissemination techniques.
 - e. Gridded Reference Graphics (GRG).
 - f. IR spectrum and thermal crossover.

3. Utilize a GRG.
4. Identify airspace control measures as they pertain to the urban environment.
5. Describe sensor employment considerations to include:
 - a. Sensor geometry.
 - b. Sensor masking.
 - c. IR signature.
6. Describe FOV considerations.
7. Describe audible signature considerations.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Demonstrate working knowledge of planning and execution considerations for urban operations IAW applicable reference.
3. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. AR-3500

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

AR-3520	4.0	365	B, R	1	UAS	A	(N)
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Goal. Conduct Convoy Support Operations.

Requirement.

1. Employ an UAS in support of convoy operations.
2. Discuss:
 - a. Day/night planning considerations and convoy control measures.
 - b. UAS Uplink/downlink considerations.
 - c. Link loss parameters and emergencies.
3. Supervise route reconnaissance.
 - a. Determine choke points.
 - b. Identify known threat areas.
 - c. Describe IED detection considerations.
 - d. Determine convoy control measures.
 - e. Determine dispersion plan.
 - f. Identify elements of convoy support.
4. Determine convoy routing and timeline to include:
 - a. React plans.
 - b. Alternate routes.
 - c. Rate of movement predictions.
5. Develop communication plan.
6. Describe video downlink considerations.

7. Describe sensor placement considerations.
8. Demonstrate an understanding of convoy operations support (chapter 9.6.2, NTTP 3-22.3-VMU).

Performance Standard.

1. Complete all requirement items IAW the references.
2. Demonstrate understanding of planning and execution considerations for convoy operations IAW the reference.
3. Conduct detailed convoy planning with supported unit via most practical means available IAW the reference.
4. Conduct a minimum of two hours of support for a tactical convoy.
5. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite.

1. AR-3500
2. Read chapter 9.6.2, NTTP 3-22.3-VMU

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

AR-3530	4.0	365	B, R	1	UAS	A	(N)
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Goal. Support raid or TRAP operations.

Requirement.

1. Employ UAS in support of raid or TRAP operations
2. Coordinate UAS integration in support of a raid or TRAP mission.
3. Discuss:
 - a. GCS components and operational use.
 - b. GCS emergencies.
 - c. Mission planning software.
 - d. Internet Relay Chat (IRC).
 - e. Raid and TRAP on-scene commander (OSC).
4. Develop pre-raid reconnaissance game plan.
5. Incorporate the plan for Battle Damage Assessment (BDA) and reporting.
6. Create target area overlay that includes routing and deconfliction measures.
 - a. Provide route reconnaissance for ingress, egress, and alternate routes IVO the objective/target.
 - b. Provide target location surveillance prior to, during, and after a raid.

- c. Provide expanding concentric observation of target location to observe for target personnel, enemy security, and threat areas.
7. Perform LZ marking and threat assessment to include hot and cold zone criteria.
8. Perform target marking as it pertains to a raid.
9. Identify the supported unit's "dry hole" plan.

Performance Standard.

1. Complete the requirement items IAW references.
2. Demonstrate understanding of raid and TRAP missions, C2 relationships, and target objectives.
3. Support at least one raid or TRAP mission IAW the reference and without degradation of the mission.
4. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. AR-3500

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU
5. MCRP 3-23C
6. MCWP 3-43.1 Raid Operations
7. FMFM 7-30 Raids

3. TERMINAL GUIDANCE OPERATIONS (TGO).

a. Purpose. To develop tactical and technical proficiency in supporting aviation fires and associated targeting objectives. This stage emphasizes task-organized operational employment - both centralized and decentralized (distributed/dispersed) operations - and their associated tactics (simultaneous/concurrent/complimentary) when conducting Terminal Guidance Operations (TGO).

b. Prerequisite.

- (1) AR qualification
- (2) TRCK 6230: MarineNet Joint Terminal Attack Controller Primer Curriculum Course (JTACPC)
- (3) Although not required, it is highly recommended that Joint Fires Observer Course or equivalent instruction be completed.

c. Administration Notes. See MAWTS-1 Course Catalog for additional ground/academic training. Exposure to training aids such as "chalk talks", fires synchronization briefs/roundtables, and combined arms rehearsals are highly encouraged during this stage.

TGO-3600 5.0 365 B, R 1 UAS A/S D

Goal. Conduct Terminal Guidance Operations (TGO) Day.

Requirement.

1. Employ the UAS to conduct a TGO day flight.
2. Discuss:
 - a. Target location error (TLE).
 - b. JFIRE publication.
 - c. 9-line brief format.
 - d. Keypad/keyhole CAS holding techniques.
3. Discuss and demonstrate an understanding of mission rehearsal (chapter 7) and TGO operations (chapter 9.4) of NTTP 3-22.3-VMU.
4. Describe UAS integration with the TACP.
 - a. Identify communications considerations.
 - b. Describe fire support coordination considerations.
5. Describe Rules of Engagement (ROE) and associated Positive Identification (PID).
6. Differentiate between hostile intent and hostile action.
7. Conduct mission analysis, mission planning, brief, and debrief.
8. Calculate time, distance, and fuel requirements.
9. Determine routes, altitude requirements, and airspeeds.
10. Coordinate for and navigate within assigned airspace.
11. Coordinate with supported unit and controlling agencies.

Performance Standard.

1. Complete all requirements items IAW the references.
2. Plan, brief, execute, and debrief a mission.
3. Coordinate airspace without instructor assistance.
4. Demonstrate effective CRM throughout the flight.
5. Coordinate with supported unit and integrate UAS with the ground scheme of maneuver.

Instructor. BI, SI

Prerequisite. Read chapters 7 and 9.4 of NTTP 3-22.3-VMU

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU
5. JFIRE
6. JP 3-09.3 Close Air Support

TGO-3610 5.0 365 B, R 1 UAS A N

Goal. Conduct Terminal Guidance Operations (TGO) Night.

Requirement.

1. Employ the UAS to conduct a TGO night flight.
2. Describe UAS integration with the TACP.
3. Identify communications considerations as they pertain to TGO night missions.
4. Describe fire support coordination considerations as they pertain to TGO night missions.
5. Differentiate between hostile intent and hostile action during TGO night missions.
6. Conduct mission analysis, mission planning, brief, and debrief.
 - a. Calculate time, distance, and fuel requirements.
 - b. Determine routes, altitude requirements, and airspeeds.
7. Coordinate with supported unit and controlling agencies.
8. Supervise the utilization of the Infrared (IR) Laser Pointer.
9. Demonstrate talk-on techniques.

Performance Standards.

1. Complete the requirement items IAW the references.
2. Plan, brief, execute and debrief a UAS mission IAW the references.
3. Coordinate airspace without instructor assistance.
4. Demonstrate effective CRM throughout the flight.
5. Coordinate with supported unit and integrate UAS with the ground scheme of maneuver.

Instructor. BI, SI

Prerequisite. TGO-3600

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. JFIRE
6. JP 3-09.3 Close Air Support

4. CONTROL OF INDIRECT FIRES (IDF).

a. Purpose. To develop tactical and technical proficiency in supporting surface-to-surface fires. This stage focuses on utilization of organic communications (voice/digital) to call-for-fire.

b. Prerequisite.

- (1) AR qualification
- (2) TRCK 6230: MarineNet Joint Terminal Attack Controller Primer Curriculum Course (JTACPC)

(3) Although not required, it is highly recommended that Joint Fires Observer Course or equivalent instruction be completed.

c. Administration Notes. See MAWTS-1 Course Catalog for additional ground/academic training. Exposure to training aids such as "chalk talks", fires synchronization briefs/roundtables, and combined arms rehearsals are highly encouraged during this stage.

IDF-3700 2.0 B, R G

Goal. Introduction to UAS Call-for-fire.

Requirement.

1. Discuss:
 - a. UAS specific procedures for call-for-fire.
 - b. UAS system software.
 - c. Fires chain (Targeting solution/FSCC/FDC/Battery/Gun).
 - d. Types of fire missions.
 - e. Weaponeering and marking (ordnance/fusing).
 - f. HIMARS capabilities and limitations.
 - g. GTL deconfliction, MAX ORD (AGL)
2. Describe the UAC role during:
 - a. Observation of fires
 - b. Fire support coordination
 - c. Call for fire procedures for artillery/mortar and naval surface fires adjustments.
3. Describe communication requirements with firing unit.
4. Perform a simulated call for fire mission and adjustment of indirect fire with an instructor or in the simulator.

Performance Standard. Complete the requirement items IAW the references. Simulate a minimum of five call-for-fire missions.

Instructor. BI, SI

Reference.

1. NTTP 3-22.3-VMU
2. MAWTS-1 FAC(A) Handbook
3. MCWP 3-16.6
4. JFIRE
5. NTTP 3-22.3-VMU
6. JP 3-09.3

IDF-3710 3.0 365 B, R 1 SIM S

Goal. Introduce Artillery, Mortar, Naval Surface Fire Support (NSFS) and HIMARS spotter Tactics, Techniques, and Procedures (TTPs) to control indirect fires.

Requirement.

1. Perform reconnaissance on three (3) targets.
2. Plot targets and prepare a call-for-fire brief.

3. Discuss call-for-fire communications and adjustment procedures.
4. Discuss the appropriate practices for control of adjust fire missions utilizing:
 - a. Artillery
 - b. Mortar
 - c. Naval Surface Fire Support (NSFS)
 - d. HIMARS
5. Identify optimal positioning to provide accurate corrections for all IDF assets.

Performance Standard.

1. Execute appropriate Search/Detection/ID profiles.
2. Use targeting systems and mission tools for generating target coordinates.
3. Employ proper communications format with the firing unit.
4. Provide timely and accurate corrections to the firing unit to minimize adjust fire ordnance requirements.

Instructor. BI, SI

Prerequisite. IDF-3700

Reference.

1. MCWP 3-16.6 Supporting Arms Observer, Spotter and Controller
2. NTTP 3-22.3-VMU

IDF-3720	3.0	365	B, R	1	UAS	A	(N)
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Goal. Conduct a call for fire mission.

Requirement.

1. Employ the UAS to conduct a call for fire mission.
2. Discuss artillery munitions
3. Describe the UAC or UMC role during:
 - a. Observation of fires
 - b. Fire support coordination
 - c. Call for fire with artillery/mortar and naval surface fires
4. Describe communication requirements with fire support units
5. Perform a minimum of three call-for-fire missions.

Performance Standard.

1. Complete the requirement items IAW the references.
2. Complete a minimum of (3) artillery, mortar, or naval surface gunfire missions IAW applicable reference.
3. Report BDA for each mission upon completion of firing IAW the reference.
4. Demonstrate effective CRM throughout the flight.

Instructor. BI, SI

Prerequisite. IDF-3710

Range Requirements. Any one or combination of the following

ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Ordnance. 18 (6X3) 155mm HE artillery rounds or equivalent mortar/naval surface gunfire ammunition: 18 rounds for Basic POI, and 12 (4x3) for Refresher POI.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTP 3-22.3-VMU
5. MAWTS-1 FAC(A) Handbook
6. MCWP 3-16.6
7. JFIRE
8. NTP 3-22.3-VMU
9. JP 3-09.3

5. Analyze and Synthesize Information (ASI). Intelligence personnel (MOS 0231 and 0241) are assigned to the VMUs and are an integral part of VMU operations. Their training is governed by NAVMC 3500.101, Intelligence Training and Readiness Manual and is managed using MCTIMS.

312. CORE PLUS TRAINING (4000).

1. General.

a. Purpose. To train UACs to operate in CBRN environments and conduct advanced flight operations. Also includes training for UAS mission commanders (UMC) for controlling multiple UAS missions. This phase produces highly competent leaders. Personnel trained in the Core Plus phase are those a commanding officer feels are capable of directing the actions of subordinates during wartime scenarios. A certain number of trained individuals or crews may be required to accomplish special missions or tasks.

b. Prerequisite. UAC qualification

c. Core Plus Skill Stages.

- (1) Chemical, Biological, Radiological or Nuclear (CBRN)
- (2) Advanced Flight Operations (AFO)
- (3) Unmanned Aircraft System Mission Commander (UMC)

2. CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR (CBRN).

a. Purpose. To develop tactical and technical skills to support flight operations in a chemical, biological, radiological or nuclear environment.

b. Administration Notes. This training should be completed prior to OCONUS assignment.

CBRN-4500 2.0 365 B, R 1 SIM S/A (N)

Goal. Conduct an UAS operation in CBRN environment.

Requirement.

1. Demonstrate the ability to perform UAC responsibilities in a simulated/live CBRN environment.
2. Demonstrate crew resource management while wearing mission oriented protective posture (MOPP) gear.

Performance Standard. Demonstrate the ability to effectively communicate with the crew and perform the function of a UAC while in MOPP level 3 or 4 IAW the reference and without degradation to the mission.

Instructor. SI

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU

2. Advanced Flight Operations (AFO).

a. Purpose. To develop UAC tactical and technical skills to support advanced flight operations.

b. Prerequisite. UAC, AR, TGO and IDF qualifications.

AFO-4600 3.0 365 B, R G

Goal. Introduce Strike Coordination And Reconnaissance (SCAR) mission integrating surface fires, fixed wing and rotary wing SCAR assets.

Requirement.

1. Discuss SCAR missions with:
 - a. Fixed wing aircraft.
 - b. Rotary wing aircraft.
 - c. Surface fires.
2. Discuss Offensive Air Support (OAS)
3. Identify and discuss threat
4. Describe airspace management and SCAR asset allocation ISO the ground scheme of maneuver and target precedence list.
5. Describe C3, ROE, and ATO (SPINS) requirements and criteria.
 - a. Review ATO for supporting assets and develop flows and deconfliction plan.

- b. Receive/review target priority list (TPL), joint prioritized target list (JPTL) and associated desired mean points of impact (DMPI).
- 6. Develop a reconnaissance plan.
 - a. Determine desired weapons effects to meet commander's intent.
 - b. Determine desired/anticipated attack profile with regards to threat and terrain.
- 7. Develop plan for BDA and requisite reporting.
- 8. Explain impacts of weather and threat on the SCAR mission.
- 9. Create target area overlay that includes routing, V diagram and other integration measures.

Performance Standard.

- 1. Complete all requirement items IAW the references.
- 2. Demonstrate an understanding of the SCAR mission with SCAR assets, applicable directives, C2 relationships, and SCAR authorities to complete the requirement without mission degradation.

Instructor. SI

Reference.

- 1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
- 2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
- 3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
- 4. NTTP 3-22.3-VMU
- 5. MAWTS-1 Courseware

AFO-4610	5.0	365	B, R	1	SIM	S/A	(N)
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Goal. Conduct the Strike Coordination and Reconnaissance (SCAR) mission.

Requirement.

- 1. Employ an UAS or IMS to conduct a SCAR mission.
- 2. Plan for and execute a SCAR mission.
- 3. Demonstrate situational awareness and ability to manage airspace and SCAR assets ISO the ground scheme of maneuver and target priority list.
- 4. Determine C3, ROE, and ATO (SPINS) requirements and criteria.
- 5. Scrub ATO for supporting assets and develop integration plan.
- 6. Receive/review target priority list (TPL), joint prioritized target list (JPTL) and associated desired mean points of impact (DMPI).
- 7. Develop a reconnaissance plan.
 - a. Determine desired weapons effects to meet commander's intent.
 - b. Determine desired/anticipated attack profile with regards to threat and terrain.
- 8. Incorporate plan for BDA and requisite reporting.
- 9. Assess impact of weather and threat on the SCAR mission.
- 10. Create target area overlay that includes routing, V diagram and other integration measures.

Performance Standard.

1. Complete all requirement items IAW the references.
2. Demonstrate an understanding of the SCAR mission, applicable directives, C2 relationships, and SCAR authorities to complete the requirement without mission degradation.
3. Manage at least (1) fixed wing and (1) rotary wing SCAR asset and prosecute at least (1) target IAW with the reference and without degradation of the mission.
4. Demonstrate effective ORM throughout the flight.

Instructor. SI

Prerequisite. AFO-4600

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU
5. MAWTS-1 Courseware

AFO-4620	5.0	365	B, R	1	UAS	A	(N)
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Goal. Conduct the Strike Coordination and Reconnaissance (SCAR) mission.

Requirement.

1. Plan for and execute a SCAR mission.
2. Demonstrate situational awareness and ability to manage airspace and SCAR assets ISO the ground scheme of maneuver and target priority list.
3. Determine C2, communication, ROE, and ATO (SPINS) requirements and criteria.
4. Scrub ATO for supporting assets and develop deconfliction plan.
5. Receive/review target priority list (TPL), joint prioritized target list (JPTL) and associated desired mean points of impact (DMPI).
6. Develop the reconnaissance plan.
 - a. Determine desired weapons effects to meet Commander's intent.
 - b. Determine desired/anticipated attack profile with regards to threat and terrain.
7. Incorporate plan for BDA and requisite reporting.
8. Assess impact of weather and threat on the SCAR mission.
9. Create target area overlay that includes routing, V diagram and other integration measures.

Performance Standard.

1. Complete all requirement items IAW the references.

2. Demonstrate an understanding of the SCAR mission, applicable directives, C2 relationships, and SCAR authorities to complete the requirement without mission degradation.
3. Manage at least (1) rotary wing and/or (1) fixed wing SCAR asset, and prosecute at least (1) target IAW with the reference and without degradation of the mission.

Instructor. SI

Prerequisite. AFO-4610

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTPP 3-22.3-VMU
5. MAWTS-1 Courseware

3. UNMANNED AIRCRAFT SYSTEM MISSION COMMANDER (UMC).

a. Purpose. To develop skills required to command multiple UAS missions. The UAC will be trained to not only supervise, monitor, and coordinate two or more UAS flights simultaneously but additionally COC management and combining the full spectrum of VMU supported missions will be stressed.

b. Prerequisite. CBRN and AFO qualifications.

UMC-4700	5.0	*	B, R	G
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Goal. Introduce multiple UAS operations.

Requirement. Discuss control of two or more unmanned aircraft in support of single or multiple missions by completing the following:

1. Complete a two hour chalk talk and rehearsal on concurrent/complimentary/simultaneous UAS operations emphasizing mutual support, geographic separation, and associated overlaps.
2. Discuss COC asset management and control.
3. Discuss multiple T/M/S UAS to include:
 - a. UAS platform to mission match
 - b. Asset integration
 - c. UAS airspace management

Performance Standard.

1. Complete the requirement items IAW the references.
2. Demonstrate working knowledge by correctly responding to instructor questions on all topics discussed during chalk talk and included in the requirement.

Instructor. SI

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

UMC-4710 5.0 365 B, R 2 UAS A (N)

Goal. Conduct multiple UAS operations.

Requirement. Control two or more UASs in support of single or multiple missions by completing the following:

1. Monitor aircrew communications
2. Describe COC asset management and control
3. Describe multiple T/M/S UAS to include:
 - a. UAS platform to mission match
 - b. Asset integration
 - c. UAS airspace management

Performance Standard.

1. Complete all requirement items IAW the references.
2. Conduct pre-flight brief to include multiple UAS plan IAW the reference.
3. Complete multiple UAS operations IAW applicable reference and without mission degradation.

Instructor. SI

Prerequisite. UMC-4700

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. NTTP 3-22.3-VMU

313. INSTRUCTOR TRAINING (5000).

1. General.

a. Purpose. To provide qualified personnel the additional skills necessary to instruct and evaluate trainees. Upon completion of the required training, an individual may be considered for instructor designation by the commanding officer.

b. Prerequisite. To ensure individual training is conducted by

experienced instructors, personnel must be qualified on the position or be proficient in the skill in which they are conducting training.

c. Administrative Notes. There are six instructor designations. The BI and SI are governed by the T&R; WTI is governed by the MAWTS-1 WTI training program; ANI and NIs are governed by NATOPS; and CRMI is governed by CRM program.

(1) Basic Instructor (BI). Training requirements per the BIUT POI.

(2) Senior Instructor (SI). Training requirements per the SIUT POI.

(3) Weapons and Tactics Instructor (WTI). Training per the MAWTS-1 WTI POI.

(4) Assistant NATOPS Instructor (ANI). A highly qualified individual who has met OPNAVINST 3710.7 requirements.

(5) NATOPS Instructor (NI). A highly qualified individual whose primary duty is administering the NATOPS evaluation program within a squadron and who has met OPNAVINST 3710.7 requirements.

(6) Crew Resource Management Instructor (CRMI). A highly qualified individual who has met the OPNAVINST 1542.7 requirements.

(7) The intent is to train individuals with different levels and areas of experience to instruct personnel. Instructor experience is also gained while progressing through the different instructor designations.

(8) Upon being designated as an instructor, the instructor shall remain proficient in those skills, qualifications, or designations in which providing instruction or evaluation.

T&R INSTRUCTOR	EVENT TRAINING, EVALUATION AND APPROVAL
BI (UAC)	Train, evaluate, and approve completion of events in which qualified or designated, to include: - Core Skill: UAC - Mission Skill: AR, TGO, IDF - Instructor Events: BI
SI	Train, evaluate, and approve completion of events in which qualified or designated, to include: - Core Skill: UAC - Mission Skills: AR, TGO, IDF - Core Plus Skills: AFO, UMC - Instructor Events: BI and SI
WTI	Train, evaluate, and approve completion of: - Any event in a core, mission or core plus skill in which proficient. - Any qualification or designation event in which the WTI is current and proficient.

	- Make recommendation for qualifications and designation.
Note	The commanding officer is the approving authority for all qualifications and designations.

2. Basic Instructor Under Training (BIUT).

a. Purpose. To provide personnel the skills necessary to effectively plan for, instruct, evaluate and document training for those events in which proficient.

b. Prerequisite.

(1) Be UAC and AR qualified.

(2) Be recommended to begin BI training by the standardization board to the CO for written approval. Approval from the CO must be received before training can begin.

c. Administrative Notes.

(1) Upon completing the BI POI, the BIUT is recommended for designation by the standardization board for CO written approval.

(2) Initially, the BI may provide instruction in UAC events.

(3) Subsequently, as the BI becomes mission skill proficient in TGO, IDF or CBRN, the BI is permitted to instruct events in the mission skill(s) in which proficient.

BIUT-5500 1.0 * B G

Goal. Demonstrate knowledge of the principles of instruction and standardization/training tools.

Requirement.

1. Introduce/discuss/demonstrate instruction techniques.
2. Introduce/discuss/demonstrate class management techniques.
 - a. How to use class resources to communicate with the student.
 - b. How to organize the class for effective instruction.
3. Introduce/discuss/demonstrate how to prepare for a period of instruction.
 - a. Schedule the class.
 - b. Prepare/access the training materials for the class.
 - c. Prepare the evaluation form to be used to evaluate the student's event performance, as applicable.
4. Discuss any instructor selected system or tactical employment consideration.
5. Discuss instructor duties.
6. Identify the structure and content of the training references, to include:
 - a. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000).
 - b. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010).
 - c. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500).

- d. NTP 3-22.3-VMU.
 - e. Aviation T&R program manual.
 - f. Local/squadron SOPs.
 - g. Range SOPs.
7. Describe Aviation T&R Program policy and requirements.
- a. Describe training documentation requirements.
 - b. Describe UAS components and their functions.
 - c. Describe all administrative duties, NATOPS requirements, CRM training and readiness record keeping, and evaluation documentation.
 - d. Demonstrate mastery of CRM concepts.

Performance Standard.

1. Complete all items IAW the references.
2. Instructor will verbally assess the BIUT's understanding of the principles of instruction.
3. BIUT will answer the questions in detail and without error to demonstrate event required knowledge.
4. BIUT will demonstrate proper instruction and classroom techniques.

Note: Completion of the BITC, FSIC or ABIC satisfies this requirement.

Instructor. BI, SI

Reference.

1. NAVMC 3500.14_
2. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
3. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
4. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
5. NTP 3-22.3-VMU
6. Local/squadron SOPs
7. Range SOPs

BIUT-5510 1.0 * B G

Goal. Understand the structure of an event.

Requirement. Given a complete T&R event:

1. State the purpose of a T&R event.
2. Using the given event, explain each section of the event:
 - a. Explain the purpose and content of the goal
 - b. Explain the requirement condition and performance steps
 - c. Explain understand what actions must be taken to prepare to instruct the event.
 - d. Explain how the event performance standard is measured and when event requirement has been met.
 - e. State who can instruct the event.
 - f. State the event prerequisite and how to verify that it was completed.
 - g. Explain how the external syllabus support requirement will be resourced (if required).
 - h. State the references required and how each would be used to

aid in training the event.

Performance Standard. During a discussion session, the instructor shall review the event content and question the BIUT throughout the training session to ensure understanding. The BIUT must answer all questions correctly.

Instructor. BI, SI

Reference. NAVMC 3500.14, chapter 6.

BIUT-5520	2.0	*	B	1	SIM	S
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Goal. Operate Simulator for Training Mission.

Requirement. Given the appropriate technical publications and equipment, perform required procedures to set up the system for a training mission.

1. Set-up GCS for simulated flight operation
2. Set-up VRSG software
3. Employ configuration files
4. Import VRSG target file
5. Demonstrate weather station software simulation
6. Demonstrate all procedures including preset, preflight, start/launch, emergency, and shutdown
7. Prepare and configure simulator for student to practice flight operations

Performance Standard. Complete setup of simulator IAW with reference without error; BIUT may self correct.

Instructor. BI, SI

Reference. TM 9-5895-YYY-10

BIUT-5530	3.0	*	B	1	SIM	S/A	(N)
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Goal. Conduct a period of instruction during AR-3500.

Requirement.

1. State the instructor responsibilities.
2. Define goal and content of a selected T&R event
3. Prepare to train the event.
 - a. Review a trainee's APR to identify required training for the event selected.
 - b. Ensure the student meets the event prerequisites.
 - c. Develop a student training plan to ensure progression per this Manual.
 - d. Schedule the training event (facilities and students)
 - e. Gather the resources necessary to conduct the training (i.e. instructional materials, references and equipment)
 - f. Prepare an evaluation form for each student to be evaluated.
4. Conduct training on the event selected:

- a. Ensure all training resources are properly staged and equipment is set up for training.
 - b. Instruct the student in a thorough manner so as to cover all requirements for the event.
 - c. Ensure continuous, objective assessment of the student's progress during training.
5. Assess student performance
- a. Ensure student meets the performance standard.
 - b. Correct student deficiencies in a timely manner and provide the student feedback.
 - c. Complete an evaluation form on the student trained.
 - d. Debrief the student and provide critique of performance.
6. Route evaluation form as required.

Performance Standard.

1. Conduct instruction during AR-3500.
2. Complete all requirement items IAW the references
3. Review the student APRs to ensure all prerequisites are met.
4. Ensure all event resources are available prior to instruction.
5. Demonstrate proper instruction techniques and delivers the instructional content in a clear manner.
6. Demonstrate effective task organization and mission planning.
7. Correct student deficiencies in a timely manner.

Instructor. BI, SI

Prerequisite. BIUT-5500, 5510, 5520

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. NAVMC 3500.14_
2. NAVMC 3500.34_
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTTP 3-22.3-VMU

3. Senior Instructor Under Training (SIUT)

a. Purpose. To provide the UMC with the skills necessary to instruct core, mission and core plus events in this syllabus. An SI is able to instruct, ensure T&R standardized requirements are met, and assist in implementing this T&R program within the squadron.

b. Prerequisite.

(1) TRCK 6240: System Approach to Training (SAT) MarineNet Course (UT01A0), URL <https://www.marinenet.usmc.mil/marinenet>

(2) Be a qualified as:

- (a) UAC
- (b) AR

- (c) TGO
- (d) IDF
- (e) AFO
- (f) UMC

(3) Be designated as a BI.

(4) Be recommended for SIUT training by the standardization board to the CO for written approval. Approval from the CO must be received before training can begin.

c. Administration Notes.

(1) Upon completing the SIUT POI, the UMC is recommended for SI designation by the standardization board to the CO for written approval.

(2) A SI may provide instruction in any event in a core, mission, or core plus skill in which proficient, qualified or designated.

SIUT-5600	2.0	*	B	G
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Goal. Understand Aviation Training and Readiness (T&R) Program concepts and their application to the UAS community proficiency and readiness requirements.

Requirement

1. State T&R policies pertinent to the UAS community.
2. State the purpose and structure of the Core Model.
3. Define and explain the purpose of the following:
 - a. Core and Mission Skills
 - b. Certifications (including one-time certifications)
 - c. Qualification
 - d. Designations
 - e. Combat leadership
 - f. Core Mission Essential Task List (METL)
 - g. Core Model Minimum Requirements (CMMR)
 - h. Core Model Training Report (CMTR)
 - i. TEEP
 - j. Individual Aircrew Performance Record (APR)
4. Explain the requirements to achieve:
 - a. Proficiency in each core skill (CSP)
 - b. Proficiency in each mission skill (MSP)
 - c. Each certification
 - d. Each qualification
 - e. Each designation:
 - (1) Combat Leadership requirements
 - (2) Instructors
5. Explain unit CMMR, how it applies to each crew, and how to achieve it.
6. Demonstrate how to read a CMTR and determine training deficiencies.
7. Explain the training progression models for UAS officers and enlisted as it applies to each position.
8. Explain how to submit changes to the Aviation T&R Program Manual.

- b. Current training status
- c. Identify the training deficiencies and resource shortfalls
- d. Explain the training plan to correct the training deficiencies.

Performance Standard. Complete the requirement IAW the reference. The training brief should address all requirement items and support the given scenario. The instructor shall question and mentor the SIUT throughout the conduct of this event to ensure a clear understanding of how to develop the training plan.

Instructor. SI

Prerequisite. SIUT 5610

Reference.

1. NAVMC 3500.14
2. NAVMC 3500.34

SIUT-5630	5.0	*	B	1 SIM	S/A	(N)
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Goal. Conduct a period of instruction during AFO-4610.

Requirement

1. Prepare to instruct AFO-4610.
2. Discuss any instructor selected system, or tactical employment consideration.
3. Conduct instruction on AFO-4610.
4. Discuss the differences between executing a SCAR mission with fixed wing assets and rotary wing assets.
5. Identify emergencies associated with conducting SCAR missions.
6. Identify and correct student deficiencies.
7. Debrief student and note deficiency areas.
8. Demonstrate mastery of CRM concepts.
9. Route completed evaluation form for logging.

Performance Standard. Evaluated on the ability to:

1. Conduct instruction during AFO-4610.
2. Complete all requirement items IAW the references
3. Review the student individual performance record to ensure all prerequisites were completed.
4. Ensure all event resources are available prior to instruction.
5. Demonstrate proper instruction techniques and delivers the instructional content in a clear manner.
6. Demonstrate effective task organization and mission planning.
7. Correct student deficiencies in a timely manner.

Instructor. SI

Prerequisite. SIUT-5620

Range Requirements. If conducted live, any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. NAVMC 3500.14
2. NAVMC 3500.34
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTPP 3-22.3-VMU
7. MAWTS-1 Courseware

SI-5640 5.0 * B 2 UAS A (N)

Goal. Conduct a period of instruction during UMC-4710.

Requirement

1. Prepare to instruct UMC-4710 during multiple UAS operations.
2. Discuss any instructor selected system, or tactical employment consideration.
3. Conduct instruction on UMC-4710.
4. Discuss capabilities of all Marine Corps UAS assets that may be encountered while executing a Multiple UAS mission.
5. Identify characteristics and capabilities of all DOD UAS assets that may be encountered during a Multiple UAS mission.
6. Discuss all UAS that may be encountered and utilized for a Multiple UAS mission while working with other DOD services or with foreign allies.
7. Identify communication issues that may be encountered while working with outside agencies.
4. Identify and correct student deficiencies.
5. Debrief student.
6. Demonstrate mastery of CRM concepts.
7. Route completed evaluation form for logging.

Performance Standard.

1. Conduct instruction during UMC-4710.
2. Complete all requirement items IAW the references
3. Review the student individual performance record to ensure all prerequisites were completed.
4. Ensure all event resources are available prior to instruction.
5. Demonstrate proper instruction techniques and delivers the instructional content in a clear manner.
6. Demonstrate effective task organization and mission planning.
7. Correct student deficiencies in a timely manner.

Instructor. SI

Prerequisite. SIUT-5620

Range Requirements. Any one or combination of the following ranges: RSTD, URBN TRG, COMPLEX, MOCK, TGT-MOVE, RECCE ARRAY or STRUCTRL.

Reference.

1. NAVMC 3500.14
2. NAVMC 3500.34
3. TM 1-1550-689-10-1 (NAVY A1-RQ7BA-NFM-000)
4. TM 1-1550-689-10-2 (NAVY A1-RQ7BA-NFM-010)
5. TM 1-1550-689-10-CL (NAVY A1-RQ7BA-NFM-500)
6. NTPP 3-22.3-VMU

314. REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (6000).

1. General.

a. Purpose. This phase provides for community standardization of the UAS officer position NATOPS annual flight checks and track formal resident and nonresident courses. Also, see certifications, qualifications and designations tables in this chapter.

b. Admin Notes.

(1) Training specifics for annual NATOPS requirements are contained in OPNAVINST 3710.7.

(2) Formal course event codes are intended to facilitate the tracking and management of formal course completions. Formal courses include resident and nonresident training. This POI contains formal courses as prerequisites for a phase, stage or event.

2. Tracking (TRCK). Tracking codes track distance learning training.

TRCK 6200	*	B	G
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Goal. Tracking code for MarineNet Course - Fire Support Coordination (FSC).

Requirement. Complete FSC course (CID: 0801AO).

Performance Standard. IAW FSC POI.

TRCK 6230	*	B	G
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Goal. Tracking code for MarineNet Course Joint Terminal Attack Controller Primer Curriculum (JTACPC) Course

Requirement. Complete JTACPC .

Performance Standard. IAW JTACPC POI.

TRCK 6240	*	B	G
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Goal. Tracking code for MarineNet Course System Approach to Training (SAT).

Requirement. Complete SAT course (CID: UT01AO).

Performance Standard. IAW SAT POI.

315. T&R SYLLABUS MATRIX. The syllabus matrix summarizes T&R syllabus event information and provides old-to-new event conversion.

7315 SYLLABUS MATRIX																		
STAGE	EVENT CODE	EVENT DESCRIPTION	LIVE EVENT TOTAL	FLT HRS	SIM EVENT TOTAL	SIM HRS	GROUND EVENT TOTAL	GROUND HRS	REFLY INTERVAL	POI	EVAL	TOTAL #	TYPE	OPTIONS	CONDITIONS	PREREQ	CHAINING	OLD EVENT CODE CONVERSION
CORE SKILL INTRODUCTION (1000)																		
UAC	1500	Complete UAC ground school						107.0	*	B				G				GRADUATE OF MOS 7315 UAC COURSE
UAC	1510	Intro to Launch and Recovery Flight			1.0				*	B		1	IMS	S		1500		
UAC	1520	Intro to Flight Operations			1.0				*	B		1	IMS	S		1510		
UAC	1530	Intro to Emergency Procedures			2.0				*	B		1	IMS	S		1520		
UAC	1540	Conduct Flight Operations		2.0					*	B		1	RQ7B UAS	A/S	(N)	1530		
UAC	1550	Conduct AR Mission		2.0					*	B		1	RQ7B UAS	A/S	(N)	1540		
UAC	1560	Conduct Emergency Procedures		2.0					*	B		1	RQ7B UAS	A/S	(N)	1550		
UAC	1570	Conduct a UAC Evaluation Flight		2.0					*	B	E	1	RQ7B UAS	A/S	(N)	1560		
CORE SKILL INTRODUCTION (1000) TOTALS																		
			0	8.0	0	4.0	1	107.0										
CORE SKILL (2000)																		
UNMANNED AIRCRAFT COMMANDER (UAC)																		
UAC	2500	Annual CRM Training						2.0	365	B,R				G				TFO 201
UAC	2510	Describe AO, Unit SOPs, Local Course Rules and Regs						2.0	365	B,R				G				TF0-200
UAC	2520	Intro to flt ops				3.0			*	B		1	IMS OR MUSE	S/A	(N)	2510		TFO-202

14 Dec 2010

UAC	2530	Intro and review flt ops		3.0					*	B		1	RQ7B UAS	A/S	(N)	2520	2520	TFO-203	
UAC	2540	Conduct basic flt ops		5.0					365	B, R		1	RQ7B UAS	A	(N)	2530	2520, 2530	TFO- 211	
UAC	2550	Perform UAS comm relay msn		3.0					365	B, R		1	RQ7B UAS	A	(N)	2540	2520, 2530, 2540	NEW	
UAC	2560	Coord split site ops w/ control station transfer		3.0					365	B, R		1	RQ7B UAS	A	(N)	2540	2520, 2530, 2540	TFO-305	
UAC	2570	Conduct OSR		3.0					365	B, R		2	RQ7B UAS	A	(N)	2560	2520, 2530, 2540	TFO-401	
UACQM	2599	Conduct a tactical mission		3.0					1095	B, R	E	1	RQ7B UAS	A	(N)	2550, 2570, Tgt recog class		MCQM-219	
			6	20.0	0	3.0	2	4.0											
CORE SKILL (2000) TOTALS																			
			6	20.0	1	3.0	2	4.0											
MISSION SKILL (3000)																			
PHASE PRERQ: UAC QUAL																			
AERIAL RECONNAISSANCE (AR)																			
AR STAGE PRERQ: TRCK 6200 (FSC)																			
AR	3500	Conduct threat survivability and counter detection				4.0			365	B, R		1	IMS or MUSE	S/A	(N)			TFO- 301	
AR	3510	Conduct reconnaissance in an urban environment		4.0					365	B, R		1	RQ7B UAS	A/S	(N)	3500	2520, 2530, 2540	NEW	
AR	3520	Conduct Convoy Support Operations		4.0					365	B, R		1	RQ7B UAS	A	(N)	3500	2520, 2530, 2540	NEW	
AR	3530	Support raid or TRAP operations		4.0					365	B, R		1	RQ7B UAS	A	(N)	3500		NEW	
			3	12.0	1	4.0	0	0.0											
TERMINAL GUIDANCE OPERATIONS (TGO)																			
TGO STAGE PRERQ: AR QUAL, TRCK 6230 (JTACPC)																			

TGO	3600	Conduct TGO Day		5.0					365	B, R		1	RQ7B UAS	A/S	D		2520, 2530, 2540	NEW	
TGO	3610	Conduct TGO Ops Night		5.0					365	B, R		1	RQ7B UAS	A	N	3600	2520, 2530, 2540, 3600	NEW	
			2	10.0	0	0.0	0	0.0											
INDIRECT FIRES (IDF)																			
IDF STAGE PREREQ: AR QUAL, TRCK 6230 (JTACPC)																			
IDF	3700	Intro UAS Call-for-fire						2.0		B, R				G					FC-306
IDF	3710	Intro Arty, Mortar, NSFS and HIMARS spotter TTPs to control IDF				3.0			365	B, R		1	IMS or MUSE	S		3700	3700		FC-306
IDF	3720	Conduct call for fire msn		3.0					365	B, R		1	RQ7B UAS	A	(N)	3710	2520, 2530, 2540, 3700, 3710		FC-307
			3	3.0	3	3.0	1	2.0											
CORE SKILL (3000) TOTALS																			
			8	25.0	4	7.0	1	2.0											
CORE PLUS SKILL (4000)																			
PHASE PREREQ: UAC QUAL																			
CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR(CBRN)																			
CBRN STAGE PREREQ: UAC QUAL																			
CBRN	4500	Conduct UAS Ops in CBRN environment				2.0			365	B, R		1	IMS or MUSE	S/A	(N)				NBC-308
			0	0.0	1	2.0	0	0.0											
ADVANCED FLIGHT OPERATIONS (AFO)																			
AFO STAGE PREREQ: UAC, AR, TGO, IDF QUALS																			
AFO	4600	Intro SCAR msn integrating surface fires, and FW/RW SCAR assets						3.0	365	B, R				G					NEW
AFO	4610	Conduct SCAR msn				5.0			365	B, R		1	IMS or MUSE	S/A	(N)	4600			NEW
AFO	4620	Conduct SCAR msn		5.0					365	B, R		1	RQ7B UAS	A	(N)	4610	4600, 4610		NEW
			1	5.0	1	5.0	1	3.0											
UNMANNED AIRCRAFT SYSTEM MISSION COMMANDER (UMC)																			

14 Dec 2010

UMC STAGE PREREQ: CBRN, AFO QUALS																		
UMC	4700	Intro multiple UAS ops						5.0	*	B, R				G			NEW	
UMC	4710	Conduct multiple UAS ops		5.0					365	B, R		2	RQ7B UAS	A	(N)	4700	4700	NEW
			1	5.0	0	0.0	1	5.0										
MISSION SKILL (4000) TOTALS																		
			2	10.0	2	7.0	2	8.0										
INSTRUCTOR (5000)																		
BASIC INSTRUCTOR UNDER TRAINING (BIUT)																		
BIUT STAGE PREREQ: UAC and AR QUALS																		
BIUT	5500	Demonstrate knowledge of the principles of instruction and standardization/training tools						1.0	*	B				G			MCIUT-500	
BIUT	5510	Understand the structure of an event						1.0	*	B				G			MCIUT-501	
BIUT	5520	Operate Simulator for Training Msn				2.0			*	B		1	IMS or MUSE	S			MCIUT-508	
BIUT	5530	Conduct instruction on AR-3500				3.0			*	B		1	IMS or MUSE	S/A	(N)	5500, 5510, 5520	MCIUT-508	
			0	0.0	2	5.0	2	2.0										
SENIOR INSTRUCTOR UNDER TRAINING (SIUT)																		
SIUT STAGE PREREQ: BI, UAC, AR, TGO, IDF, AFO, UMC QUALS																		
SIUT	5600	Understand Avn T&R Program and its application to UAS community proficiency and readiness requirements						2.0	*	B				G			NEW	
SIUT	5610	Understand T&R Administration						2.0	*	B				G		5600	NEW	
SIUT	5620	Develop a crew training plan						2.0	*	B				G		5610	NEW	
SIUT	5630	Conduct a period of instruction during AFO-4610				5.0			*	B		1	IMS or MUSE	S/A	(N)	5620	NEW	
SIUT	5640	Conduct a period of instruction during UMC-4710		5.0					*	B		2	RQ7B UAS	A	(N)	5620	NEW	
			1	5.0	1	5.0	3	6.0										
INSTRUCTOR (5000) TOTALS																		
			1	5.0	3	10.0	5	8.0										
REQUIREMENTS, QUALIFICATIONS, DESIGNATIONS																		
REQUIREMENTS (RQD)																		

RQD	6500	Complete open book NATOPS evaluation and administrative requirements.					2.0	365	B, R	E			G	OPNAVINST 3710.7	RQD 619
RQD	6510	Complete closed book NATOPS evaluation and administrative requirements.					2.0	365	B, R	E			G	6500, OPNAVINST 3710.7	RQD 619
RQD	6520	Demonstrate proficiency flying an annual NATOPS check		2.0				365	B, R	E	1	RQ7B UAS	A	6510, OPNAVINST 3710.7	RQD 619
			1	2.0	0	0.0	2	4.0							
TRACKING (TRCK)															
TRCK	6200	Tracking code for MarineNet Course - FSC						*	B				G		NEW
TRCK	6230	Tracking code for MarineNet Course - JTACPC						*	B				G		NEW
TRCK	6240	Tracking code for MarineNet Course - SAT						*	B				G		NEW

316. SYLLABUS EVALUATION FORM. The syllabus evaluation form posted on the MAWTS-1 website at <https://www.intranet.tecom.usmc.mil/sites/mawts1/departments1/newc3/uas/Shared%20Documents/Forms/AllItems.aspx> shall be used to evaluate all training events in this Manual.

317. SIMULATOR MISSION ESSENTIAL SUBSYSTEMS MATRIX (MESM). None.