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From: Commandant of the Marine Corps
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Subj: MV-22B T&R MANUAL

Ref: (a) NAVMC 3500.14B

Encl: (1) Revised page inserts to NAVMC 3500.11B.

1. Purpose. To transmit revised pages to the basic Manual.

2. Action. Chapter 1 of the basic Manual has been revised and is replaced per the reference and Enclosure (1).

3. Information. Significant changes in this revision include the following.

a. Consolidates all references to crews or crew definition into a new paragraph entitled "Readiness Reporting." The intent of this new paragraph is to more accurately capture how a commander forms crews that are capable of executing a Mission Essential Task (MET).

b. Segregates certain designations from the Combat Leadership table (such as the Functional Check Pilot designation) that do not directly contribute to providing the commander with the leadership skills required to execute the unit Mission Essential Task List (METL).

c. Incorporates greater readiness terminology standardization that applies across all tactical aviation Type/Model/Series (T/M/S).

d. Changes minimum requirement from 8 crews to 4 crews for Aerial Delivery (AD).

4. Recommendations. Recommended changes to this publication 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. 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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From: Commandant of the Marine Corps
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Subj: MV-22B T&R MANUAL

Ref: (a) NAVMC 3500.14B

Encl: (1) MV-22B T&R MANUAL

1. Purpose. To revise standards and regulations regarding the training of MV-22B aircrew per the reference.

2. Cancellation. NAVMC 3500.11A

3. Information. Changes in this revision focus on the addition of a ramp-mounted GAU-16/A weapon system as follows.

a. Chapter 2. Adds one event and multiple references regarding the GAU—16A weapons system, deletes an academic event regarding Escort Operations, and updates the chaining table for Night Systems.

b. Chapter 3. Adds seven events and related references regarding the GAU-16/A weapons system.

c. Updates aircrew matrices for Chapters 2 and 3 to include the aircrew conversion code matrices.

4. Recommendations. Recommended changes to this publication 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 Branch using standard Naval Correspondence or the Automated Message Handling System plain language address: CG TECOM QUANTICO VA ATB.

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

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M. G. SPIESE
By direction

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CHAPTER 1

MV-22B UNIT TRAINING AND READINESS REQUIREMENTS

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CHAPTER 1

MV-22B TRAINING AND READINESS UNIT REQUIREMENTS

100. VMM TRAINING AND READINESS UNIT 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 Mission Essential Tasks (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. VMM MISSION. Support the MAGTF Commander by providing assault support transport of combat troops, supplies and equipment, day or night, under all weather conditions during expeditionary, joint, or combined operations.

102. VMM TABLE OF ORGANIZATION (T/O). Refer to Table of Organization (T/O) 8920 managed by Total Force Structure, MCCDC for current authorized organizational structure and personnel strength. As of this publication date, VMM units are authorized:

VMM Squadron
12 MV-22B
28 Pilots
20 Crew Chiefs
12 Aerial Gunners/Observers

VMMT Squadron
17 MV-22B
20 Instructor Pilots
15 Crew Chief Instructors
23 Crew Chiefs

103. VMM SKILL ABBREVIATIONS. Shading indicates Core Plus/Mission Plus Skills.

CORE SKILLS	
FAM	Familiarization / Instrument
CAL	Confined Area Landing
FORM	Formation
LAT	Low Altitude Tactics
HLL	High Light Level
LLL	Low Light Level
AAR	Air-to-Air Refueling
TG	Tail Gunnery
EXT	External Operations
MAT	Mountain Area Training
GTR	Ground Threat Reaction
CQ	Carrier Qualification
MISSION SKILLS	
SEA	Expeditionary Sea-Based
SHORE	Expeditionary Shore-Based
AS	Assault Support
AD	Aerial Delivery
TRAP	Tactical Recovery of Aircraft and Personnel
AE	Air Evacuation
CORE PLUS SKILLS	
DCM	Defensive Combat Maneuvers
CBRN	Chemical Biological Radiological Nuclear
AIE	Alternate Insertion / Extraction
TAC	Tactics
CQ	Carrier Qualification
MAT	Mountain Area Training
RGR	Rapid Ground Refueling
MISSION PLUS SKILLS	
RI/E	Rapid Insertion / Extraction

104. VMM MISSION ESSENTIAL TASK LIST (METL)

1. Core METL. The METL is a list of specified tasks a VMM squadron is designed to perform. Core METs are drawn from the Marine Corps Task List (MCTL), are standardized by type unit, and are used for unit readiness. Core Plus METs are additional METs that are theater specific and/or have a low likelihood of occurrence. Core Plus METs may be included in readiness reporting when contained within an Assigned Mission METL. An Assigned Mission METL consists of only the selected MCTs (drawn from Core and Core Plus METs) necessary for that Assigned Mission.

Core METL

MCT 1.3.3.3.1	Conduct Aviation Operations From Expeditionary Sea-Based Sites
MCT 1.3.3.3.2	Conduct Aviation Operations From Expeditionary Shore-Based Sites
MCT 1.3.4.1	Conduct Combat Assault Transport
MCT 4.3.4	Conduct Air Delivery
MCT 6.2.1.1	Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)
MCT 6.2.2	Conduct Air Evacuation

Core Plus MET

MCT 1.3.4.1.1	Conduct Airborne Rapid Insertion/Extraction

2. MET Output Standards. MET output standards are the required level of performance a VMM Squadron 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. A core capable MV-22B unit is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.5 hour average sortie duration and assumes $\geq$ 70 percent FMC aircraft and $\geq$ 90 percent T/O aircrew on hand. If unit FMC aircraft < 70 percent or T/O aircrew < 90 percent, core capability will be degraded by a like percentage. A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platforms.

VMM MET Output Standards MV-22B Squadron (12 Aircraft)			
MCT	MET	OUTPUT STANDARD	
		MAXIMUM DAILY SORTIES*	MAXIMUM SORTIES PER MCT
MCT 1.3.3.3.1	Conduct Aviation Operations From Expeditionary Sea-Based Sites	20	20
MCT 1.3.3.3.2	Conduct Aviation Operations From Expeditionary Shore-Based Sites		20
MCT 1.3.4.1	Conduct Combat Assault Transport		20
MCT 4.3.4	Conduct Air Delivery		10
MCT 6.2.1.1	Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)		20
MCT 6.2.2	Conduct Air Evacuation		20
Core Plus MET Output Standards			
MCT	MET	OUTPUT STANDARD	
		MAXIMUM DAILY SORTIES*	MAXIMUM SORTIES PER MCT
MCT 1.3.4.1.1	Conduct Airborne Rapid Insert/Extraction	10	10

* A 12 plane Mission Capable VMM squadron is able to execute 20 total overall sorties on a daily (24 hour period) basis during contingency/combat operations.

105. VMM MET TO CORE/MISSION/CORE PLUS/MISSION PLUS SKILL MATRIX. Provides a pictorial view of the relationship between a VMM squadron Core METL and each Core Skill/Mission Skill/Core Plus Skill required to perform the METL. Shading indicates a Core Plus MET and corresponding Core Plus Skill/Mission Plus Skill.

VMM MET TO CORE/MISSION/CORE PLUS/MISSION PLUS SKILL MATRIX																										
MARINE CORPS TASK (MCT) // MISSION ESSENTIAL TASK (MET)	CORE SKILLS (2000 PHASE)												MISSION SKILLS (3000 PHASE)						CORE PLUS (4000 PHASE) SKILLS							MISSION PLUS
	FAM	CAL	FORM	LAT	NS HLL	NS LLL	AAR	TG	EXT	MAT	GTR	CQ	SEA	SHORE	AS	AD	TRAP	AE	DCM	CBRN	AI/E	TAC	CQ	MAT	RGR	RI/E
MCT 1.3.3.3.1 SEA	X	X	X	X	X	X	X	X			X	X	X						X	X	X	X	X		X	
MCT 1.3.3.3.2 SHORE	X	X	X	X	X	X		X		X	X			X					X	X	X	X		X	X	
MCT 1.3.4.1 AT	X	X	X	X	X	X		X		X	X				X				X	X	X	X		X	X	
MCT 4.3.4 AD	X	X	X	X	X	X		X	X	X	X					X			X	X	X	X		X	X	
MCT 6.2.1.1 TRAP	X	X	X	X	X	X		X		X	X						X		X	X	X	X		X	X	
MCT 6.2.2 AE	X	X	X	X	X	X		X		X	X							X	X	X	X	X		X	X	
CORE PLUS																										
MCT 1.3.4.1.1 RI/E	X	X	X	X	X	X		X		X	X										X					X

106. VMM CORE MODEL MINIMUM REQUIREMENT (CMMR) SKILLS PROFICIENCY REQUIREMENTS. The CMMR is the optimum number of aircrew to execute each stage of flight as detailed below. The numbers associated with each crew position column reflect the number of proficient aircrew required.

CORE SKILLS (2000 Phase)					
CORE SKILLS	PILOTS	CREW CHIEFS	AO/G	FRS PILOTS	FRS CREW CHIEFS
FAM	16	8	N/A	20	15
CAL	16	8	N/A	20	15
FORM	16	8	N/A	20	15
LAT	16	8	8	20	15
HLL	16	8	8	20	15
LLL	16	8	8	20	15
AAR	16	N/A	N/A	N/A	N/A
TG	16	8	8	N/A	N/A
EXT	16	8	8	20	15
MAT	16	N/A	N/A	N/A	N/A
GTR	16	8	8	N/A	N/A
CQ	16	8	N/A	N/A	N/A
MISSION SKILLS (3000 Phase)					
MISSION SKILL	PILOTS	CREW CHIEFS	AO/G	FRS PILOTS	FRS CREW CHIEFS
SEA	16	8	8	N/A	N/A
SHORE	16	8	8	N/A	N/A
AS	16	8	8	N/A	N/A
AD	8	4	4	N/A	N/A
TRAP	16	8	8	N/A	N/A
AE	16	8	8	N/A	N/A
CORE PLUS SKILLS (4000 Phase)					
CORE PLUS SKILL	PILOTS	CREW CHIEFS	AO/G	FRS PILOTS	FRS CREW CHIEFS
DCM	8	4	4	N/A	N/A
CBRN	8	4	N/A	N/A	N/A
AI/E	8	4	4	N/A	N/A
TAC	8	4	4	N/A	N/A
CQ	8	4	N/A	N/A	N/A
MAT	8	4	N/A	N/A	N/A
RGR	8	4	4	N/A	N/A
MISSION PLUS SKILLS (4000 Phase)					
RI/E	8	4	4	N/A	N/A

107. VMM READINESS REPORTING. The paragraphs and tables below delineate the minimum aircrew qualifications and designations required to contribute to unit readiness. Chapter 7 of the Aviation T&R Program Manual provides additional guidance and a detailed description of readiness reporting using the Defense Readiness Reporting System – Marine Corps (DRRS-MC) and the Current Readiness program.

1. Combat Leadership requirements for readiness reporting are per paragraph 109.1.

2. Crew requirements for specific missions may be balanced by the experience level of the crew and are at the discretion of the commanding officer. For readiness reporting purposes, the table delineates the minimum crew

definition qualifications and designations as well as the number of crews required per MET. Designated instructors may be used to offset specific training deficits when forming crews for readiness reporting. The number of crews formed, using the below minimum standards per crew, capture the readiness capability of a squadron to perform the MET sortie under all light levels and will be compared to the CMMR requirement for crews when reporting readiness.

VMM MINIMUM CREW QUALIFICATIONS / DESIGNATIONS REQUIRED FOR MET CAPABILITY					
CORE METS	**CREW POSITION**				**CREWS REQUIRED PER MET (CREW CMMR)**
MCT	**PILOT**	**COPILOT**	**CC**	**CC/AO***	**SQD**
1.3.3.3.1 (SEA)	MSP, TAC	NSQ(LLL), CQ	MSP	NSQ(LLL)	8
1.3.3.3.2 (EXP)	MSP, TAC	NSQ(LLL)	MSP	NSQ(LLL)	8
1.3.4.1 (AT)	MSP, TAC	NSQ(LLL)	MSP	NSQ(LLL)	8
4.3.4 (AD)	MSP, TAC	NSQ(LLL)	MSP	NSQ(LLL)	4
6.2.1.1 (TRAP)	MSP, TAC	NSQ(LLL)	MSP	NSQ(LLL)	8
6.2.2 (AE)	MSP, TAC	NSQ(LLL)	MSP	NSQ(LLL)	8
CORE PLUS METS					SQD
1.3.4.1.1 (RI/E)	MSP, TAC	NSQ**(LLL)**	MSP	NSQ**(LLL)**	4

* A non-MSP CC may serve in the capacity of an AO as long as the CC is NSQ(LLL).

A standard MV-22B crew consists of two pilots, one crew chief, and one AG/O. The 8 tail gunners may be a combination of crew chiefs and AG/Os who are Tail Gunnery Qualified (TGQ).

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

UNIT CMMR INSTRUCTOR (5000 PHASE)					
INSTRUCTOR DESIGNATION	**PILOTS**	**CREW CHIEFS**	**AO/G**	**FRS PIL0TS**	**FRS C/C**
FAMI	N/A	N/A	N/A	16	N/A
NAVI	N/A	N/A	N/A	8	N/A
INSTI	N/A	N/A	N/A	8	N/A
CALI	N/A	N/A	N/A	6	N/A
CARGOI	N/A	N/A	NA/	6	N/A
FORMI	N/A	N/A	N/A	8	N/A
NSI/NSFI	N/A	N/A	N/A	6	6
STANI	N/A	N/A	N/A	4	5
LATI	6	4	N/A	6	6
AARI	4	N/A	N/A	N/A	N/A
DCMI	4	2	N/A	N/A	N/A
NSI	4	4	N/A	N/A	N/A
TSI	4	N/A	N/A	N/A	N/A
WTI	2	2	N/A	N/A	N/A
FCP	4	N/A	N/A	6	N/A
TGI	N/A	4	N/A	N/A	N/A
FLSE	2*	N/A	N/A	N/A	N/A
*** FLSEs are Designated by the Group CO.**					

109. VMM QUALIFICATIONS AND DESIGNATIONS

1. CMMR Combat Leadership Requirements. At a minimum, in order to be considered Core Competent, a VMM unit must possess the following number of listed combat leadership designations.

VMM CMMR COMBAT LEADERSHIP (6000 PHASE)		
COMBAT DESIGNATIONS	**PILOTS**	**FRS PILOTS**
TAC	12	20
SEC LDR	6	20
DIV LDR	4	N/A
FLT LDR	2	N/A
MSN CMDR	2	N/A

2. Qualifications and Designations

VMM QUALIFICATION (6000 PHASE)		
QUALIFICATION	**PILOTS**	**FRS PILOTS**
FCP	4	6

110. VMM ORDNANCE REQUIREMENTS. See MV-22B CCRM (Ordnance Module) for specific squadron requirements.

111. VMM TRAINING RESOURCE REQUIREMENTS

TRAINING RESOURCE REQUIREMENTS										
PHASE	STAGE	SIM	LZ	LAT AREA	AG / LASER RANGE	ORD	HST	HRST / JUMP/CAST MASTER	FCLP PAD/ SHIP	FW BOGEY
CORE SKILL INTRO	FAM	X								
	NAV	X								
	INST	X								
	CAL	X	X							
	FORM	X	X							
	LAT	X	X	X						
	NS	X	X							
	CARGO	X								
	REV	X	X							
CORE SKILL	FAM	X								
	CAL	X	X							
	FORM	X	X							
	LAT	X	X	X						
	HLL NS	X	X	X						
	LLL NS	X	X	X						
	AAR	X								
	TG	X			X	X				
	EXT	X	X				X			
	MAT	X						X		
	GTR	X		X	X	X				
	CQ	X							X	
MISSION SKILL	SEA	X								
	SHORE	X	X		X	X				
	AS	X	X		X	X				
	AD	X						X		
	TRAP	X	X		X	X				
	AE	X	X		X	X				
CORE PLUS SKILL	DCM	X		X	X	X				X
	CBRN	X								
	AIE		X							
	TAC	X						X		
	CQ	X			X				X	
	MAT	X	X							
	RGR		X		X					
	RIE		X					X		

CHAPTER 2

MV-22B PILOT/7532

INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

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CHAPTER 2

MV-22B PILOT/7532

INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

200. MV-22B PILOT/7532 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.

201. 7532 TRAINING PROGRESSION MODEL. This model represents the recommended training progression for the average MV-22B pilot. Units should use the model as a point of departure to generate individual training plans.

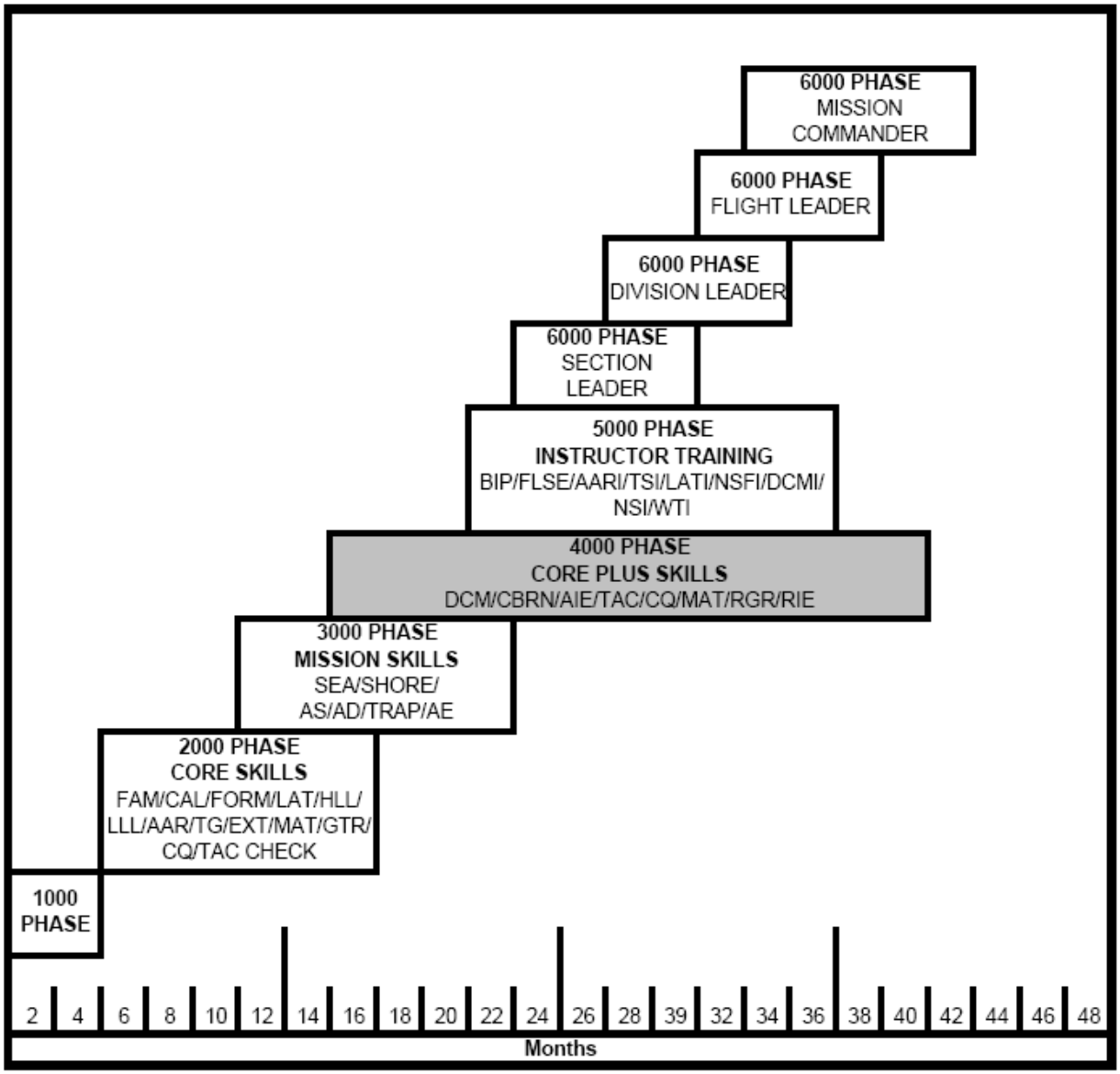

Figure 2-1.--MV-22B Pilot Notional Training Progression Model

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 Core Skill events as delineated in the below paragraphs.

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.

Table 2-1.--Core Skill Proficiency Attain Table

INDIVIDUAL CORE SKILL PROFICIENCY ATTAIN TABLE											
T&R events required to Attain Core Skill Proficiency (2000 Phase)											
FAM	**CAL**	**FORM**	**LAT**	**NS HLL**	**NS LLL**	**AAR**	**TG**	**EXT**	**MAT**	**GTR**	**CQ**
S2030	S2130R	S2180	S2230	S2330R	S2380R	S2430	2532	S2630	S2730R	S2830	S2930R
S2031R	2131R	S2181R	2231	2331	2381	2431R	2535R	2632R	S2731R	S2831R	2931R
	S2132	2182R	S2232	2332R	2382R	S2432		2634R		2832R	2932R
	2133	2183	2233R	S2333	S2383	2433R					2933R
	S2134R			2334	2384R						2934R
	2135			2335R	2385R						2935R
	2136R										
Gray highlight & an R suffix on the event code = Refresher POI											
An S prefix on the event code = Event conducted in a 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:

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

Table 2-2.--Core Skill Proficiency Maintain Table

INDIVIDUAL CORE SKILL PROFICIENCY MAINTAIN TABLE											
T&R events required to Maintain Core Skill Proficiency (2000 Phase)											
FAM	**CAL**	**FORM**	**LAT**	**NS HLL**	**NS LLL**	**AAR**	**TG**	**EXT**	**MAT**	**GTR**	**CQ**
S2031R	2131R	S2181R	2233R	2332R	2384R	2433R	2535R	2634R	S2731R	S2831R	2935R
	2136R	2182R		2335R	2385R						
Gray highlight & an R suffix on the event code = Refresher POI											
An S prefix on the event code = Event conducted in a simulator											

203. INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS. An 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 in the below paragraphs.

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:

Table 2-3.--Mission Skill Proficiency Attain Table

INDIVIDUAL MISSION SKILL PROFICIENCY ATTAIN TABLE					
T&R events required to Attain Mission Skill Proficiency (3000 Phase)					
SEA	**SHORE**	**AS**	**AD**	**TRAP**	**AE**
S3030R	S3130	S3230	S3330R	3430R	3530R
	3131R	3231R			
Gray highlight & an R suffix on the event code = Refresher POI					
An S prefix on the event code = Event conducted in a 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:

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

Table 2-4.--Mission Skill Proficiency Maintain Table

INDIVIDUAL MISSION SKILL PROFICIENCY MAINTAIN TABLE					
T&R events required to Maintain Mission Skill Proficiency (3000 Phase)					
SEA	**SHORE**	**AS**	**AD**	**TRAP**	**AE**
S3030R	3131R	3231R	S3330R	3430R	3530R
Gray highlight & an R suffix on the event code = Refresher POI					
An S prefix on the event code = Event conducted in a simulator					

204. INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS. Proficiency in Core Plus Skills is not required to obtain unit CSP. Training to Core Plus Skills is at the discretion of the unit commanding officer. To be considered proficient in a Core Plus Skill, an individual must attain and maintain proficiency in Core Plus Skill events as delineated in the below paragraphs.

1. Events Required to Attain Individual Proficiency in Core Plus Skills. 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:

Table 2-5.--Core Plus Skill Proficiency Attain Table

INDIVIDUAL CORE PLUS PROFICIENCY ATTAIN TABLE							
T&R events required to Attain Core Plus Proficiency (4000 Phase)							
DCM	**CBRN**	**AI/E**	**TAC**	**CQ**	**MAT**	**RGR**	**RI/E**
S4030R	S4130	4230R	S4330R	S4430R	4530R	4610R	4730R
4031R	S4131R	4231R	S4331R	4431R	4531R	4620	
		4232R		4432R		4630R	
		4233R					
		4234R					
Gray highlight & an R suffix on the event code = Refresher POI							
An S prefix on the event code = Event conducted in a 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:

Table 2-6.--Core Plus Skill Proficiency Maintain Table

INDIVIDUAL CORE PLUS PROFICIENCY MAINTAIN TABLE							
T&R events required to Maintain Core Plus Proficiency (4000 Phase)							
DCM	**CBRN**	**AI/E**	**TAC**	**CQ**	**MAT**	**RGR**	**RI/E**
4031R	S4131R	4230R	S4331R	4432R	4531R	4630R	4730R
		4231R					
		4232R					
		4233R					
		4234R					
Gray highlight & an R suffix on the event code = Refresher POI							
An S prefix on the event code = Event conducted in a simulator							

205. QUALIFICATION AND DESIGNATION TABLES. The tables below delineate T&R events required to be completed to achieve initial qualifications and designations. In addition to event requirements, all required stage lectures, briefs, squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in Individual Performance Records (IPR). Loss of proficiency in all qualification events causes the associated qualification to be lost. Regaining a qualification requires completing all R-coded syllabus events associated with that qualification.

Table 2-7.--Individual Qualification Requirements

INDIVIDUAL QUALIFICATION REQUIREMENTS	
Qualification	Event Requirements
NATOPS	6010R, 6011R, 6012R, 6030R
Instrument	6013R, 6014R, 6015R, 6032R
LATQ	2230, 2231, 2232, 2233R
NSQ HLL	2330R, 2331, 2332R, 2333, 2334, 2335R
NSQ	2380R, 2381, 2382R, 2383, 2384R, 2385R
CQ	2930R, 2931R, 2932R, 2933R, 2934R, 2935R
DCMQ	4030R, 4031R
R = Refresher POI events required for re-qualification	

Table 2-8.--Individual Designation Requirements

INDIVIDUAL DESIGNATION REQUIREMENTS	
Designation	Event Requirements
T2P	Successful completion of the Core Skill Introduction phase. 6030 also serves as the initial NATOPS Evaluation
TAC	6033, 6034, 6035R
FAMI	Section Lead, 5140R, 5141R
NAVI	Section Lead, 5144R
INSTI	Section Lead, 5142R
CALI	Section Lead, 5143R
CARGOI	Section Lead, 5147R
FORMI	Section Lead, 5145R
STANI	Section Lead, 5148R
SECTION LEAD	6131, 6132, 6133, 6134R
DIVISION LEAD	6231, 6232, 6233R
FLIGHT LEAD	6330R
AMC	6430R
FCP	6530R, 6531R
FLSE	5210R
AARI	5330, 5331R
TSI	5520, 5521R
LATI	5630, 5631, 5632R
LAT STANI	5633R
NSFI	5730, 5731, 5732R
DCMI	5830, 5831, 5832R
NSI	5930, 5931, 5932, 5933, 5934R, 5935R
WTI	Completion of MAWTS-1 WTI Course
R = Refresher POI events required for re-qualification	

206. PROGRAMS OF INSTRUCTION

1. Basic POI. Basic pilots shall be placed in the Basic POI and shall complete all events with the exception of INST-1236, INST-1237, CAL-1333, and CAL-1334 which are Air Force POI events.

WEEKS	COURSE/PHASE	ACTIVITY
1-3	Ground School	Training Squadron
4-18	Core Skill Introduction	Training Squadron
19-70	Core Skill	Training Squadron
71-83	Mission Skill	Training Squadron
84-97	Core Plus Skill	Training Squadron

2. Transition POI. Pilots transitioning to the MV-22B shall be placed in the Transition POI and shall complete all events in the 1000 phase with the exception of INST-1236, INST-1237, CAL-1333, and CAL-1334 which are Air Force POI events, and all events designated by a 'T' for the 2000-6000 phase. Event proficiency updating for aircrew assigned to the Transition syllabus is per Chapter 2 of the Aviation T&R Program Manual. When all T events in a stage are successfully completed, all remaining events in that stage are updated. Upon completion of the Transition POI, aircrew shall be assigned to the Refresher POI and follow Refresher POI proficiency updating procedures.

WEEKS	COURSE/PHASE	ACTIVITY
1-3	Ground School	Training Squadron
4-18	Core Skill Introduction	Training Squadron
19-70	Core Skill	Tactical Squadron
71-83	Mission Skill	Tactical Squadron
84-97	Core Plus Skill	Tactical Squadron

3. Refresher POI. Previously designated MV-22B pilots who have been out of the MV-22B cockpit for more than 730 days shall be placed in the Refresher POI and complete the FRS Refresher syllabus designated by an 'R' in the 1000 phase. Upon completion of FRS Refresher training, pilots are assigned to the Refresher syllabus at the tactical squadron. Refresher training at the tactical squadron is predicated on the experience of the pilot. A Refresher pilot need not fly every event within a stage of training to regain proficiency in that stage. The unit commanding officer may tailor the Refresher syllabus to fit the experience of the Refresher pilot per the T&R Program Manual. Any modification to the Refresher syllabus by the unit commanding officer shall be documented in Section 3 of the pilot's APR prior to commencement of training. When all R-coded events in a stage are successfully completed, all remaining events in that stage that are proficient or delinquent are updated. NBA and Incomplete events are not updated and must be completed in addition to R-coded events. If the Refresher pilot has no previous proficiency in a stage or particular event, then the Refresher should fly the entire stage or all events not previously flown.

WEEKS	COURSE/PHASE	ACTIVITY
1-3	Ground School	Training Squadron
4-13	Core Skill Introduction	Training Squadron
14-39	Core Skill	Tactical Squadron
40-52	Mission Skill	Tactical Squadron
53-65	Core Plus Skill	Tactical Squadron

4. Modified Refresher POI. Previously designated MV-22B pilots who have been out of the MV-22B cockpit from 486 to 730 days shall be placed in the Modified Refresher POI and complete the FRS Mod Refresher syllabus designated by an 'MR' in the 1000 phase. A MOD Refresher may fly 'doubled up' events in any stage as long as all the learning objectives are met and a minimum of 1 hour per scheduled event is flown. If the Mod Refresher pilot has no previous proficiency in a stage or particular event, then the Refresher should fly the entire stage or all events not previously flown. Upon completion of Modified Refresher training, pilots are assigned to the Refresher syllabus at the tactical squadron, as described above in paragraph 205.3.

WEEKS	COURSE/PHASE	ACTIVITY
1-3	Ground School	Training Squadron
4-10	Core Skill Introduction *Affects FRS only*	Training Squadron

5. Air Force POI. Air Force CV-22 pilots that are being trained in the 1000 phase shall be placed in the Air Force syllabus and shall complete all events designated by an 'AF'.

WEEKS	COURSE/PHASE	ACTIVITY
1-3	Ground School	Training Squadron
4-13	Core Skill Introduction *Affects FRS only*	Training Squadron

6. CV-22 to MV-22 FRS IP POI. The CV-22 to MV-22 FRS IP syllabus is located in both the Core Skill Introduction FRS Academic phase and 5100 stage of training. This syllabus is designed for Air Force CV-22 pilots assigned as instructors at the FRS. The syllabus includes CV-22 to MV-22 differences training as well as those sorties required to teach specific FRS events. Air Force instructors assigned to this syllabus shall complete all events designated by a 'CV'.

WEEKS	COURSE/PHASE	ACTIVITY
1-4	Ground School	Training Squadron
5-6	Core Skill Introduction *Affects FRS only*	Training Squadron

7. Fleet Replacement Squadron (FRS) IP POI. The FRS IP syllabus is a subset of the CV-22 to MV-22 FRS IP syllabus located in the 5100 stage of training. Marine pilots assigned to the FRS shall be placed in the FRS IP POI and complete all events designated by a 'F'.

WEEKS	COURSE/PHASE	ACTIVITY
1	Ground School	Training Squadron
2-3	Core Skill Introduction *Affects FRS only*	Training Squadron

8. Contract Instructor POI. The Contract Instructors syllabus includes the entire Core Skill Introduction FRS Academic Phase, the Core Skill Introduction phase, and the 5100 FRS IP stage of training. Contract

Instructors assigned to instruct FRS simulator events shall be placed in the Contract Instructor POI and complete all events designated by a 'CI'.

WEEKS	COURSE/PHASE	ACTIVITY
1-2	Ground School	Training Squadron
3-16	Core Skill Introduction *Affects FRS only*	Training Squadron

207. ACADEMIC TRAINING

1. Academic training shall be conducted for each phase/stage of the syllabus. Academic Training consists of Advanced Distributed Learning (ADL), Academic Lectures (ACAD), and Chalk Talks / Laboratory events (LAB). ADLs are self-paced computer based modules on particular subjects. Lectures are stand up instruction given to an entire class by a qualified instructor. Chalk Talks and Laboratory events are instructor guided, free-play, and interactive events given to an individual or entire class by a qualified instructor. Responsibilities for development and delivery of these courses are as follows:

a. Core Skill Introduction. The training squadron is responsible for the requirements, content, and execution of all ground training events for the Core Skill Introduction phase to include Ground School except for those contained within the LAT and NS syllabi. MAWTS-1 is responsible for the development of the academic lectures that support LAT and NS; the Training Squadron is responsible for the delivery of these lectures.

b. Core Skill/Mission Skill/Core Plus Skill/Mission Plus Skill. MAWTS-1 is responsible for the development of the academic lectures that support these phases of training. These lectures will be available through the MAWTS-1 Academic Support Package. The individual tactical squadrons are responsible for the delivery of these academic training events for the Core Skill, Mission Skill, Core Plus Skill and Mission Plus Skill phases.

c. Aircrew Training References. Aircrews shall use the following references to ensure safe and standardized training and maintenance procedures, grading criteria, and aircraft operation:

ACPM Training	MAWTS-1
OPNAVINST 3710.7_	NATOPS Gen Flt & Operating Inst
OPNAVINST 4790.2_	Naval Aviation Maintenance Program
NAVAIR 00-80T-106	LHA/LHD/MCS NATOPS Manual
NWP-42	Shipboard Helicopter Ops Manual
ANTTP 3-22.1-MV-22	MV-22B ANTTP Manual (Classified)
ANTTP 3-22.3-MV-22	MV-22B ANTTP Manual (Unclassified)
A1-V22AB-NFM-000	MV-22B NATOPS Flight Manual
NAVMC 3500.14	T&R Program Manual
MCO P4790.12	Individual Training Standards Systems (MATMEP)
MCO 3500.27/OPNAV 3500.39	Operational Risk Management (ORM)
MCO P3500.12	Weapons and Tactics Training Program (WTTP)
MAWTS-1 NVD Manual	MAWTS-1 NVD Manual

208. SYLLABUS NOTES

1. Event Training Nomenclature. The following nomenclature is used to differentiate aircraft, simulator, cockpit trainer, cockpit management system part task trainer, computer based trainer, and classroom events. The aircraft is used for those events designated with an A, the flight simulator is used for those events designated with an S, the cockpit trainer is used for those events designated with a C, the cockpit management system part task trainer is used for those events designated with a CMS, the computer based trainer is used for those events designated with a CBT, and a classroom is used for those events designated with a CLSRM in the event header. To provide commanding officers the maximum amount of flexibility for training, some events allow for the optional use of simulators or aircraft and cockpit trainer or simulator. Those types of events will use the designator A/S for aircraft preferred, simulator optional and S/A for simulator preferred, aircraft optional and C/S for cockpit trainer preferred, simulator optional.

2. Environmental Conditions. Pilots shall fly events annotated with an N or NS at least 30 minutes after official sunset. Events shall be flown in accordance with environmental conditions listed in the matrix below:

Table 2-9.--Environmental Conditions

ENVIRONMENTAL CONDITIONS	
Code	Meaning
	Shall be flown during hours of daylight: (by exception - there is no use of a symbol)
N	Shall be flown during hours of darkness, may be aided or unaided
N*	Shall be flown during hours of darkness must be flown unaided
NS	Shall be flown during hours of darkness – Mandatory use of Night Vision Devices
(N*)	May be flown during hours of darkness – If flown during hours of darkness must be flown unaided
(N)	May be flown during darkness – If flown during hours of darkness may be flown aided or unaided
(NS)	May be flown during darkness – If flown during hours of darkness must be flown with Night Vision Devices
Note – If the event is to be flown in the simulator the Simulator Instructor shall set the desired environmental conditions for the event.	

3. Computer Based Training (CBT). CBT lessons comprise the majority of MV-22B Ground School training. All aircrew (Replacement Aircrew (RAC), Refreshers, etc.) shall complete the MV-22B Ground School as prescribed by the FRS Commanding Officer. Completion of CBT lessons shall be documented in the Aircrew Performance Record (APR). Courseware shall be reviewed on an annual basis to ensure proper content, concurrency with the aircraft, procedures, and tactics.

4. Training Event Performance Requirements

a. Purpose. To familiarize the PUI with general syllabus expectations, definitions, and the observation scale found on the Integrated Aircrew Training Forms (IATF).

b. General

(1) This Manual generalizes mission guidance to allow for local conditions and to allow this Manual to remain unclassified. HQMC (DC AVN) and CG MCCDC encourage squadrons to use the full range of tactics contained in the tactical manuals and adopt the latest developed and proven tactics.

(2) The 1000 phase syllabus includes all emergencies that are indicated with warnings, all emergency procedures with critical memory items, those with associated warnings, land immediately or land as soon as possible emergencies, and those that refer to any of the above. PUIs will be expected to memorize critical memory items and warnings associated with emergency procedures. They will be familiar with and be able to quickly look up other (non-memory) emergency procedures and their notes and cautions. To reinforce the latter, during flight briefs, PUIs will open PCLs to the appropriate page to review notes, cautions, and other non-memory items.

(3) PUIs shall be familiar with, but will not be required to memorize numerical system limitations for those systems whose indications are displayed with a green, yellow or red scale on either the EICAS or MFDs.

(4) All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance and procedures or systems discussed. Instructors should use all available debriefing techniques.

c. Definitions

(1) Discuss

(a) The IP shall discuss a system, procedure, or maneuver during the brief, in flight, or debrief.

(b) The PUI shall demonstrate an understanding of all discussed items listed in the event description.

(c) Demonstrate/Introduce flight events shall be discussed during the brief.

(d) Emergencies listed in the event description are treated as discussion items during the brief and may be simulated during the flight at the option of the IP and in accordance with unit SOP. EPs for Simulator events will be treated as Demonstrate/Introduce items on the event in which they are listed and are subject to review during any subsequent event.

(2) Demonstrate

(a) IP performs the maneuver with accompanying description. At IP discretion, the PUI may fly the maneuver, but is not graded. Playback of recorded demonstrations may be used during simulator events.

(b) The PUI observes the maneuver and is responsible for knowledge of the procedures during the brief.

(3) Introduce

(a) At his option, the IP may perform the maneuver with an accompanying description followed by the PUI flying the maneuver, or he may coach the PUI through the maneuver without demonstration.

(b) The PUI shall perform the maneuver with coaching as necessary and is responsible for knowledge of the procedures prior to the flight. In general, the expectation is that the PUI will not consistently recognize errors and will frequently be outside performance standards.

(4) Review

(a) The IP observes and grades the maneuver with only minimal coaching.

(b) The PUI is expected to perform the maneuver with minimal coaching and with only minor procedural errors. In general, the expectation is that the PUI will consistently recognize errors; however occasionally, corrections will not be timely with some excursions outside performance standards.

(5) Evaluate

(a) The IP observes and grades the maneuver without coaching the PUI. An airborne critique of the PUIs performance is at the option of the instructor.

(b) The PUI is expected to perform the maneuver without coaching, with minor or no procedural errors, and at a level acceptable to warrant progress in the syllabus. The expectation is that the PUI will consistently apply timely corrections with very few and quickly corrected excursions outside performance standards.

(6) Expose

(a) The IP shall expose the PUI to the procedure or consideration during the brief, in flight or debrief.

(b) The PUI is not responsible for the knowledge of the procedure or consideration prior to the flight.

d. Observation Scale. The following table describes the numerical observations assigned for graded events. The comments that relate to each score are designed to assist instructors in assigning the correct observation based upon a student's demonstrated performance.

Table 2-10.--Observation Scale

Observation Scale				
Observation	Level of Learning	General	Training as an Individual	Scenario Training as a Crew Member*
5	Correlation	Proactive. Ahead of the situation. Reacts correctly with changing conditions. And/or changing mission.	Performance is correct, efficient, and skillful. Deviations are very minor. The student initiates corrections, if required, and they are appropriate, smooth, and rapid.	Proactive management of resources in dynamic environment. Mission effectiveness and safety enhanced by planning and coordination. ABCD.
4	Application	Self / crew recognition of errors. Correct application of resources.	Self-Assess and correct errors in time. Deviations are brief and minor. Corrections are appropriate and timely.	Active Management. Recognize and Correct Errors. Maintain redundancy to improve mission effectiveness and reduce risk.
3	Understanding	Minor errors not detected. Crew Redundancy diminished.	Errors not detected and/or corrected in a timely manner. Corrections noticeably lag deviations.	Minor errors not detected and/or corrected. Risk unchanged.
2	Rote	Task accomplished mechanically and/or with limited situational awareness. Crew Redundancy Lost. Risk Increased.	Errors not recognized and/or corrected.	Errors not recognized and/or corrected.
1	Unfamiliar	Unable.	Skills not up to task.	Skills not up to task.
*There is a slight shift in thinking as you move to SBT and actual mission scenarios: based on their current performance, how well could they handle an unexpected increase in task loading, additive conditions, or crew factors?				

5. Integrated Aircrew Training Forms (IATFs)

a. Also known as syllabus evaluation forms, IATFs are required for any initial event completed by a pilot in one of the formal POIs or as recommended by the Squadron Standardization Board.

b. If the commanding officer has waived a syllabus event, the squadron training officer shall place a waiver letter in section 3 of the APR.

6. Aircrew Evaluation Flights. All pilots shall have an appropriate NATOPS evaluation form completed annually upon completion of the following:

a. NATOPS Check (RQD-6030). A designated NATOPS Instructor/Assistant NATOPS Instructor shall evaluate RQD-6030.

b. Instrument Check (RQD-6032). A designated Instrument Instructor who is a member of the Instrument Flight Board shall evaluate RQD-6032.

7. Instructor Requirements

a. For all simulator and flight events the instructor requirement is noted at the right margin of each event. If the event header does not contain an instructor requirement then the minimum requirement is an aircraft commander who is complete with the Basic Instructor Pilot syllabus, proficient in the given event, fulfilling the role of aircraft commander.

b. For Core Skill Introduction simulator events, designated contract instructors may fulfill the role of instructor. Additionally, when designated by the FRS Commanding Officer, a CI may instruct LAT and Night Systems simulator events. Certification as a CI may be withdrawn by the FRS Commanding Officer.

c. Basic networked events require a tactical network operator. Networked mission skill events and core plus STAC events require a scenario created and controlled by a qualified Tactical Simulation Instructor (TSI). During events designated as S-TEN (Tactical Environment Network) or S-TEN+ (Tactical Environment Network with additional networked simulator), the simulator(s) shall be configured (fuel, internal load, ordnance, etc.) in accordance with the flight brief and the mission scenario.

8. Crew Requirements/Position Designations. Crew requirements are listed for each stage of training. This Manual requires the use of an aerial observer for all external flights, NVD flights, Ground Threat Reaction (GTR), and all DCM flights. However, the squadron commanding officer may, at his discretion, employ an aerial observer on any flight event. The requirement for an aerial observer is intended to provide a second crewmember in the aircraft cabin section. A designated aerial observer or crew chief may fill this requirement. On NVD training flights a Crew Chief or Aerial Observer Under Instruction (CCUI/AOUI) may fill this requirement when flying with a Crew Chief Night Systems Instructor (CCNSI).

9. Event Completion. Event completion is predicated upon demonstrated proficiency. When an individual successfully accomplishes the requirements of an event per the performance standards, the individual should log completion of the event (enter the appropriate T&R code) in M-SHARP. When the event is entered into M-SHARP, the individual’s proficiency date for that event is automatically updated to reflect the date the event was completed. When supervising individual events, unit instructors/leaders shall ensure that trainees demonstrate proficiency per T&R standards prior to logging

successful event completion. Evaluating individual proficiency in an event normally requires both objective and subjective assessment. If, in the instructor's opinion, the PUI does not adequately perform a required event, then all or parts of the sortie shall be repeated until adequate performance is demonstrated. If an individual fails to accomplish the requirements of an event per the performance standards, the individual should not log that event and the proficiency status for that event remains unchanged. Times indicated for each event are for planning purposes only.

10. Sequence. Training should be accomplished by flying events within a stage in sequence and stages in sequence when practical.

11. Weight & balance Form F and Load Computation. Unless otherwise annotated, the Joint Mission Planning System (JMPS) will be the primary method used to complete the preflight forms, with the Naval WT and Balance software program and the NATOPS (paper products) as the alternates in accordance with certification and flight clearance.

12. Joint Mission Planning System (JMPS). All tactical and non-tactical applications of the JMPS will be discussed in detail for each event.

13. Crew Resource Management (CRM). Aircrews shall brief techniques of CRM for all flights and/or events.

14. Operational Risk Management (ORM). Aircrews shall brief those factors that affect risk mitigation decisions for every flight or mission.

15. Rules of Conduct For Defensive Combat Maneuvers (DCM)

a. Purpose. To standardize the training rules for tiltrotor aircraft conducting DCM training. These training rules apply to all DCM sorties. Subject matter experts review training requirements and qualification criteria for crewmembers and the inherent responsibilities of commanders and supervisory personnel to ensure crewmembers achieve training toward combat readiness by the safest and most realistic means available. The DCM training rules set forth herein and in the MV-22B ANTTP Manual are minimum requirements. Squadron commanders should promulgate supplementary directives to delineate syllabus contents, proficiency levels, communications procedures, safety precautions, and other applicable areas of concern. Responsibility for the safe and efficient implementation of realistic combat training rests with all levels of command.

b. Scope. DCM training is designed to develop the high level of skill required to defend against the current and future threat. The T&R Program Manual, OPNAVINST 3710.7, the MV-22B ANTTP Manual, and this Manual contain the overall policies, responsibilities, training syllabi, and flight objectives for DCM training. DCM consists of 2 tiltrotor vs F/W.

c. Authority. CG MCCDC tasks the Commanding Officer, MAWTS-1 with developing training courses (both ground and flight), establishing standards and presenting said courses in support of operating units. Appropriate T&R syllabi and the MAWTS-1 Course Catalog contain MAWTS-1 course topics, USMC standards of performance, and criterion for instructor certification. Authority and responsibility for overall supervision of DCM flight rests with operational commanders.

d. Safety. DCM will be conducted within the guidelines of this Chapter, the T&R Program Manual, and the MV-22B ANTTP Manual. Squadron

commanders shall ensure that crewmembers conducting DCM training are properly qualified and appropriate flight leadership is represented within the flight.

(1) Squadrons shall conduct training flights pursuant to the applicable T&R syllabus under direct supervision of experienced flight leaders. Moreover, the DCM lead shall thoroughly brief/debrief all participants in the conduct of the flight.

(2) Unscheduled DCM is strictly prohibited.

e. DCM Training Areas

(1) Training shall only be conducted in designated warning areas, restricted areas, Military Operating Areas (MOAs), appropriate blocks of controlled airspace as assigned by Air Traffic Control (ATC), or in other designated areas where safe separation from non-participants can be maintained.

(2) At a minimum, designated DCM training areas shall be clear of Federal airways, control zones, and other areas of air traffic congestion, unless established pursuant to a letter of agreement with the Federal Aviation Administration (FAA) or host nation agreement.

f. DCM Flight Requirements. Crewmembers participating in DCM will conform to the following flight guidelines:

(1) When all crewmembers of a flight are DCM qualified, the flight does not require a Defensive Combat Maneuvering Instructor (DCMI).

(2) Minimum crew requirements shall be per the applicable T&R syllabus.

(3) A non-DCM qualified pilot may participate in DCM training, provided the Tiltrotor Aircraft Commander is a designated DCMI. Non-DCM qualified aircrew serving in the cabin section may participate in DCM training, provided the other aircrew serving in the cabin section is a designated DCMI.

(4) DCM must be conducted in day VMC conditions.

(5) Minimum tiltrotor altitude is 200 feet AGL.

(6) The tactical wingman is always responsible for separation during the engagement.

(7) Minimum weather for DCM shall be 3000/5 with a definable horizon and shall not be conducted through an under/overcast.

(8) Pilots of F/W aircraft participating in DCM shall be LAT qualified and proficient.

(9) Minimum F/W altitude is 500 feet AGL.

(10) No slow speed, high AOA maneuvering below 10,000 ft by F/W.

(11) No supersonic flight is authorized.

g. DCM Syllabus. Squadrons shall conduct DCM training per the appropriate syllabus contained in the T&R Manual, the MAWTS-1 course catalog, and the MV-22B ANTTP Manual.

h. DCM Flight Briefs

(1) Crewmembers shall brief DCM training rules per the MV-22B ANTTP Manual, the T&R Program Manual, and OPNAVINST 3710.7 prior to DCM training.

(2) DCM participants shall conduct face-to-face briefs. Operational commanders may waive DCM face-to-face brief requirements as outlined below.

(a) At a minimum, 1 individual from each participating unit shall attend a face-to-face brief.

(b) For units not co-located, a telephone brief may satisfy the face-to-face briefing requirement. The following guidelines for telephone briefs and debriefs apply:

1 The flight leaders shall conduct the telephone brief.

2 All applicable training rules shall be covered during the telephone brief.

3 The flight leaders receiving the telephone brief will brief all other participating crewmembers prior to their flights.

209. CORE SKILL INTRODUCTION FRS ACADEMIC PHASE

1. Ground School

a. Purpose. Prepare the student for the flight portion of the Core Skill Introduction phase. Emphasis is placed on major aircraft systems, Cockpit Management System (CMS), and pre-flight requirements such as Checklists, Course rules, and Load Computation.

b. General

(1) Ground school is set up in two parts. The first is ADLs followed by an ACAD class on the major aircraft systems. Major aircraft systems follow the Demo (ADL), Intro (ACAD), Review (Sim), and Evaluate (Aircraft) method of learning from ground school through the FAM stage. The second part focuses on the Cockpit Management System and pre-flight requirements such as Checklists, Course rules, and Load Computation.

(2) The Commanding Officer of the resident FRS has the responsibility to define the required content, conduct reviews, forward required changes and approve the content for all Ground School events.

(3) The CO of the FRS has waiver authority over any event within Ground School.

ACAD-0100	1.5	*	T,R,MR,AF,CI	CLSRM	OPS

Ground School Intro In-Brief

Goal. The PUI understands the expectations during Ground School and has the requisite knowledge of the course and where all the necessary references can be accessed to complete the Core Skill Introduction Phase.

(1) Discuss

(a) Overall Course Design for Ground School and the Core Skill Introduction Phase.

(b) Student Guide material.

1 Class Schedule.

2 Systems reference material.

3 ACAD handouts.

4 Simulator and Flight Events Student Guides.

(c) List, Location, and access to all appropriate references that will be required through the Core Skill Introduction Phase.

(d) Expectations of PUI during Ground School to include work schedule, ACAD preparation, and event prerequisites.

(e) Squadron and MATSS processes, particularly scheduling.

(2) Demonstrate

(a) Computer based training access. All students will log-on to the network and access the first ADL.

(b) Basic operation of the ADL.

Prerequisite. Squadron operations department check-in.

ADL-0001 1.5 * T,R,MR,AF,CI,CV CBT

Courseware Introduction

Goal. The PUI has completed all courseware introduction modules with a basic understanding of the CBT course and references.

Modules

(1) Courseware Tutorial.

(2) Introduction to the V-22.

(3) Manuals and Publications.

Prerequisite. Squadron operations department check-in.

ACAD-0101 2.5 * T,R,MR,AF,CI CLSRM CRMF

Crew Resource Management (CRM) Initial

Goal. The PUI understands the Risk and Resource Management (RRM) model and how the icons, processes, and seven principles apply to Crew Resource Management.

(1) Discuss

(a) Seven principles.

(b) RRM model.

1 ABCD process.

2 Available resources.

3 Decision model.

Prerequisite. ACAD-0100.

ADL-0002 2.5 * T,R,MR,AF,CI CBT

Basic Airframe.

Goal. The PUI has completed all Basic Airframe modules with a basic understanding of the V-22 airframe, landing gear, aircraft lighting and Emergency Exits.

Modules

(1) Airframes.

(2) Aircraft Emergency Exits.

(3) Landing Gear System.

(a) Nose Wheel Steering and Wheel Brake Systems.

(4) Interior/Exterior lighting.

Prerequisite. ADL-0001

ADL-0003 2.5 * T,R,MR,AF,CI CBT

Introduction to Cockpit Management System (CMS)

Goal. The PUI has completed all Intro to CMS modules with a basic understanding of the cockpit, flight displays, and the basic elements of CMS.

Modules

(1) Introduction to the Cockpit.

(2) Introduction to the Cockpit Management System (CMS).

(a) Flight Display Symbology.

Prerequisite. ADL-0001

ADL-0004 2.0 * T,R,MR,AF,CI CBT

Electrical System

Goal. The PUI has completed all Electrical System modules with a basic understanding of the V-22 electrical system.

Modules

(1) Electrical system.

(a) AC Electrical System.

(b) DC Electrical System.

(c) External Power System.

Prerequisite. ADL-0003

ACAD-0102 3.0 * T,R,MR,AF,CI CLSRM

Electrical System

Goal. The PUI has an introductory knowledge of the V-22 electrical system, aircrew interaction and related EPs.

Required Reading. Electrical System Student Guide chapter.

(1) Discuss

(a) Basic architecture and major components.

(b) Recognition of a component failure.

(c) MFD view of the contactor and crosstie status.

(d) Impact of any Generator Failure with the help of the PCL.

(e) Impact of any Regulated Converter Failure with the help of the CMS.

(f) Impact of any AC Bus failure with the help of the CMS.

(g) Impact of any DC Bus Failure with the help of the CMS.

(h) Correct response to any component failure with the help of the PCL.

Prerequisite. ADL-0004

ADL-0005 2.0 * T,R,MR,AF,CI CBT

Hydraulic System

Goal. The PUI has completed all Hydraulic System modules with a basic understanding of the V-22 hydraulic system.

Modules

(1) Hydraulic systems.

(a) Hydraulic components and displays.

(b) Hydraulic systems operation.

(c) Utility systems.

Prerequisite. ADL-0003

ACAD-0103 3.0 * T,R,MR,AF,CI CLSRM

Hydraulic System

Goal. The PUI has an introductory knowledge of the V-22 hydraulic system, aircrew interaction, and related EPs.

Required Reading. Hydraulic System Student Guide chapter.

(1) Discuss

(a) Basic architecture and major components.

(b) Normal operations of the hydraulic system.

(c) Hydraulic system status and indications on CMS displays.

(d) Functions available to the pilot via CMS displays.

(e) Warnings/Cautions/Advisories on the CDU/EICAS.

(f) Functions of the hydraulic system leak logic.

(g) Correct response to any component failure with the help of the PCL.

Prerequisite. ADL-0005

ADL-0006 3.5 * T,R,MR,AF,CI CBT

Flight Control System (FCS)

Goal. The PUI has completed all FCS modules with a basic understanding of the V-22 FCS.

Modules

(1) FCS.

(a) Cockpit Flight Controls.

(b) FCS Cockpit Panels.

(c) FCS Reference Systems.

(d) Flight Control Laws.

Prerequisite. ADL-0003

ACAD-0104 3.0 * T,R,MR,AF,CI CLSRM

Flight Control System

Goal. The PUI has an introductory knowledge of the V-22 FCS to include Air Data System, Flight Control Computers, Flight Controls, and Control Laws.

Required Reading. FCS Student Guide chapter.

(1) Discuss

(a) Basic architecture and major components.

(b) Recognition of a component failure of the FCS.

(c) MFD view the status of the FCS on the MFD.

(d) Difference between a CCDL failure and a Dual FCC failure, on the MFD or CDU.

(e) Flight parameter that control the conversion corridor.

(f) Impact of AFCS Disengage with the help of the CMS.

(g) Impact of TCRS Disengage with the help of the CMS.

(h) Single engine failure effects on TCL input.

(i) Describe Interim Power and why it is used.

(j) Describe Contingency Power and why it is used.

(k) Correct response to any component failure.

Prerequisite. ADL-0006

ADL-0007 2.5 * T,R,MR,AF,CI CBT

Drive System

Goal. The PUI has completed the CBT with a basic understanding of the V-22 drive system.

Modules

(1) Drive system.

(a) Components.

(b) Subsystems and Assemblies.

(c) Displays and Limitations.

(d) ELS and DSIU.

(e) Proprotor System.

Prerequisite. ADL-0003

ACAD-0105 3.0 * T,R,MR,AF,CI CLSRM

Drive System.

Goal. The PUI has an introductory knowledge of the V-22 drive system.

Required Reading. Drive System Student Guide chapter.

(1) Discuss

(a) Basic architecture and major components.

(b) Describe the proprotors and proprotor hub assembly including the elastomeric bearings.

(c) Describe which accessory systems are mounted on L/R TAGB, and MWGB.

(d) Distinguish Drive system Warnings/Cautions/Advisories on the CDU/EICAS.

(e) Describe the impact of R TAGB pressure lost on the #2 GEN.

(f) Describe Emergency Lubrication System functions, and limitations.

(g) Describe PRGB status and indications on CMS displays.

(h) Describe TAGB status and indications on CMS displays.

(i) Describe the correct response for a PRGB failure.

Prerequisite. ADL-0007

ADL-0008 2.5 * T,R,MR,AF,CI CBT

Powerplant Systems

Goal. The PUI has completed the CBT with a basic understanding of the V-22 powerplant system(s) to include the Engines, the Engine Control System and the APU.

Modules

(1) Engine System.

(a) Control System.

(b) Engine Air Management.

(c) Starting and Oil Systems.

(d) Ignition and Fuel Systems.

(e) Anti-Ice and Fire Detection/Suppression.

(f) Displays, Limitations and WCAs.

(2) Auxiliary Power Unit (APU).

Prerequisite. ADL-0003

ACAD-0106 3.0 * T,R,MR,AF,CI CLSRM

Powerplant Systems

Goal. The PUI has an introductory knowledge of the V-22 Engine System and APU, major components, aircrew interaction, and engine system EPs.

Required Reading. Engine and APU Student Guide chapter(s).

(1) Discuss

(a) AE 1107 Engine Basic architecture and major components.

(b) Describe the components and functions of the following sub-systems: EAPS, FADECs, Fuel System, Oil System, Engine Anti-Ice System and TCRS.

(c) Describe the engine Inner Loop and Outer Loop control system.

(d) Understand the pilot displays and inputs available for control of the engine and various sub-assemblies.

(e) Understand the levels of malfunctions and their indications within the WCA hierarchy.

(f) Describe the correct response to engine malfunctions with help of the NATOPS Pocket Checklist.

(g) Understand engine malfunctions as they relate to components of the engine.

(h) Explain the purpose of the APU.

(i) Explain where the APU gets its fuel.

(j) Describe the difference between RUN ENGAGE and EMER RUN ENGAGE.

(k) Identify the components that the APU drives through the MWGB.

Prerequisite. ADL-0008

ADL-0009 2.0 * T,R,MR,AF,CI CBT

Fuel System

Goal. The PUI has completed the CBT with a basic understanding of the V-22 fuel system.

Modules

(1) Fuel system.

(a) Operation and Limitations.

Prerequisite. ADL-0003

ACAD-0107 2.0 * T,R,MR,AF,CI CLSRM

Fuel System

Goal. The PUI has an introductory knowledge of the V-22 fuel system architecture, major components, aircrew interaction, and fuel system EPs.

Required Reading. Fuel system Student Guide chapter.

(1) Discuss

(a) Basic architecture and major components.

(b) Operation of the fuel system.

(c) Describe why the fuel system is a suction type.

(d) Describe the major components of the fuel system.

(e) Describe the Mission Auxiliary Tank System (MATS).

1 Self-Deploy and RGR capabilities.

(f) Describe how the pilot interfaces with the fuel system.

(g) Describe the impact of an FMU failure on the fuel system.

(h) Describe the problems with fuel dumping.

Prerequisite. ADL-0009

ADL-0010 2.0 * T,R,MR,AF,CI CBT

Environmental Control System (ECS)

Goal. The PUI has completed the CBT with a basic understanding of the V-22 ECS, including OBOGS and OBIGGS.

Modules

(1) ECS.

(a) Air Conditioning System.

(b) OBOGS/OBIGGS.

Prerequisite. ADL-0003

ACAD-0108 2.0 * T,R,MR,AF,CI CLSRM

ECS including OBOGS and OBIGGS

Goal. The PUI has an introductory knowledge of the V-22 ECS architecture, major components, aircrew interaction, and ECS & OBOGS EPs.

Required Reading. ECS Student Guide chapter.

(1) Discuss

(a) Basic architecture and major components of the ECS.

1 Air Conditioning/Heating.

2 OBOGS.

3 OBIGGS.

4 Avionics Cooling.

(b) Operation of the ECS.

(c) Identify malfunctions associated with the ECS.

(d) Identify the proper response of ECS malfunctions.

(e) Describe the relationship between the ECS and the IPS.

Prerequisite. ADL-0010

ADL-0011 2.5 * T,R,MR,AF,CI CBT

Introduction to COMM/NAV/FD

Goal. The PUI has completed the CBT with a basic understanding of the V-22 communication, navigation and flight director systems.

Modules

(1) Introduction to the Communication System.

(a) Introduction to the Radio System.

(b) Introduction to the IFF System.

(2) Introduction to Navigation Systems.

(a) INAV and CMS Navigation Control System.

(3) Introduction to the Flight Director.

Prerequisite. ADL-0003

LAB-0200 2.0 * T,R,MR,AF,CI,CV CMS FAMI

Overview and basic CMS functions

Goal. The PUI has a basic understanding of the V-22 CMS, is able to navigate the layers in the different sections (Top keys), understands the color and key coding, and knows how to input data to the CMS.

(1) Demonstrate

(a) General design, architecture, and components.

(b) MFD Controls.

(c) MFD Top Bezel Keys (T1- T5).

1 Flight Displays.

2 NAV control layer and HSD.

3 FLIR.

4 STAT.

5 SYST.

(d) CDU Controls.

(e) CDU Layers.

(f) EICAS Display.

(g) CDU Keyboards.

1 General data entry rules.

2 Dedicated system keys.

Prerequisite. ADL-0011

ADL-0012 2.0 * T,R,MR,AF,CI,CV CBT

Procedures Checklists

Goal. The PUI has completed the CBT with a basic understanding of the V-22 Normal Procedures checklists.

Required reading. NATOPS Ch 7 checklists from Cockpit Pre-Entry through Post Flight.

Modules

(1) Pre-start checklist procedures.

(2) Start checklist procedures.

(3) Shutdown checklist procedures.

(4) Emergency Procedures Fundamentals.

Prerequisite. LAB-0200

ADL-0013 1.5 * T,R,MR,AF,CI CBT

Aircrew Maintenance Systems

Goal. The PUI has completed the CBT with a basic understanding of the on aircraft V-22 maintenance systems and their integration with maintenance ground systems.

Modules

(1) VSLED System and BIT.

(2) Aircraft Maintenance Event Ground Station (AMEGS).

(3) Blade Fold/Wing Stow System.

Prerequisite. ADL-0003

LAB-0201 2.0 * T,R,MR,AF,CI CMS

Comm (CDU), NAV, load brick.

Goal. The PUI understands and gains familiarity with the V-22 CMS and can execute the PRE-START checklist.

(1) Demonstrate

(a) Comm functions.

(b) NAV sub-layers and functions.

(c) Mission Data Loader (MDL).

1 Loading missions, and map data.

(d) Maint pages.

1 System STAT, WRA pages.

2 BFWS.

(2) Introduce

(a) Pre-Start Checklist.

Prerequisite. ADL-0012

ADL-0014 1.0 * T,R,MR,AF,CI,CV CBT

Local Course Rules

Goal. The PUI has completed the CBT with a basic understanding of the local area course rules.

Modules

(1) Local Course Rules.

Prerequisite. Squadron operations department check-in.

ACAD-0109 3.0 * T,R,MR,AF,CI,CV CLSRM

Course Rules

Goal. The PUI has an introductory knowledge of the local course rules and satisfactorily completes the course rules exam.

Required Reading. Local Base Operations SOP for course rules.

(1) Discuss

(a) Identify significant features aboard MCAS.

(b) Describe Taxi and Takeoff procedures for MCAS.

(c) Identify local VFR Patterns.

(d) Identify VFR Entry/Exit Points.

(e) Identify Special VFR Entry/Exit Points.

(f) Identify Out Lying Fields (OLFs), Entry/Exit Points and Procedures.

(g) Describe MV-22 Operations aboard MCB Complex.

(h) Describe NVG Operations aboard MCAS.

(2) Evaluate

(a) Course Rules exam.

Prerequisite. ADL-0014

ADL-0015 2.0 * T,R,MR,AF,CI CBT

V-22 Performance

Goal. The PUI has completed the CBT with a basic understanding of the V-22 performance charts, load computation and Form F.

Modules

(1) Aircraft Performance Charts.

(a) Standard Data and Engines.

(b) Takeoff and Climb.

(c) Range and Level Flight.

(d) Endurance and Descent.

(e) Landing and Emergency Operations.

(2) Weight and Balance.

Prerequisite. ACAD-0106

ACAD-0110 3.0 * T,R,MR,AF,CI CLSRM

V-22 Performance and Weight & Balance

Required Reading. NATOPS Performance Charts.

Goal. The PUI will have a basic understanding of V-22 performance and be able to use the NATOPS performance charts in mission planning. The PUI will produce a Load Computation and Weight & Balance Form F in preparation for CFAM-010.

(1) Discuss

(a) V-22 performance in different modes of flight and how it is affected by altitude and temperature.

(b) Use of V-22 NATOPS performance charts.

(c) Completion of a V-22 Load Computation form.

(d) Be familiar with the V-22 Wt & Bal Form F.

1 Requirement for use and VMPS certification.

Prerequisite. ADL-0015

ACAD-0111 5.0 * T,R,MR,AF,CI CLSRM

Flight Aerodynamics Review

Goal. The PUI has a solid foundation of knowledge in flight aerodynamics.

(1) Discuss

(a) Fixed Wing basic aerodynamics.

(b) Rotary Wing basic aerodynamics.

(c) Stability and Control.

(d) Performance.

Prerequisite. ADL-0002

ACAD-0112 5.0 * T,R,MR,AF,CI CLSRM

V-22 Aerodynamics

Goal. The PUI has an introductory knowledge of tiltrotor aerodynamics and how that is applied to the V-22.

Required Reading. NATOPS Ch 11.

(1) Discuss

(a) Tiltrotor basic aerodynamics.

(b) VMS and its application to V-22 Stability and Control.

(c) V-22 Lessons learned.

1 Vortex Ring State (VRS).

2 Pitch Up with Side Slip (PU/SS).

3 Flight envelope limitations.

a Critical Azimuth testing.

b Over rotation during lateral quickstop.

c Vne limits.

d Angle of Bank and Pitch limits.

4 Autorotation testing.

5 Roll On Deck (ROD).

6 Dynamic Interface (shipboard envelopes).

a AFCS saturation.

7 Formation roll-offs.

(d) The “why” behind some Emergency Procedures.

Prerequisite. ACAD-0111

210. CORE SKILL INTRODUCTION PHASE

1. General. The purpose of this phase is to instruct the copilot in MV-22B fundamentals and introduce mission elements. At the completion of this phase the PUI will be a NATOPS qualified T2P and rate the 7532 MOS as specified in RQD-6030. All cockpit trainer, simulator, and flight events require an Aviation Training Form (ATF), except CFAM-1030 and CFAM-1031.

a. Stages. The following stages are included in the Core Skill Introduction Phase of training.

(1) FAM

(2) NAV

(3) INST

(4) CAL

(5) FORM

(6) LAT

(7) NS

(8) CARGO

(9) RQD

b. ROC will be per the T&R Program Manual.

2. Familiarization (FAM)

a. Purpose. To teach the PUI basic V-22 aircraft control, normal procedures, normal checklists and Pilot Flying (PF) actions during Emergency Procedures (EPs). Focus of Effort (FOE): Basic aircraft control, tiltrotor

aerodynamics, tiltrotor flying qualities, major aircraft systems, cue level of automation, and NATOPS Chapters: 2, 4, 7, 11, & 12.

b. General

(1) CFAMs are events conducted in cockpit trainers to familiarize the pilot with the cockpit, CMS, start-up, and shutdown procedures prior to the first flight in the simulator. CFAMs may be conducted in an FFS, FTD, CFTD, Interactive Cockpit Learning Environment (ICLE) or other equivalent device.

(2) EPs will be consistent with discuss items and with the flight profile of the event.

(3) DTM will be a standard brick provided by the instructor for all events in the FAM stage. Starting with CFAM-1030, the PUI will fill out a load computation form by hand using NATOPS charts based on the conditions stated in the Student Guide.

(4) Emphasis will be placed on NATOPS chapters 2, 4, 7, 11, and 12. PUI is responsible for reading all applicable NATOPS sections of the above chapters for each Simulator and Flight event.

(5) If the FAM-1043 is not flown within 5 days of the SFAM-1042, the SFAM-1042 shall be re-flown.

c. Crew Requirements

(1) CFAM: Max of 2 PUI to 1 IP, CFAM-1031 PUI/PUI

(2) SFAM: IP/PUI

(3) FAM: IP/PUI/CC

ACAD-1010	2.0	*	T,R,MR,AF,CI	CLSRM	FAMI

Goal. The PUI should have an introductory knowledge of the training syllabus for the familiarization stage and gain familiarity with the expectations and performance standards. Each PUI will be entered in and able to access the required web-based processes to include M-SHARP and the MATSS website for information and scheduling. Each PUI will also be checked out in the Simulator and Cockpit Trainer so that they may conduct training events or practice on their own.

Requirement

(1) Discuss

(a) Introduction

1 Purpose/FOE of the syllabus.

2 Syllabus outline and flow.

3 Applicable publications.

4 PUI performance expectations.

(b) MATSS and Squadron scheduling.

1 ATS website access/tutorial.

2 Squadron distribution of flight schedule.

(c) M-SHARP.

1 Access/log-in.

2 Tutorial.

3 Filing of NAVFLIRS.

(d) Simulator checkout.

(e) Cockpit trainer checkout.

Prerequisite. ACAD-0100 through ACAD-0110, ADL-0001 through ADL-0015, and LAB-0200 through LAB-0201.

CFAM-1030	2.0	*	T,R,AF,CI	1	ICLE/FFS/FTD	C/S	FAMI

Goal. Gain familiarization with the overall cockpit and in particular the hardware communication interface(s). Conduct the PRE-ENTRY through POST ENGINE START checklists by integrating the basic CMS learned in LAB-0201 with the switches and displays in the cockpit trainer.

Requirement

(1) Discuss

(a) Communication.

1 Comm/ICS side panels.

2 Remote Control Head (RCH).

(b) Ground operations and limitations.

1 Battery.

2 External Power.

3 APU.

(c) Flight Controls.

1 Functions on TCL.

2 Functions on Cyclic.

(d) Checklist flow / cockpit layout.

(e) Aircraft response to NORM FLT OPS selection.

(2) Demonstrate

(a) ENGINE START.

(b) POST ENGINE START.

(3) Introduce

(a) Comm/ICS.

1 Side panels.

2 RFIS.

3 ARC-210 RCH operation.

(b) Overhead panel.

1 Switches vs Indicators.

2 Lighting.

3 All other overhead panels.

(c) Center console.

1 SFD, SFI, FD panel.

2 LGCU, Track handle, Flaps, Parking brake, Nac cntrl disable switches.

(d) Flight Controls.

1 TCL.

2 Cyclic.

3 Pedals.

(e) COCKPIT PRE-ENTRY (min 2).

(f) COCKPIT PRE-START (min 2.

1 Battery.

2 External power.

(4) Review

(a) CMS functions within PRE-START checklist.

Performance Standards

(1) Understands the function of the NORM FLT OPS configuration.

(2) Demonstrates familiarity with the operation of the CMS.

(3) Properly identifies all switches and MFD/CDU layers to execute PRE-ENTRY and PRE-START checklists.

(4) Able to input a manual frequency in the RCH.

Prerequisite. ACAD-0110, ACAD-1010.

CFAM-1031 2.0 * T,AF,CI 1 ICLE/FFS/FTD C/S

Goal. Practice checklists. PUI/PUI event with no IP required.

Requirement

(1) Introduce

(a) ENGINE START (min 2).

(b) POST ENGINE START (min 2).

(c) POST FLIGHT.

1 After Landing.

2 Shutdown.

(2) Review

(a) COCKPIT PRE-ENTRY (min 2).

(b) COCKPIT PRE-START (min 2).

1 External Power.

2 Battery.

3 All Start.

Performance Standards

(1) Demonstrates familiarity with the operation of the CMS.

(2) Properly identifies all switches and MFD/CDU layers to execute all prescribed checklists.

(3) Able to properly execute all items from COCKPIT PRE-ENTRY to ENGINE START in less then 30 minutes.

Prerequisites. CFAM-1030.

CFAM-1032	2.0	*	T,R,MR,AF,CI	1	ICLE/FFS/FTD	C/S	FAMI

Goal. Be able to properly execute all listed Normal Procedures checklists in a timely manner. Recognize and perform the proper steps for all Ground Emergencies.

Requirement

(1) Discuss

(a) Load Computation.

(b) Weight and Balance Form F.

(c) Blade Fold/Wing Stow (BFWS) system.

1 Full Stow and Flight Ready.

2 Maintenance modes.

(2) Introduce

(a) BLADE FOLD/WING STOW.

1 Flight Ready to Full Stow.

2 Full Stow to Flight Ready.

(3) Review

(a) COCKPIT PRE-ENTRY.

(b) COCKPIT PRE-START.

1 Battery.

2 All Start.

(c) ENGINE START.

(d) POST ENGINE START.

(e) POST FLIGHT.

1 After Landing.

2 Shutdown.

(4) Emergencies

(a) Abnormal starts.

(b) Emergency shutdown.

(c) Engine fire, nacelle fire, or wing fire on ground.

(d) Uncommanded engine acceleration.

(e) Directional control problems.

Performance Standards

(1) Demonstrates familiarity with the operation of the CMS.

(2) Properly identifies all switches and MFD/CDU layers to execute all prescribed checklists in a timely manner.

(3) Able to properly execute all items from COCKPIT PRE-ENTRY through POST ENGINE START in less then 30 minutes.

(4) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. CFAM-1031

SFAM-1033	2.0	*	T,AF,CI	1	FFS/FTD	S		FAMI

Goal. Timely execution of checklists and to introduce hover and nacelle drills. Develop PUI skill in using nacelle angle to control nose attitude and longitudinal aircraft control.

Requirement

(1) Discuss

(a) Electrical system.

1 Constant Frequency Generators (CFG).

2 Variable Frequency Generators (VFG).

3 Regulated Converters.

4 AC and DC Busses.

5 FCC Power sources.

(b) Pitch up with sideslip.

(c) Nacelle trim switch.

(2) Introduce

(a) Pilot and crew chief actions and callouts.

1 During takeoff, landing, and takeoff emergencies.

(b) Checklists.

1 PRE-TAXI/BREAKDOWN.

2 PRE-TAKEOFF.

3 AFTER TAKEOFF.

4 LANDING CHECKS.

(c) Ground Taxi.

1 Normal, Power steering on and off.

2 Rearward Taxi.

(d) Vertical takeoff to a hover.

1 Power and systems check.

(e) Normal Hover and Hover Turns.

(f) Hover Nacelle Drills.

(g) Air Taxi Nacelle Drills.

(h) Square patterns.

(i) Vertical landing from a hover.

(3) Review

(a) Load Comp/Weight and Balance.

(b) Checklists.

1 COCKPIT PRE-ENTRY.

2 COCKPIT PRE-START.

3 ENGINE START.

4 POST ENGINE START.

5 POST FLIGHT.

(4) Expose

(a) Transition/Conversion.

(b) APLN flight.

(5) Emergencies

(a) Electrical system failure(s).

1 CFG Failure.

2 VFG Failure.

3 AC Bus Failure.

4 DC Bus Failure.

Performance Standards

(1) Understands all checklist items, knows where the required cockpit switches are, be able to access required CMS functions, and demonstrate proper crew coordination during the startup and shutdown with some coaching.

(2) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(3) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. CFAM-1032, ACAD-0112.

SFAM-1034	2.0	*	T,R,AF,CI	1	FFS/FTD	S	FAMI

Goal. Review low work and introduce forward flight in CONV. Evaluate start and shutdown checklist(s) execution. Further enforce the PUI understanding and skill in using nacelles for longitudinal control.

Requirement

(1) Discuss

(a) Hydraulic system.

(b) Pitch coupling.

(2) Introduce

(a) Transition from Hover.

(b) CONV Pattern.

(c) Normal Approach to a Hover.

(d) Normal Approach to a No-Hover.

(e) ROL (Roll-On Landings).

(f) PNF duties and callouts.

(g) Calculate Hover/Cruise Performance (HIGE, HOGE, MAX RNG/ENDU).

(3) Review

(a) Checklists.

1 ENGINE START.

2 POST ENGINE START.

3 PRE-TAXI/BREAKDOWN.

4 PRE-TAKEOFF.

5 AFTER TAKEOFF.

6 LANDING CHECKS.

7 POST FLIGHT.

(b) Vertical takeoff and landing.

(c) Hover Nacelle Drills.

(d) Air Taxi Nacelle Drills.

(4) Evaluate

(a) COCKPIT PRE-START checklists.

(5) Emergencies

(a) Hydraulic System Failures.

1 Hydraulic X failure.

2 Hydraulic 1/2 failure.

3 Hydraulic X/3 failure.

(b) Dual Mission Computer Fail.

Performance Standards

(1) Understands all checklist items, know where the required cockpit switches are, be able to access required CMS functions, and demonstrate proper crew coordination with minimal coaching.

(2) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(3) Properly recognize normal approach glide slope.

(4) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1033

SFAM-1035	2.0	*	T,AF,CI	1	FFS/FTD	S	FAMI

Goal. Review CONV pattern and approaches and introduce steep approaches. Begin to develop initial building blocks that will be required for CALs and shipboard operations.

Requirement

(1) Discuss

(a) VMS basic architecture/overview.

(b) Primary Flight Control System (PFCS).

1 FCCs.

2 Electro-hydraulic controls.

3 Flight Control Laws (CLAWS).

4 Conversion protection system “Conversion Corridor.”

5 Structural Load Limiting.

6 PFCS Fail/Reset.

(c) Automatic Flight Control System (AFCS).

1 Full time and selectable modes of operation.

2 Cyclic grip and TCL switches (AFCS unique).

3 AFCS/PFCS Reset.

(d) Vortex Ring State.

(2) Introduce

(a) Steep Approach to a Hover.

(b) Steep Approach to a No-Hover.

(c) Nose Low Steep Approach.

(d) Level Speed Change (CONV Mode).

(e) AFCS failed flight vs. AFCS off (CONV).

(3) Review

(a) CONV Pattern.

(b) Normal Approach to a Hover.

(c) Normal Approach to a No-Hover.

(d) ROL (Roll-On Landings).

(f) PNF duties in the CONV pattern.

(4) Evaluate

(a) Checklists.

1 From All Start “Personnel equipment” through POST FLIGHT.

(5) Emergencies

(a) VMS Failure(s).

1 AFCS failed.

(b) SINK (Vortex Ring State).

Performance Standards

(1) Understands all checklist items, know where the required cockpit switches are, be able to access required CMS functions, and demonstrate proper crew coordination in a timely manner.

(2) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(3) Properly recognize steep approach glide slope.

(4) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1034

SFAM-1036	2.0	*	T,AF,CI	1	FFS/FTD	S	FAMI

Goal. Review CONV pattern. Develop the fundamental skills necessary for the APLN Pattern.

Requirement

(1) Discuss

(a) Drive systems.

1 Proprotor systems.

2 Gearboxes and Nacelle Blower.

3 Interconnecting Driveshaft System (ICDS).

4 Drive System Interface Unit (DSIU).

(b) Feathering/Flapping/Rotor Load (FFR) Indicator.

(c) Structural Load Limiting (SLL).

(2) Demonstrate

(a) FD panel, FD cues, FD commands.

(3) Introduce

(a) Transition to APLN.

1 Transition Straight and level.

2 Transition constant rate climb.

3 Transition constant rate turns.

(b) Conversion to CONV.

1 Conversion Straight and level.

2 Conversion constant rate climb.

3 Conversion constant rate turns.

(c) Level Speed Change (APLN Mode).

(d) PNF use of FD cues for CRM.

(4) Review

(a) CONV pattern.

(b) Normal Approach.

(c) Steep Approach to a No-hover.

(d) Level Speed Change (CONV Mode).

(e) ROL (Roll-On Landings).

(f) PNF duties in the CONV pattern.

(5) Emergencies

(a) Drive system malfunction(s).

1 PRGB/TAGB Oil Pressure Low/High.

2 PRGB/TAGB/MWGB Oil Press/Temp Invalid.

3 PRGB/TAGB/MWGB Chips.

(b) Gearbox Failure (Warning).

(c) ICDS Failure (Warning).

(d) Feathering/Flapping High Hot.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1035

SFAM-1037	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S		FAMI

Goal. Introduce APLN pattern, short takeoff (75 STO), rolling takeoff (60 RTO), and max gross weight operations. Begin to develop the initial building blocks required for a tiltrotor to go from the enroute phase to landing.

Requirement

(1) Discuss

(a) Powerplant systems.

1 Engines.

2 Engine control (FADEC, PDS).

3 APU.

(b) Interim power.

(c) Single Engine Flight.

1 SE performance envelopes APLN/CONV/VTOL.

2 SE flight characteristics.

(d) TOLD (Takeoff and Landing Data Calculations).

(2) Introduce

(a) TOLD (Takeoff and Landing Data calculations).

(b) Max gross Weight (MGW) Takeoff from a Hover.

(c) MGW landings.

(d) STO (75 degree nacelle).

(e) RTO (60 degree nacelle).

(f) Attitude capture takeoff.

(g) APLN Mode pattern.

(3) Evaluate

(a) CONV pattern.

(4) Emergencies

(a) Single engine failure.

1 In VTOL.

2 In CONV.

3 In APLN.

(b) Single Engine landing.

(c) Engine restart in-flight.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1036

SFAM-1038	2.0	*	T,AF,CI	1	FFS/FTD	S		FAMI

Goal. Review APLN pattern. Introduce slow flight APLN maneuvers and high AOB turns. Begin to develop the understanding of energy management in APLN mode for a V-22.

Requirement

(1) Discuss

(a) Fuel system.

(b) Cruise performance (range/endurance).

(c) Slow flight characteristics in airplane mode.

(d) Angle of bank/load factor vs. stall speed.

(2) Introduce

(a) Slow flight in airplane mode.

(b) High AOB (APLN Mode).

1 8,000 ft MSL.

2 FL 180.

(c) Overhead Break Entry.

(d) PNF duties in the APLN pattern.

(3) Review

(a) STO and RTO.

(b) APLN pattern.

(c) No-hover landings.

(d) ROL.

(e) MGW takeoffs and landings.

(4) Emergencies

(a) Single Engine Failure in Hover (HIGE, HOGE).

(b) Single engine failure in-flight.

1 Single engine failure on takeoff to an abort.

2 Single engine failure on takeoff to a flyaway.

(c) Single Engine wave-off.

(d) Fuel system cautions.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1037

SFAM-1039	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S		FAMI

Goal. Review APLN flight. Introduce power on/off stalls and dual engine failures.

Requirement

(1) Discuss

(a) ECS.

(b) OBIGGS/OBOGS.

(c) Stall characteristics.

(2) Introduce

(a) Stall Checklist.

(b) Practice power on/off stalls.

(c) Converting and Turning stall.

(d) Emergency Landing Pattern (ELP).

(e) AFCS failed (airplane mode).

(3) Review

(a) Level speed changes (airplane mode).

(b) High AOB turns in airplane mode (60 degrees AOB).

(c) Overhead Break Entry.

(d) Steep approach.

(e) Pilot Not Flying (PNF) duties.

(4) Evaluate

(a) APLN pattern.

(b) No-hover landings.

(5) Emergencies

(a) SDC Failure.

(b) Nacelle Blower Failure.

(c) Dual engine failure.

1 Dual Engine Failure Nac $\leq$ 60.

2 Dual Engine Failure Nac > 60.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1038

SFAM-1040	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	FAMI

Goal. Introduce Fire EPs and Landing Gear malfunctions. Review previously introduced aircraft system WCAs.

Requirement

(1) Discuss

(a) Fire protection systems.

(b) Smoke and fume elimination.

(c) Landing gear systems.

(d) FADEC B Override Switch.

(e) Use of briefing guide.

(2) Introduce

(a) Pilots and crew chief actions and call outs during in-flight emergencies.

(b) PNF duties during in-flight emergencies.

(3) Review

(a) Practice power on/off stalls.

(b) Emergency Landing Pattern (ELP).

(4) Emergencies

(a) In-flight fires.

1 Engine fire.

2 Wing fire.

3 Cockpit or cabin fire.

(b) Single engine failure with an ICDS failure.

(c) Engine FADEC cautions.

1 Dual FADEC failure.

2 FADEC auto transfer failure.

(d) Nacelle Interface Unit (NIU) failure.

(e) Wing Interface Unit (WIU) failure.

(f) Landing gear failures.

1 Landing gear fails to extend.

2 Landing with hung gear.

(g) Inadvertent IMC.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1039

SFAM-1041	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S		FAMI

Goal. Introduce flight control emergencies and degraded handling qualities.

Requirement

(1) Discuss

(a) VMS response to flight control and hydraulic failures.

(2) Emergencies

(a) Critical Swashplate Actuator Fault (Caution).

(b) Single or Multiple Swashplate Actuator Fault.

(c) Uncommanded Nacelle Movement (Caution).

(d) Elevator Failure (Warning).

(e) Critical Elevator Fault (Caution).

(f) Flaperon Failure (Caution).

(g) Multiple ADS Failures (Caution).

(h) FCC 1/2 Fail (Caution).

(i) FCC X/3 Fail (Caution).

1 Landing to a spot.

(j) Fixed Nacelle Landing.

Performance Standards

(1) Recognize indications, execute required memory items, exercise proper crew coordination and maintain control of the aircraft during simulated Emergency Procedures.

Prerequisite. SFAM-1040

SFAM-1042	2.0	*	T,AF,CI	1	FFS/FTD	S		FAMI

Goal. Stage review.

Requirement

(1) Discuss

(a) Aircraft limitations.

(2) Introduce

(a) Full flight gear and cockpit considerations.

1 Helmet, vest, gloves, oxygen mask with regulator.

(3) Review

(a) All previously introduced FAM maneuvers.

Performance Standards

(1) Conduct all FAM maneuvers IAW MV-22B Flight Training Manual.

Prerequisite. SFAM-1041

LAB-1020	3.5	*	T,R,MR,AF,CI,CV	1	MV-22	A		FAMI

Goal. Familiarize PUI with squadron procedures for flight. Be able to correlate components learned in ADLs and ACADs on the aircraft and execute the standard walk-around. Complete required V-22 egress training.

Requirement

(1) Discuss

(a) Scheduling procedures.

(b) Read and Initial File.

(c) Items required for brief.

(d) Aircraft checkout.

(e) Flight equipment checkout.

(f) MAF generation.

(2) Introduce

(a) V-22 egress procedures.

(b) Hotseat procedures.

(c) Standard walk-around.

Performance Standards

(1) Be able to conduct the standard walk-around with minimal coaching.

(2) Be able to execute the V-22 egress procedures without reference or coaching.

Prerequisite. SFAM-1042

External Syllabus Support. Aircraft.

FAM-1043	2.0	*	T,AF,CI	1	MV-22	A	FAMI

Goal. Timely execution of checklists, particularly cockpit pre-start (from APU run/engage) and engine start. Introduce nacelle drills, hover and CONV pattern in the aircraft. Develop PUI skill in using nacelle angle to control nose attitude and longitudinal aircraft control.

Requirement

(1) Discuss

(a) Electrical system.

(b) VTOL Flying Qualities.

(2) Introduce

(a) Pilot Flying (PF) callouts.

(b) Ground Taxi.

1 Normal, Power steering on and off.

2 Rearward Taxi.

(c) Vertical takeoff to a hover.

(d) Normal Hover and Hover Turns.

(e) Hover Nacelle Drills.

(f) Air Taxi Nacelle Drills.

(g) Square patterns.

(h) Vertical landing from a hover.

(i) CONV pattern.

(j) Normal Approach to a Hover.

(k) Normal Approach to a No-Hover.

(3) Review

(a) Load Comp/Weight and Balance.

(b) COCKPIT PRE-START.

(c) ENGINE START.

(4) Expose

(a) APLN flight.

(5) Emergencies

(a) Electrical system failure(s).

(b) Ground emergencies.

Performance Standards

(1) Understands all checklist items, knows where the required cockpit switches are, be able to access required CMS functions, and demonstrate proper crew coordination during the startup and shutdown with some coaching.

(2) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(3) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. SFAM-1042 flown within the past 5 days, LAB-1020

FAM-1044	1.5	*	T,R,MR,AF,CI	1	MV-22	A	FAMI

Goal. To develop the landing phase of PF skills. Review low work and CONV pattern. Introduce MGW takeoff / landing, steep approach, transitions and conversions. Introduce OLF operations and Course Rules.

Requirement

(1) Discuss

(a) Landing Gear System.

(b) APLN Flying Qualities.

(c) APLN course rules.

(d) CONV Flying Qualities.

(e) CONV course rules.

(2) Introduce

(a) Pilot Not Flying (PNF) callouts.

(b) MGW takeoff from a hover.

(c) MGW landings.

(d) Steep Approach to a No-Hover.

(e) Nose Low Steep Approach.

(f) Level Speed Change (CONV Mode).

(g) Course Rules.

(h) Transition to APLN.

1 Transition Straight and level.

2 Transition constant rate climb.

3 Transition constant rate turns.

(i) Conversion to CONV.

1 Conversion Straight and level.

2 Conversion constant rate descent.

3 Conversion constant rate turns.

(3) Review

(a) Vertical takeoff to a hover.

(b) Normal Hover and hover turns.

(c) Hover Nacelle drills.

(d) Air Taxi Nacelle drills.

(e) Vertical landing from a hover.

(f) CONV pattern.

(g) Normal Approach to a hover.

(h) Normal Approach to a No-Hover.

(4) Emergencies

(a) Landing gear failures.

1 Landing gear fails to extend.

2 Landing with hung gear.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Properly recognize normal approach glide slope.

(3) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. FAM-1043

FAM-1045	1.5	*	T,R,AF,CI	1	MV-22B	A	FAMI

Goal. To develop the initial building blocks required for a tiltrotor to go from the enroute phase to landing. Introduce APLN pattern and have PUI practice PNF duties to include comm., FD and callouts.

Requirement

(1) Discuss

(a) VMS.

(b) Hydraulic system.

(2)Introduce

(a) APLN pattern.

(b) Level speed change (APLN mode).

(c) PNF use of FD cues for CRM.

(3) Review

(a) CONV pattern.

(b) Normal approach.

(c) Steep approach.

(d) No-hover landings.

(e) Level Speed Change (CONV Mode).

(f) Transition to APLN.

(g) Conversion to CONV.

(h) PF and PNF callouts.

(4) Emergencies

(a) VMS Failure(s).

(b) Hydraulic System failure(s).

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Properly recognize steep approach glide slope.

(3) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. FAM-1044

FAM-1046	1.5	*	T,AF,CI	1	MV-22B	A	FAMI

Goal. To develop the skills and considerations required for heavy or high altitude tiltrotor operations from the enroute phase to landing. Introduce short takeoff (STO), rolling takeoff (RTO) and run on landing (ROL). Interim power should be selected ON where appropriate and all maneuvers flown with simulated minimal power margin.

Requirement

(1) Discuss

(a) Drive system.

(b) FFR indicator.

(c) SLL.

(d) VSLED.

(2) Introduce

(a) STO.

(b) RTO.

(c) ROL.

(3) Review

(a) APLN pattern.

(b) MGW Takeoff from a Hover.

(c) MGW landings.

(d) Normal approach.

(e) Steep approach.

(f) No-hover landings.

(g) PF and PNF callouts.

(4) Emergencies

(a) Drive system malfunction(s).

(b) Gearbox Failure (Warning).

(c) ICDS Failure (Warning).

(d) Feathering/Flapping High Hot.

(e) Rotor Load High.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. FAM-1045

FAM-1047	1.5	*	T,R,MR,AF,CI	1	MV-22B	A		FAMI

Goal. To develop understanding of APLN energy management. Review APLN pattern. Introduce slow flight, APLN maneuvers, high AOB turns and stalls. Emphasize PNF duties in the landing pattern.

Requirement

(1) Discuss

(a) Powerplant systems.

1 Engines.

2 Engine control (FADEC, PDS).

3 APU.

(b) Single Engine Flight.

(c) APLN Slow flight characteristics.

(d) AOB/load factor vs. stall speed..

(2) Introduce

(a) Slow flight in airplane mode.

(b) High AOB (APLN Mode).

(c) Practice power on/off stalls.

(d) Overhead Break entry.

(3) Review

(a) STO and RTO.

(b) APLN pattern.

(c) ROL.

(d) No-hover landings.

(e) MGW takeoffs and landings.

(4) Emergencies

(a) Single engine failure in hover (HIGE, HOGE).

(b) Single engine failure in-flight.

(c) Single engine wave-off.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. FAM-1046

FAM-1048	1.5	*	T,AF,CI	1	MV-22B	A		FAMI

Goal. To prepare for FAM stage progress check. Introduce ELP.

Requirement

(1) Discuss

(a) Fuel system.

(b) Cruise performance (range/endurance).

(2) Introduce

(a) ELP.

(3) Review

(a) Hover Nacelle drills.

(b) Air Taxi Nacelle drills.

(c) STO and RTO.

(d) APLN pattern.

(e) ROL.

(f) Steep approach.

(g) Nose low steep approach.

(h) MGW takeoffs and landings.

(i) Slow flight in airplane mode.

(j) High AOB (APLN Mode).

(k) Practice power on/off stalls.

(l) Overhead Break entry.

(m) PF and PNF callouts.

(4) Evaluate

(a) Vertical takeoff.

(b) Hover and No-hover landings.

(c) CONV pattern.

(5) Emergencies

(a) Dual Engine Failure.

(b) Fuel System Cautions.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. FAM-1047

FAM-1049	1.5	*	T,R,MR,AF,CI	1	MV-22B	A	FAMI

Goal. FAM Stage Progress check. Demonstrate appropriate level of learning for tiltrotor flying qualities, major systems, aircraft control, normal and emergency procedures.

Requirement

(1) Discuss

(a) Any major aircraft system.

(b) Any tiltrotor FQ or performance.

(2) Review

(a) ELP.

(3) Evaluate

(a) Load Comp, Wt and Bal Form F.

(b) Ground operations.

(c) Vertical takeoff.

(d) STO and RTO.

(e) APLN pattern.

(f) Hover and No-hover landings.

(g) ROL.

(h) Steep approach.

(i) MGW takeoffs and landings.

(j) Slow flight in airplane mode.

(k) High AOB (APLN Mode).

(l) Practice power on/off stalls.

(m) Overhead Break entry.

(n) PF and PNF callouts.

(4) Emergencies

(a) Any major system EP.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. FAM-1048

SFAM-1050	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	N*	FAMI

Goal. Introduce FLIR and execute night unaided FAM maneuvers.

Requirement

(1) Discuss

(a) Lighting systems.

1 Interior lighting.

2 Exterior lighting.

3 Searchlight.

(b) Night adaptation/visual effects.

(c) Night scanning techniques.

(d) Fixation tendencies.

(e) Radar altimeter low setting.

(2) Introduce

(a) Night ground operations.

(b) Use of FLIR.

1 FLIR calibration.

2 Track Handle and TCL.

3 FPV Mode.

4 LACE.

5 FWD Mode.

6 MAN Mode.

7 PT Mode.

8 SCAN Mode.

9 Gain/Level settings.

(c) Use of Hover page.

(3) Review

(a) Vertical takeoff.

(b) Hover Nacelle drills.

(c) Air Taxi Nacelle drills.

(d) STO and RTO.

(e) CONV pattern.

(f) APLN pattern.

(g) Hover and No-hover landings.

(h) ROL.

(i) Steep approach.

(j) MGW takeoffs and landings.

(k) PF and PNF callouts.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

(3) Basic understanding of FLIR use and manipulation.

Prerequisite. FAM-1046

FAM-1051	1.0	*	T,R,AF,CI	1	MV-22B	A	N*	FAMI

Goal. Introduce FLIR and execute night unaided FAM maneuvers.

Requirement

(1) Discuss

(a) Lighting systems.

1 Interior lighting.

2 Exterior lighting.

3 Searchlight.

(b) Night adaptation/circadian rhythms.

(c) Civilian airfield lighting/Pilot controlled lighting.

(d) Radar altimeter low setting.

(e) FLIR underlay pros/cons.

(2) Introduce

(a) Night ground operations.

(3) Review

(a) Vertical takeoff.

(b) Hover Nacelle drills.

(c) Air Taxi Nacelle drills.

(d) Use of Hover page.

(e) STO and RTO..

(f) CONV pattern.

(g) APLN pattern.

(h) Hover and No-hover landings.

(i) ROL.

(j) Steep approach.

(k) MGW takeoffs and landings.

(l) Use of FLIR.

(m) PF and PNF callouts.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

(3) Basic understanding of FLIR use and manipulation.

Prerequisite. SFAM-1050

4. Navigation (NAV)

a. Purpose. To develop the ability to conduct day VFR navigation utilizing both chart and dead reckoning, and the navigation / mission management systems. FOE: CMS, VMPS, command levels of automation, and NATOPS Chapter 16 & 17.

b. General. The PUI will conduct route planning based on information provided by the IP. VMPS will be utilized to conduct route planning and to produce required printed documents and digital files. Charts and VMPS will be used to perform a thorough map study. Charts, the aircraft navigation system, and the aircraft mission management system will be used to follow the planned route and to arrive at the planned destination. During this phase of training the PUI will perform all cockpit duties as the PNF.

c. Ground Training. Ground training will include a Navigation Stage Brief; associated lessons on the Advanced Distributive Learning (ADL) system; and VMPS training.

d. Crew Requirement

(1) CNAV: Maximum of 2 PUI to 1 IP

(2) SNAV: IP/PUI

ACAD-1110	1.5	*	T,AF,CI	CLSRM	NAVI

Goal. To introduce the PUI to the training syllabus for the Navigation phase. The following will be discussed: the purpose of low altitude navigation; the documents and imagery available; the route planning considerations; the preflight planning requirements; the conduct of the training flights; and performance standards.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of Low Level Flight.

2 Syllabus description.

3 ADL lessons to be completed.

4 Performance standards.

(b) Charts/Imagery.

1 Aeronautical Charts.

2 Satellite Imagery.

3 Use of various scales.

(c) Route Planning.

1 Effects of weather and/or wind.

2 Waypoint/IP/DP/Target selection.

3 Expected visibility of selected waypoints at planned flight altitude.

4 Mission planning using VMPS and the mission management system to meet a time on target.

5 Final approach planning.

6 Planning for INS Update.

(d) Pre-mission Planning/Brief.

1 Produce Smart Pack. Smart Pack contents.

2 Chart study: Linear/Limiting Features, Point Features, Timing Features, Catching Features, Funneling Features.

3 Final Approach Planning/Preparation. LZ Sketch.

4 Use of VMPS SkyView.

(e) Conduct of flight.

1 PF duties.

2 PNF duties and communication during LLNAV flight.

3 Use of the FD Cues/Commands.

Prerequisite. FAM-1046

ADL-1101 2.0 * T,R,MR,AF,CI CBT

DDMS and INAV functions

Goal. The PUI has completed all modules with a basic understanding the DDMS and INAV functions.

Modules

(1) Introduction to the DDMS.

(2) INAV and CMS Navigation Control System.

Prerequisite. FAM-1046

LAB-1120 4.0 * T,R,MR,AF,CI CLSRM NAVI

Goal. To introduce the PUI to the mission planning station and the VMPS program. Following this instruction the PUI should be able to use the mission planning computer, and the VMPS program to; plan a route; create a mission binder; load the mission to a DTM; print required charts and documents; and transport mission related digital files.

Coordination. The digital mission files, and printed documents, created during this training session will be used during LAB-1120.

Requirement

(1) Discuss

(a) Operate the Mission Planning Station and the JMPS Program.

(b) Create, Open, Save, Close Route files.

(c) Edit climb cruise and descent performance profiles.

(d) Create and edit a straight in tactical approach.

(e) Create and edit approach legs.

(f) Modify route properties.

(g) Modify doghouse overlays.

(h) Add, edit, delete, aircraft load.

(i) Calculate and print Load Comp Form.

(j) Calculate aircraft CG and discuss Form DD-365-F.

(k) Create, open, save, and close Mission Binders.

(l) Load Waypoint Set.

(m) Load COMM Plan.

(n) Write Mission to DTM.

(o) Print required charts.

(p) Print required kneeboard cards.

(q) Print DD-175/1801 form.

(r) Import, export, transfer mission related files.

Prerequisite. ACAD-1110, ADL-1101

External Syllabus Support. JMPS.

LAB-1121 2.0 * T,R,MR,AF,CI CMS NAVI

Goal. To introduce the PUI to the cockpit operation of; the navigation system; the Mission Management system; the Dual Digital Map system.

Coordination. The DTM, with required digital mission files, will be provided by the instructor.

Requirement

(1) Discuss

(a) Current aircraft navigation system flight restrictions and limitations.

(2) Introduce

(a) Waypoint (WYPT) Management.

1 Add, edit, display, and delete waypoints using CDU WYPT.

2 Add waypoint using OFLY Store function.

(b) Flight Plan (FPLN Management).

1 Build, edit, delete, flight plans using CDU FPLN.

2 Utilize INAV Functions (FPLN, DIRECT, OFF).

3 Activate and display the flight plan.

4 Activate and display an Idle Leg.

5 Edit and utilize the Cargo Summary (ACFT WHT/CG).

6 Edit and utilize the Bingo FPLN.

7 Display and utilize Fuel Summary.

8 Display and utilize FPLN Summary to edit flight plan legs.

a Adjust the Leg Type and method of Sequence.

b Utilize TSO. Adjust CAS. Adjust TOT.

c Edit leg Wind data.

d Adjust leg WHT/BAL data.

(c) Calculate Aircraft CG (WHT/BAL NO FLT PLN).

(d) Dual Digital Map Operation.

1 Display scales of Charts and Satellite Imagery (CIB).

2 Display DTED data and utilize the HAT and LOS functions.

3 Add, edit, display, and delete waypoints.

4 Utilize the declutter function.

5 Build, activate, display, edit, and delete flight plans.

(3) Review

(a) Conduct Aircraft INIT.

(b) Upload Mission Data from DTM.

Prerequisite. ACAD-1110, ADL-1101

CNAV-1130	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	C/S		NAVI

Goal. To review and practice the operation of; the mission planning station; the aircraft navigation system; and the aircraft mission management system; in preparation for a navigation flight.

Coordination. The digital mission files, and printed documents, created during LAB-1120 will be used during this training session.

Requirement

(1) Preflight Preparation

(a) Operate the mission planning station and the JMPS program.

1 Calculate and print Load Comp Form.

2 Calculate aircraft CG.

3 Write the mission to DTM.

4 Print charts.

5 Print kneeboard cards.

(2) Discuss

(a) GPS.

(b) INS.

1 INS Alignment.

2 INS Updates.

(c) DIGMAP.

(3) Review

(a) Aircraft Navigation/CMS/mission management system.

1 Conduct INS land alignment.

2 Conduct Aircraft INIT.

3 Upload mission data from DTM.

4 Calculate Hover/Cruise Performance using the CMS (HIGE, HOGE, MAX RNG/ENDU).

(b) Waypoint (WYPT) Management.

1 Add, edit, display, and delete waypoints using CDU WYPT.

2 Add waypoint using Overfly Store function.

(c) Flight Plan (FPLN Management).

1 Build, edit, delete, flight plans using CDU FPLN.

2 Utilize INAV Functions (FPLN, DIRECT, OFF).

3 Activate and display the flight plan.

4 Edit and utilize the Cargo Summary (ACFT WHT/CG).

5 Edit and utilize the Bingo FPLN.

6 Display and utilize Fuel Summary.

7 Display and utilize FPLN Summary to edit flight plan legs.

a Adjust the Leg Type and method of Sequence.

b Utilize TSO. Adjust CAS.

c Adjust TOT.

d Edit leg Wind data.

e Adjust leg WHT/BAL data.

(d) Dual Digital Map Operation.

1 Display scales of Charts and Satellite Imagery (CIB).

2 Display DTED data and utilize the HAT and LOS functions.

3 Add, edit, display, and delete waypoints.

4 Utilize the declutter function.

5 Build, activate, display, edit, and delete flight plans.

Performance Standards

(1) Be able to execute all functions with coaching.

(2) Basic understanding of flight plan, waypoint and DDMS management.

Prerequisites. SFAM-1041, LAB-1120, LAB-1121

SNAV-1131	2.0	*	T,AF,CI	1	FFS/FTD	S	NAVI

Goal. Introduce day VFR navigation (no lower than 500 feet AGL) utilizing printed charts and dead reckoning to arrive at an initial objective; and then utilizing the aircraft navigation system, the flight director system, and the aircraft mission management system, to arrive at a second objective.

Coordination. The IP shall issue to the student the position (LAT/LONG) of a departure point, an initial objective, and a second objective. The distance between points should be less than 150 NM (40 minutes enroute). The IP shall provide forecast weather and winds for preflight planning.

The PUI shall be prepared to perform all cockpit tasks as the PNF. The PUI shall utilize the mission planning system to select waypoints and plan the routes to both objectives. Straight in tactical approaches will be utilized at both objectives. The PUI shall print the required charts/documents, and load the planned mission to a DTM. The PUI shall be prepared to navigate to the first objective using chart/dead reckoning only. The PUI shall be prepared to upload the mission to the aircraft and utilize the aircraft navigation system and mission management system to navigate to the second objective.

This event shall be conducted with the GPS failed to require both manual INS alignment and enroute INS updates. The student shall be prepared to conduct INS updates using both OFLY and TACAN methods.

Requirement

(1) Preflight preparation

(a) Operate the mission planning station and the VMPS program.

(b) Plan the routes as assigned.

1 Create and edit straight in tactical approaches to both objectives.

2 Add appropriate waypoints as required to conduct INS updates.

(c) Calculate and print a Load Comp Form.

(d) Calculate aircraft CG.

(e) Add an appropriate waypoint set to the mission binder. Add an appropriate Comm Plan to the mission binder. Write the mission to the DTM.

(f) Print required Charts.

(g) Print kneeboard cards.

(h) Conduct chart study.

(i) Utilize SkyView for route study.

(2) Discuss

(a) Route Planning.

(b) Pre-mission Planning/Brief.

1 Use SkyView.

(c) Conduct of flight.

(3) Introduce

(a) Utilize paper chart and dead reckoning.

(b) Utilize the aircraft navigation/CMS.

(c) Utilize CRM during VFR navigation.

(d) INS update (OFLY/TACAN).

(4) Review

(a) Preflight NAV/CMS/MMS.

1 Conduct INS land alignment.

2 Conduct Aircraft INIT.

3 Upload mission data from DTM.

4 Calculate Hover/Cruise Performance using the CMS (HIGE, HOGE, MAX RNG/ENDU).

5 Calculate aircraft CG (WHT/BAL NO FLT PLN).

(b) Flight Plan (FPLN) Management.

1 Utilize INAV Functions (FPLN, DIRECT, OFF).

2 Activate and display the flight plan.

3 Edit and utilize the Bingo FPLN.

4 Display and utilize Fuel Summary.

5 Display and utilize FPLN Summary to edit flight plan legs.

a Adjust the Leg Type and method of Sequence.

b Utilize TSO. Adjust CAS.

c Edit leg Wind data.

d Adjust leg WHT/BAL data.

(c) DDMS Operation.

1 Display scales of Charts and Satellite Imagery (CIB).

2 Display DTED data and utilize the HAT and LOS functions.

3 Add, edit, display, and delete waypoints.

4 Utilize the declutter function.

5 Build, activate, display, edit, and delete flight plans.

(d) Flight Director Operation.

1 Utilize the Flight Director Panel to adjust and activate the Flight Director Cues and Commands.

2 Utilize the Commands in both the APLN and CONV modes of flight.

Performance Standards

(1) Accurately conduct mission preflight planning utilizing the mission planning station and VMPS. Produce all paper and digital files required.

(2) Utilize accurately MSN Data Load, WYPT, FPLN, INAV, and MSN key functionality.

(3) Execute a navigation route maintaining orientation +/- 1 nautical mile enroute.

(4) Demonstrate the knowledge of time/distance checks, and fuel management.

(5) Properly activate and operate the DDMS during VFR navigation.

(6) Be able to accurately conduct an INS alignment and update.

(7) Utilize CRM principles.

Prerequisite. CNAV-1130

SNAV-1132	2.0	*	T,R,AF,CI	1	FFS/FTD	S	NAVI

Goal. Practice day VFR navigation (no lower than 500 feet AGL) utilizing the aircraft navigation system, the flight director system, and the aircraft mission management system, to arrive at the objective(s). Introduce the use of Flight Director commands, coupled modes, and AUTO NAC during enroute and APPR flight.

Coordination. The IP shall issue to the student a mission that requires the transport of a specific number/weight of troops/cargo from a departure point to an objective. The distance between the departure point and the first objective should be less than 200 NM (55 minutes enroute). A tactical approach will be planned and conducted at the initial

objective and a specific time for landing will be planned and flown. The aircraft will proceed to a second objective to await the extraction of the troops. A coupled approach leg will be planned at the second objective. The IP shall provide forecast weather and winds for preflight planning.

The PUI shall be prepared to perform all cockpit tasks as the PNF. The PUI shall utilize the mission planning system to select waypoints and plan the routes to both objectives. A straight in tactical approach will be planned and flown at the initial objective with the landing at the specified time. A coupled approach will be planned and utilized at the second objective. The PUI shall compile the required smart pack, and load the planned mission to a DTM. The PUI shall be prepared to use both a smart pack and a power point presentation to brief the flight. The PUI shall be prepared to upload the mission to the aircraft and to utilize the aircraft navigation system and mission management system to navigate to the objective and arrive at the assigned time.

Requirement

(1) Preflight preparation

(a) Operate the mission planning station and the VMPS program.

(b) Plan the routes as assigned.

1 Create and edit a straight in tactical approach the first objective.

2 Create and edit an approach leg to the second objective.

3 Add appropriate waypoints as required to conduct INS updates.

(c) Add, edit, and delete the Aircraft Load as assigned.

(d) Calculate and print a Load Comp Form.

(e) Calculate aircraft CG.

(f) Add an appropriate waypoint set to the mission binder. Add an appropriate Comm Plan to the mission binder. Write the mission to the DTM.

(g) Develop appropriate graphics for route brief.

(h) Print kneeboard cards.

(i) Conduct chart study.

(j) Utilize SkyView for route study.

(2) Discuss

(a) Conduct route preflight brief (conduct of flight portion of PCL).

(3) Introduce

(a) Flight director commands and coupled modes.

1 Core modes, INAV, APPR.

(b) Activate and display a coupled approach (APPR) leg.

(4) Review

(a) Utilize the aircraft navigation/CMS to execute assigned mission.

(b) Preflight NAV/CMS/MMS.

(c) Flight Plan (FPLN) Management.

(d) DDMS Operation.

(e) Utilize CRM during VFR navigation.

Performance Standards

(1) Accurately conduct mission preflight planning utilizing the mission planning station and VMPS. Produce all paper and digital files required.

(2) Accurately operate MSN Data Load, WYPT, FPLN, INAV, and MSN key functionality.

(3) Execute a navigation route maintaining orientation +/- 1 nautical mile enroute; +/- 500 meters in the objective area; and landing in the objective within +/- 1 minute.

(4) Properly activate and operate the DDMS and the Flight Director during VFR navigation.

(5) Utilize CRM principles.

Prerequisite. SNAV-1131

5. Instruments (INST)

a. Purpose. To develop proficiency in instrument flight using all installed navigational equipment. FOE: VMPS, IMC planning and flying, CMS, Aircrew coordination, and coupled levels of automation.

b. General

(1) Instrument flights should be conducted under both day and night conditions. All instrument flights, day or night, should be conducted under instrument conditions for the PUI, using an instrument hood when necessary. One flight will be conducted at night (simulator or aircraft).

(2) Refresher and Modified Refresher pilots will complete their annual instrument check at the end of this stage (REQ-6032). Therefore, they are required to have their semi-annual minimums and instrument ground school complete prior to RQD-6032.

(3) Basic pilots whose instrument check will expire within 3 months of leaving the FRS will also meet the requirements listed in Para: 5.b.2.

(4) Pilots whose instrument rating will remain current 3 months beyond designation as a T2P may waive the prerequisite requirement for the SINST-1238, thus enabling all instrument simulator events to be flown prior to the instrument aircraft events. Additionally, the REQ-6032 instrument evaluation flight is waived.

(5) Computer aided flight planning will be used to the greatest extent possible.

(6) Instrument ground school may be completed at any time but must be completed no earlier than 60 days prior to the REQ-6032.

(7) In order to familiarize pilots with high altitude operations, at a minimum, 1 leg of a flight in the aircraft will be conducted above FL180 and 1 high TACAN approach on either INST-1234 or INST-1235 will be conducted unless prohibited by icing conditions.

(8) If the INST-1234 is not flown within 5 days of the SINST-1233, the SINST-1233 shall be re-flown.

(9) The PUI shall be FAM-1051 complete before conducting an instrument event at night in the aircraft.

(10) INST-1236 and INST-1237 are part of the Air Force and Contract Instructor POI only; Marine POIs exclude these 2 events.

c. Crew Requirement. IP/PUI (CC for aircraft events).

ACAD-1210	1.0	*	T,AF,CI	CLSRM	INSTI

Goal. To introduce the PUI to the training syllabus for the Instrument phase.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of the syllabus.

2 Syllabus events.

3 Applicable publications.

4 PUI performance expectations.

5 Annual Instrument Minimums requirements.

(b) Aircraft navigation equipment and systems.

1 Navigation equipment. Current status and flight restrictions.

a VOR.

b TACAN.

c ENAV.

d INAV - GPS/INS.

2 Minimum aircraft equipment requirements.

3 Fuel considerations.

a Fuel burn rates.

b NATOPS limitations.

c Squadron SOP.

(c) Preflight planning.

1 PUI preflight planning.

2 Common flight planning airspeeds.

3 Minimum fuel requirements.

4 Instrument Navigation Packet.

5 Electronic filing of a DD-175 and receipt of a digital weather brief.

(d) Instrument flight in a “glass cockpit.”

1 Glass/Digital instrument scan.

a Instrument scanning techniques.

b Fixation tendencies.

2 Flight Director scan.

(e) Aircrew coordination.

1 PNF/PF Duties.

2 Takeoff/Departure Brief.

3 Instrument Approach Brief.

4 Approach Checklist.

Prerequisites. SNAV-1131

ACAD-6013 6.0 365 T,R,MR,AF,CI CLSRM INSTEVAL

Instrument Ground School

Goal. The Instrument Ground School shall be a Commander Naval Air Forces (CNAF) approved syllabus and at a minimum cover the following topics:

(1) Spatial disorientation.

(2) CNO GPS Policy Statement and GPS fundamentals to include RNAV (GPS) and Required Navigation Performance (RNP).

(3) Reduced Vertical Separation Minimums (RVSM) procedures.

(4) Requirements and denial reports.

(5) Use of non-DoD instrument approach/departure reports.

(6) Use of non-DoD GPS NOTAMS systems (Jeppeson GPS NOTAMS and Databases).

Performance Standards. Successful completion of Instrument Ground School

Prerequisites. ACAD-1210

ACAD-6014 2.0 365 T,R,MR,AF,CI E CLSRM INSTEVAL

Open Book NATOPS Instrument Examination

Goal. The Open Book Instrument Examination shall consist of, but is not be limited to knowledge of the NATOPS, NATOPS Instrument Flight Manual, FAR/AIM and/or aeronautical publications which are applicable, normal/emergency instrument ground and flight procedures, weather, aircraft limitations, and performance, and any subject listed for in OPNAVINST 3710.7 Series. The examination shall include questions on the following subjects.

(1) Pertinent Navy or Marine Corps regulations, orders, and instructions.

(2) Pertinent parts of the Federal Aviation Regulations (FAR), other regulations, and/or aeronautical publications which are applicable.

(3) Interpretation of weather information normally used in flight planning.

Performance Standard. Achieve a minimum grade of qualified on the Open Book examination.

Prerequisite. ACAD-6013

LAB-1220	4.0 *	T,R,MR,AF,CI	CLSRM	INSTI

Goal. To continue PUI introduction to the mission planning station and the VMPS program. Following this instruction the PUI will be able to use the mission planning computer, and the VMPS program to; create a Waypoint Set; print a Waypoint Report; create a Communications Plan; create Drawing Files; and print an instrument kneeboard card.

Requirement

(1) Introduce

(a) Create, open, edit, save, and close V-22 Waypoint set files.

(b) Create waypoints using Graphical Tools, DAFIF Data, and Overlays.

(c) Print a Waypoint Report.

(d) Print Instrument Kneeboard Cards.

(e) Create, open, edit, save, and close V-22 Communication Plan files.

(f) Create, open, edit, save, and close DMS Overlay files.

(2) Review

(a) Operate the Mission Planning Station and the JMPS Program.

(b) Create, Open, Edit, Save, Close Route files.

(c) Edit climb cruise and descent performance profiles.

(d) Print DD-175/1801 form.

(e) Calculate and print Load Comp Form.

(f) Calculate aircraft CG and print Form DD-365-F.

(g) Load Waypoint Set.

(h) Load COMM Plan.

(i) Create, open, save, and close Mission Binders.

(j) Write Mission to DTM.

(k) Import, export, transfer mission related files.

Performance Standards

(1) Accurately operate the VMPS planning station and software.

(2) Successfully print required documents.

(3) Successfully write the mission binder to the DTM and upload mission files to the aircraft.

Prerequisite. ACAD-1210, SNAV-1132

External Syllabus Support. JMPS

SINST-1230 2.0 * T,R,AF,CI 1 FFS/FTD S (N*) INSTI

Goal. Introduce Basic Instrument flight in both CONV and APLN. Introduce black cockpit operations, and unusual attitude recovery. Develop CRM skills by the proper use of Flight Director Cues.

Coordination. The flight will be conducted in an area local to the point of departure. IP will issue a departure clearance to the planned training area. During this flight the PUI will act as the PF.

Preflight Planning. The PUI shall prepare a DTM with the standard Squadron IFR Waypoint Set and Squadron Comm Plan. PUI shall print a Load Comp Form and DD-365-F. No route planning or DD-175 is required for this flight.

Requirement

(1) Discuss

(a) Aircrew coordination.

(b) Cockpit set up for IMC/IFR flight.

(c) Instrument Takeoff (ITO).

1 Hover ITO.

2 RLO/STO ITO.

(d) CLIMB Checklist.

(e) Basic Instrument Maneuvers.

(f) Instrument Approach Brief.

(g) APPROACH Checklist.

(h) Unusual Attitudes.

1 Prevention of and overcoming Spatial Disorientation.

2 Recovery procedures from an unusual attitude.

(i) Standby Flight Instruments/Panel.

(j) Approach Surveillance Radar (ASR).

(2) Introduce

(a) Cockpit setup and Ground procedures.

(b) Hover ITO.

(c) RTO ITO.

(d) Level speed change.

(e) Transition in a climb.

1 Cues only

2 Alt Command

(f) Conversion in a descent.

1 Cues only.

2 Alt Command.

(g) Turn pattern.

(h) Timed turns/compass turns.

(i) Steep turns.

(j) Oscar pattern.

1 Cues only.

2 Alt Command.

(k) Vertical S-1.

(l) Unusual Attitudes.

(m) Black Cockpit operations.

1 ASR.

2 Timed turns/compass turns.

(3) Review

(a) Voice Procedures.

(4) Emergencies

(a) Dual Mission Computer failures.

(b) Dual DEU failures.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Maintain positive control of the aircraft, and situational awareness, while performing the Basic Instrument (BI) maneuvers as described in the MV-22B Flight Training Manual.

(3) Accurately use the Flight Director Cues for heading, airspeed and altitude control.

(4) Accurately identify and recover from unusual attitudes IAW MV-22 Flight Training Manual without aggravating the unusual attitude.

(5) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

(6) Maintain positive control of the aircraft using only the Standby Instruments/Flight Display and land the aircraft safely.

Prerequisites. SNAV-1132, LAB-1220

SINST-1231	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	(N*)	INSTI

Goal. Introduce Non Precision Approaches, both low and high altitude. Develop CRM skills by the proper use of Flight Director Cues. During this flight the PUI will perform duties as both the PF and the PNF. One instrument approach shall be completed while the PUI acts as the PNF.

Coordination. IP will designate both departure airfield and the destination airfields where training is to be conducted. IP will issue a clearance, including a standard instrument departure, to the planned destination training area. Cruise altitude shall be high enough to require both climb and descent checklists, and to execute a high altitude approach.

Preflight Planning. The PUI shall prepare a DTM with a flight plan, waypoint set, and comm plan based off the IP designated departure and destination airfields. He shall print a Load Comp Form and DD-365-F.

Requirement

(1) Discuss

(a) Aircraft navigation systems, operation, and limitations.

1 TACAN.

2 ENAV.

(b) Enroute and descent procedures.

1 ENAV Functions.

2 Airway navigation procedures.

3 DESCENT Checklist.

(c) High Altitude instrument approach.

(d) Aircraft approach categories.

(e) Circling approach.

(f) Aircrew Responsibilities and Callouts.

(2) Introduce

(a) Standard Instrument Departure.

(b) CLIMB Checklist.

(c) TACAN Point to point.

1 Tacan needle/CDI only.

2 ENAV FD pt to pt.

(d) Descent procedures.

1 Instrument descent.

2 DESCENT Checklist.

(e) Holding.

(f) Instrument APPROACH Brief.

(g) APPROACH Checklist.

(h) High Altitude TACAN approach (PF).

(i) TACAN approach (PF).

(j) LOC or LOC-BC approach (PF).

(k) Non precision approach (PNF).

(l) Missed approach.

(3) Review

(a) Voice Procedures.

(b) Aircrew coordination.

(c) Pre-Takeoff Preparation.

(d) Takeoff/Departure.

(e) Conversion and aircraft configuration.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with some coaching.

(3) Accurately use the Flight Director Cues for heading, airspeed and altitude control.

(4) During airways navigation remain within the lateral limits of the assigned airspace.

(5) Execute non-precision approaches accurately and safely conducting all checklists in a timely manner.

Prerequisite. SINST-1230

SINST-1232 2.0 * T,R,MR,AF,CI 1 FFS/FTD S (N*) INSTI

Goal. Introduce Precision Approaches. Develop CRM skills by the proper use of Flight Director Cues. During this flight the PUI will perform duties as both the PF and the PNF. One instrument approach shall be completed while the PUI acts as the PNF.

Coordination. IP will designate both departure airfield and the destination airfields where training is to be conducted. IP will issue a clearance to the planned destination training area(s).

Preflight Planning. The PUI shall prepare a DTM with a flight plan, waypoint set, and comm plan based off the IP designated departure and destination airfields. He shall print a Load Comp Form and DD-365-F.

Requirement

(1) Discuss

(a) Instrument Landing System (ILS).

1 Approach lighting system (ALS).

2 VASI.

(b) Aircraft navigation systems, operation, and limitations.

1 ILS.

2 ENAV functions, operation, and limitations.

(c) Aircraft approach categories.

(d) Aircrew coordination.

(2) Introduce (minimum PF x3, PNF x1).

(a) ILS approach.

(b) PAR approach.

(3) Review

(a) Voice Procedures.

(b) Aircrew coordination.

(c) Communication, Navigation, and IFF equipment operation.

(d) Pre-Takeoff and Takeoff/Departure.

(e) Enroute procedures.

(f) Descent and Arrival procedures.

(g) Instrument APPROACH Brief.

(h) APPROACH Checklist.

(i) Conversions/Transitions in IMC.

(j) Missed approach procedures.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(3) Accurately use the Flight Director Cues for heading, airspeed and altitude control.

(4) During airways navigation remain within the lateral limits of the assigned airspace.

Prerequisite. SINST-1231

SINST-1233	2.0	*	T,AF,CI	1	FFS/FTD	S	(N*)	INSTI

Goal. Conduct IFR Flight operations. Introduce operation of Flight Director Commands and the Mission Management systems. A complete flight shall be conducted including; flight planning, filing, clearance, departure, enroute/cruise, descent, and instrument approaches.

Coordination. IP shall designate a departure and destination location where training is to be conducted. The IP shall issue to the PUI appropriate information for preflight planning; including a DD-175-1, appropriate NOTAMS, and an aircraft load.

Preflight Planning. PUI will conduct all appropriate preflight planning to include; Load Comp, Form F, a completed DD-175, and loading flight plan, waypoint set, comm plan, and at least one drawing file of a special use airspace on a DTM.

Requirement

(1) Discuss

(a) VMPS flight planning.

1 Flight plan flies loaded to the DTM.

(b) Flight Plan/DD-175.

1 Aircraft Designation/TD Code.

2 Route, altitude, CAS vs TAS.

3 V-22 Minimum fuel requirements.

4 Alternate airfield selection.

(c) Flight Director operation and limitations.

1 Pre-takeoff preparation.

2 During takeoff and departure.

3 During the enroute and descent.

4 During the instrument approach.

5 Aircrew coordination.

(d) Standard Terminal Arrivals. (STAR)

(e) Approach criteria for Multi-piloted aircraft.

(f) Closing of the Flight Plan.

(2) Introduce

(a) FD ENAV Commands.

(b) FD Coupled Core.

(c) Mission Management System Operation.

1 Weight and balance calculation.

2 Hover/Cruise PERF.

3 Fuel Summary.

4 BINGO Planning.

(3) Review

(a) Takeoff/Departure Phase.

(b) Enroute procedures Phase.

(c) Descent/Arrival Phase.

(d) Non Precision Approaches.

(e) Precision Approaches.

(f) Missed approach procedures.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

Prerequisite. SINST-1232

INST-1234	2.0	*	T,R,MR,AF,CI	1	MV-22B	A		(N*)	INSTI

Goal. Review Low and Hi altitude non-precision approaches. Use Flight Director for Cueing, command bars and coupled core throughout the flight. During this flight the PUI will perform duties as the PF and the PNF. The PUI shall complete one instrument approach as the PNF.

Coordination. The PUI will plan the mission on VMPS creating an IFR flight plan and waypoint set. Use the current web-based system for filing, weather brief and NOTAMS for the planned route of flight.

Requirement

(1) Discuss

(a) Levels of automation (Cues, Commands, Coupled).

(b) Flight Operations above FL180.

(c) Lost communications procedures.

(d) IFF during emergencies.

(e) Flight operations in Icing Conditions.

1 Types of icing (structural, rime, clear).

2 Aircraft de-ice and anti-ice systems.

3 Associated WCAs.

4 Icing displays/CMS information.

(f) Turbulence and Thunderstorms.

(g) CRM.

(2) Review

(a) Flight plan filing.

(b) Departure brief and procedures.

(c) Airways navigation.

(d) Approach brief, conversion and landing checks.

(e) Holding.

(f) Non-precision approach. (min 2)

1 High Alt Approach (min 1)

(g) Precision approach. (min 1)

(h) Missed approach.

(i) Transition Climb

(j) Conversion Descent.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

Prerequisite. SINST-1233, FAM-1049

INST-1235	2.0	*	T,R,MR,AF,CI	1	MV-22B	A	(N*)	INSTI

Goal. Review Precision Approaches. Use Flight Director for Cues, commands and coupled core throughout the flight. During this flight the PUI will perform duties as the PF and the PNF. The PUI shall complete one instrument approach as the PNF.

Coordination. The PUI will plan the mission on VMPS creating an IFR flight plan and waypoint set. Use the current web-based system for filing, weather brief and NOTAMS for the planned route of flight.

In preparation for the INST CHECK, consideration must be given to the number and type of approaches the PUI will require to meet annual instrument minimums.

Requirement

(1) Discuss

(a) SIDs.

(b) STARs.

(c) Type Approaches

1 Visual approach.

2 Contact approach.

(d) Aircraft category.

(e) Airspace classifications.

(f) Terminal RADAR services.

(g) Holding Procedures.

(2) Introduce

(a) In flight filing.

(3) Review

(a) Flight plan filing and IMC release.

(b) Departure Brief and procedures.

(c) Airway navigation.

(d) Approach brief, conversion and landing checks.

(e) Holding.

(f) Precision approach (min 2).

1 FD Commands.

2 FB Coupled Core.

(g) Non-precision approach (min 1).

(h) Missed approach.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

Prerequisite. INST-1234

INST-1236	2.0	*	AF,CI	1	MV-22B	A	(N*)	INSTI

Goal. Review Low and Hi altitude non-precision approaches. Use Flight Director for Cueing, command bars and coupled core throughout the flight. During this flight the PUI will perform duties as the PF and the PNF. The PUI shall complete one instrument approach as the PNF.

Coordination. The PUI will plan the mission on VMPS creating an IFR flight plan and waypoint set. Use the current web-based system for filing, weather brief and NOTAMS for the planned route of flight.

Requirement

(1) Review

(a) Flight plan filing.

(b) Departure brief and procedures.

(c) Airways navigation.

(d) Approach brief, conversion and landing checks.

(e) Holding.

(f) Non-precision approach. (min 2)

1 High Alt Approach (min 1)

(g) Precision approach. (min 1)

(h) Missed approach.

(i) Transition Climb

(j) Conversion Descent.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

Prerequisite. INST-1235

INST-1237	2.0	*	AF,CI	1	MV-22B	A	(N*)	INSTI

Goal. Review Precision Approaches. Use Flight Director for Cues, commands and coupled core throughout the flight. During this flight the PUI will perform duties as the PF and the PNF. The PUI shall complete one instrument approach as the PNF.

Coordination. The PUI will plan the mission on VMPS creating an IFR flight plan and waypoint set. Use the current web-based system for filing, weather brief and NOTAMS for the planned route of flight.

In preparation for the INST CHECK, consideration must be given to the number and type of approaches the PUI will require to meet annual instrument minimums.

Requirement

(1) Review

(a) Flight plan filing and IMC release.

(b) Departure Brief and procedures.

(c) Airway navigation.

(d) Approach brief, conversion and landing checks.

(e) Holding.

(f) Precision approach (min 2).

1 FD Commands.

2 FB Coupled Core.

(g) Non-precision approach (min 1).

(h) Missed approach.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

Prerequisite. INST-1236

SINST-1238	2.0	*	T,AF,CI	1	FFS/FTD	S	(N*)	INSTI

Goal. Conduct IFR Flight operations. Introduce Emergency Procedures during IFR Flight operations. Review operation of the Flight Director and the Mission Management System. During this flight the PUI will perform duties as both the PF and the PNF. The PUI shall complete one instrument approach as the PNF.

Coordination. In preparation for the INST CHECK consideration must be given to the number and type of approaches the PUI will require to meet annual instrument minimums. IP shall designate a departure and destination location where training is to be conducted. The IP shall issue to the PUI appropriate

information for preflight planning; including a DD-175-1, appropriate NOTAMS, and an aircraft load.

Preflight Planning. PUI will conduct all appropriate preflight planning to include; Load Comp, Form F, a completed DD-175, and loading all appropriate mission files on a DTM.

Requirement

(1) Discuss

(a) Flight crew coordination during in-flight emergencies.

(b) Emergency services available.

(c) Distress and Urgency Procedures.

(d) Declaring an Emergency.

(e) Use of AN/ARC-210 remote control head.

(f) Transponder code considerations.

(2) Introduce.

(a) Emergency return to the departure airfield.

(b) AN/ARC-210 remote control head operation.

(3) Review

(a) Takeoff/Departure Phase.

(b) Enroute procedures Phase.

(c) Descent/Arrival Phase.

(d) Non Precision Approaches.

(e) Precision Approaches.

(f) Missed approach procedures.

(4) Emergencies

(a) Nacelle Blower Failure.

(b) Simulated “Black Cockpit.”

(c) Single Engine Failure.

(d) Single DEU Failure.

(e) CDU/EICAS Failure.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

(6) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. INST-1235

ACAD-6015	1.0	365	T,R,MR,AF,CI	E	CLSRM			INSTEVAL

Oral NATOPS Instrument Examination

Goal. The Oral shall consist of, but is not be limited to knowledge of the NATOPS, NATOPS Instrument Flight Manual, FAR/AIM and/or aeronautical publications which are applicable, normal/emergency instrument ground and flight procedures, weather, aircraft limitations, and performance. Additionally, the instructor/evaluator may draw upon their individual experience to propose questions of a direct and positive manner to evaluate the airman’s knowledge and understanding.

Performance Standards. Achieve a minimum grade of qualified on the Oral examination.

Prerequisite. ACAD-6014.

RQD-6032	2.0	365	T,R,MR,AF,CI	E	1	FFS/FTD	S/A(N*)	INSTEVAL

Goal. Following completion of the ground evaluation events, an instrument flight/simulator evaluation event shall be flown and completed with a grade of “Qualified.” The evaluator shall conduct an objective evaluation of the airman’s knowledge of flight planning, filing, briefing, conduct of flight under normal operating conditions, emergency procedures, closing out flight plans, and debriefing.

Coordination. IP shall designate a departure and destination location where the evaluation is to be conducted. The IP shall issue to the PUI appropriate information for preflight planning; including a DD-175-1, appropriate NOTAMS, and an aircraft load of passengers and/or cargo.

Preflight Planning. PUI will conduct all appropriate preflight planning to include; Load Comp, Form F, a completed DD-175, and loading all appropriate mission files on a DTM.

Requirement

(1) Evaluate

(a) Aircrew coordination.

(b) Knowledge and operation of aircraft systems.

1 Communication, Navigation, and IFF equipment operation.

2 Flight Director.

3 Mission Management System.

(c) Voice procedures.

(d) ITO.

(e) Straight climb/descent.

(f) Timed turns/compass turns.

(g) Steep turns.

(h) Unusual attitude recovery.

(i) Partial panel airwork.

(j) Radio instrument (RI) flight maneuvers.

(k) Flight planning.

(l) Clearance compliance.

(m) TACAN positioning.

(n) Instrument approaches.

(o) Transition to visual landing.

(p) Emergency procedures.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Accurately operate the VMPS planning station and software; successfully print required documents; and successfully write the mission binder to the DTM and upload mission files to the aircraft.

(3) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(4) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual in a timely manner with minimal coaching.

(5) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

(6) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

(7) Execute flight and/or ground operations safely IAW OPNAV 3710.7 Series, Platform NATOPS, NATOPS Instrument Flight Manual, and local training SOPs. All areas on the instrument flight evaluation are critical. An “Unsatisfactory” grade in any area shall result in an “Unsatisfactory” grade for the flight.

Prerequisites. SINST-1238, ACAD-6015

External Syllabus Support. An Air Traffic Control role player is required if the flight is conducted in the simulator.

6. Confined Area Landings (CAL)

a. Purpose. To develop proficiency in performing single aircraft takeoffs and landings in confined areas in day VMC. FOE: CAL patterns, unimproved surface landings, and integration of onboard cueing/displays with outside scan.

b. General

(1) The PUI must demonstrate the capability to safely takeoff and land in a confined area during the day.

(2) All CALS and RVL profiles will be flown in zones that will not create dust-out conditions.

(3) CAL-1333 and CAL-1334 are part of the Air Force and Contract Instructor POI only; Marine POIs exclude these 2 events.

c. Crew Requirement. IP/PUI (CC for aircraft event).

ACAD-1310	2.0	*	T,AF,CI	CMS/CLSRM	CALI

Goal. Be able to comprehend and understand the concepts of CALS and tactical approaches to an unimproved surface. Be able to understand the relationship of the CMS and aircraft unique systems and setup interrelated to the CAL environment.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of Low Level Flight.

2 Syllabus description.

3 Performance standards. CAL pattern CONV / APLN.

a Tactical Approaches.

b Hover / No-Hover Landings.

c CAL Departures.

d LZ Selection.

e CMS.

- MFD’s setup (VSD, PFD, HOVER, NAV).
- Symbology.
- FDP (Modes, Cues, Commands).
- CDU (VV, Hover, INAV).

f Performance planning (Performance charts).

g Use of Interim Power.

h Use of FLIR.

i INS / GPS.

j CRM (Terminology during CAL).

k Augmented Hover CPLD.

l RVL.

- Description.
- Profile.
- CRM.
- Setup.
- Departures.

Prerequisite. SINST-1235

SCAL-1330	2.0	*	T,AF,CI	1	FFS/FTD	S		CALI

Goal. Demonstrate/Introduce CONV and Tactical CALS at various sites IOT introduce the fundamental elements of tactical inserts and extracts.

Requirement

(1) Discuss

(a) Phases of CALS (enroute, site evaluation, approach, hovering, landing, take off).

(b) LZ Selection.

1 Location, Size, Shape, Micro Topography, Surface, elevation, terrain, wind, weather, performance.

(c) Cockpit Set-up (use of RAD ALT, HVR Page, FD panel and Interim Power).

(d) Closure Rate, Descent Rate.

(e) Vortex Ring State (VRS).

(f) Terminology, PF and PNF actions and call outs.

(2) Introduce

(a) CONV CAL Patterns (min 3 each).

1 Normal.

2 Steep.

(b) Tactical entry (min 2).

1 Straight in APLN entry.

(c) Hover and no hover landings.

(d) Takeoff.

1 Normal.

2 Slope.

3 Max Gross Weight (Marginal Power).

(e) Waveoff.

(3) Expose

(a) CMS/MFD set up, Integration of hover page and use of acceleration cue/velocity vector.

(b) RVL approach profile to no hover landing (AF POI only).

(c) Jump Take-off.

(4) Emergencies

(a) PRGB HOT / TAGB HOT.

(b) FLAPPING CRITICAL.

(c) PLT NAC CONTR FAIL (L/R).

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM.

(2) Recognize proper glide slope for normal and steep approaches.

(3) Recognize criteria and execute wave off.

(4) Recognize indications and execute required memory items, know associated warnings, and excessive proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. ACAD-1310

SCAL-1331	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S		CALI

Goal. Review the fundamental elements of tactical inserts and extracts, and introduce the RVL profile and use of FLIR.

Requirement

(1) Discuss

(a) Pitch up side slip characteristics.

(b) Hover CPLD.

(c) Augmented hover landings.

(d) RVL Profile (R, MR, AF POI only).

(e) Digital Map.

(f) Scan, MFD set up, aids and automation.

(g) CAL application of FLIR.

(2) Introduce

(a) Cockpit set up, optimal scan procedures.

(b) Crew responsibilities, division of duties, call outs.

(c) RVL Profile (min 2) (R, MR, AF POI ONLY).

(d) Augmented Hover CPLD.

(e) RVL Profile to a Augmented Hover CPLD (R, MR, AF POI ONLY).

(f) RVL Waveoff (R, MR, AF POI ONLY).

(g) Jump Takeoff.

(3) Review

(a) CONV CAL Patterns.

(b) Straight-in tactical entry.

(c) Waveoff.

(4) Emergencies

(a) Single Engine failures.

(b) Single Engine Waveoffs.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM.

(2) Recognize proper glide slope for CAL approaches.

(3)Recognize criteria and execute wave off.

(4)Recognize indications and execute required memory items, know associated warnings, and exercise proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. SCAL-1330

CAL-1332	2.0	*	T,AF,CI	1	MV-22B	A	CALI

Goal. Review the fundamental elements of tactical inserts and extracts to include the straight in tactical approaches and augmented coupled hover.

Requirement

(1) Discuss

(a) CMS setup.

1 CONV Pattern.

2 Tactical Straight in approach.

(b) Hover CPLD Modes.

(c) Scan, MFD set up, aids and automation.

(d) Downwash.

(e) Slope Landings.

(f) Terminology, aircrew actions and call outs.

(2) Introduce

(a) Tactical Straight in approach (min 2).

(b) Cockpit set up.

(c) Optimal scan procedures.

(3) Review

(a) CONV CAL Pattern (min 3).

(b) Vertical and no hover landings.

(c) Augmented Hover CPLD.

(d) Augmented Hover Landing.

(e) Waveoff.

(4) Emergencies

(a) PRGB/TAGB/MWGB HOT.

(b) Single Engine Failure.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM.

(2) Recognize proper glide slope for normal and steep approaches.

(3) Recognize and execute wave off criteria.

(4) Recognize indications and execute required memory items, know associated warnings, and exercise proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. SCAL-1331

CAL-1333	1.5	*	R,MR,AF,CI	1	MV-22	A		CALI

Goal. Review CALS, RVL Profile/Introduce 90, 180 tactical entries.

Requirement

(1) Discuss

(a) Performance high altitude, high GW.

(b) Effects of Saturating Control Power.

(c) Trim System.

(d) Failures Leading to the Loss of Flapping Control, Limiting, Cueing Functions.

(2) Introduce

(a) 90 degree Tactical entry.

(b) 180 degree Tactical entry.

(c) RVL profile.

(3) Review

(a) CONV CAL Pattern.

(b) Straight in Tactical entry.

(c) Vertical and no hover landings.

(d) Augmented Cpld Hover.

(4) Emergencies

(a) RALT TO BALT.

(b) ABIU FAILURE.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM and ANTTP.

(2) Recognize proper glide slope for normal and steep approaches.

(3) Recognize and execute wave off for RVL criteria.

(4) Recognize indications and execute required memory items, know associated warnings, and exercise proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. CAL-1332

CAL-1334	1.5	*	AF,CI	1	MV-22B	A	CALI

Goal. Demonstrate proficiency during CAL operations and be familiar with RVL and Augmented CPLD Hover procedures.

Requirement

(1) Discuss

(a) Hover Display, Symbology.

(b) AFCS Effects.

(c) FCS Effects.

(d) GPS FOM, INS.

1 LWINS VVI Hardover in MC.

(e) RVL Scan.

(f) RVL Departure.

(2) Review

(a) Tactical entry.

1 Straight-in, 90, 180.

(b) RVL profile (Hover and No Hover landing).

(c) Augmented Cpld Hover.

(d) RVL MFD / Cockpit set up.

(e) FLIR.

(f) Wave off Procedures.

(3) Emergencies

(a) EXHAUST DFTR FAIL.

(b) GPS FAIL.

(c) SINGLE ENGINE WAVEOFF.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM and ANTTP.

(2) Recognize indications and execute required memory items, know associated warnings and exercise proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. CAL-1333

7. Formation (FORM)

a. Purpose. To develop proficiency in cruise formation, rendezvous procedures, and execution of formation maneuvers. FOE: V-22 formation fundamentals in CONV and APLN flight.

b. General

(1) At the completion of this stage, the PUI will be proficient at formation takeoffs and landings, section rendezvous, lead changes, formation maneuvers, and section IIMC procedures.

(2) Section landings are not intended to be section CALs. CONV patterns will be used and the LZ will be a size and topography such that it is not considered a confined area.

(3) All formation SIM flights should be conducted in a networked environment. Leadship record is acceptable if the network is unavailable.

c. Crew Requirements. IP/PUI/(CC for aircraft events).

ACAD-1410	1.0	*	T,CI	CLSRM	FORMI

Goal. To introduce the PUI to the training syllabus for the Formation phase. The following will be discussed: FORM syllabus, performance standards, CONV and APLN Cruise positions and conduct of FORM flights.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of Formation.

2 Syllabus description.

3 Required readings.

4 Performance standards.

(b) Cruise Formation.

1 Visual Reference Points.

2 Cruise principles.

a CONV, Radius of Turn or use of NAC.

b APLN, Radius of Turn.

3 Crossunders / Crossovers.

(c) AFCS saturation due to wake interference.

(d) Sequence of Flight.

(e) Aircrew Responsibilities and Callouts.

(f) VMMT 204 FLT OPS SOP IRT FORM.

Prerequisite. SCAL-1331

SFORM-1430	2.0	*	T,CI	2	FFS/FTD	S	TEN+	FORMI

Goal. Introduce cruise formation during conversion and airplane modes and section landings.

Requirement

(1) Discuss

(a) Cruise formation position and visual reference points.

(b) Cruise formation/radius of turn principles.

(c) Use of nacelles to control airspeed.

(d) Closure rates.

(e) Formation Transitions and Conversions.

1 Nr settings (84-100%).

2 Nacelle rotation coordination/timing between aircraft.

3 Nacelle rotation rates.

(f) Wingman responsibility for flight separation.

(g) Formation aborts and waveoffs

(h) Loss of visual contact/rejoining of flight.

(i) Intra-flight communications and responsibilities.

(2) Introduce

(a) Section takeoff.

(b) Section STO.

(c) Running/Carrier rendezvous.

(d) Cruise position/principles.

(e) Cross-over/cross-under.

(f) Turn patterns (CONV and APLN).

(g) Over-run/under-run.

(h) Breakup and rendezvous (CONV and APLN).

(i) Formation Transition and Conversion (min of 2 as a wingman).

(j) Lead changes.

(k) Section landings to a runway (min 2 as a wingman).

(3) Emergencies. Discuss inter- and intra-cockpit communications/coordination during section emergencies.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

Prerequisite. ACAD-1410

SFORM-1431	2.0	*	T,R,CI	2	FFS/FTD	S	TEN+	FORMI

Goal. Review formation flight, introduce sections landings to an LZ and IIMC procedures.

Requirement

(1) Discuss

(a) Cruise position and visual reference points.

(b) Considerations of close formation, closure rates and situational awareness.

(c) Lost Communication Procedures.

(2) Introduce

(a) Section landings to a large LZ (min of 2 as a wingman).

(3) Review

(a) Section takeoff.

(b) Section STO.

(c) Running/Carrier rendezvous.

(d) Cruise position.

(e) Cross-over/cross-under.

(f) Turn patterns (CONV and APLN).

(g) Over-run or under-run.

(h) Breakup and rendezvous.

(i) Formation Transition and Conversion.

(j) Lead changes.

(4) Emergencies

(a) IIMC breakup and rejoin (CONV and APLN).

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual and NATOPS.

Prerequisite. SFORM-1430

FORM-1432	2.0	*	T,CI	2	MV-22B	A	FORMI

Goal. Introduce formation flight and procedures in the aircraft.

Requirement

(1) Discuss

(a) Cruise positions and appropriate reference points.

(b) Sun position in reference to lead aircraft.

(c) Pilot and crew chief responsibilities during formation flights.

(d) Formation aborts and waveoffs

(2) Introduce

(a) Turn patterns (CONV and APLN).

(b) Over-run/under-run.

(c) Breakup and rendezvous.

(d) Formation Transition and Conversion (min of 2 as a wingman).

(e) Lead changes.

(f) Section landings to runway or large LZ (min 3 as a wingman).

(3) Review

(a) Section STO.

(b) Section takeoff.

(c) Running/Carrier rendezvous.

(d) Cruise position.

(e) Cross-over/cross-under.

(4) Emergencies

(a) IIMC breakup and rejoin (CONV and APLN).

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual and NATOPS.

Prerequisites. CAL-1332, SFORM-1431

8. Low Altitude Tactics (LAT) Training

a. Purpose. To develop proficiency in LAT maneuvers and navigation with emphasis on the importance of crew coordination, comfort level, common terminology and energy management. It will also serve as a progress check for CMS and VMPS. FOE: LAT maneuvers/navigation, CMS, and VMPS.

b. General

(1) A designated LATI is required for all LAT instructional events. A CI that has completed SFIT-5146 and the LATI academic syllabus per the MAWTS-1 Course Catalog may instruct initial SLAT events.

(2) Maneuver descriptions may be found in the MV-22 Air Naval Tactics, Techniques, and Procedures (ANTTP) Manual and the MV-22B Flight Training Manual (FTM), and are explained in the current MAWTS-1 Academic Support Package.

(3) Currency and altitudes are established and listed in the current edition of NAVMC 3500.14, T&R Program Manual.

(4) The entire flight crew shall brief together for each flight.

(5) LAB-1522 is the VMPS progress check and requires an ATF. The maximum instructor to PUI ratio is 1 to 3. This is a scheduled event for PUI and LATI.

(6) LAT-1532 is the CMS progress check.

c. Crew Requirement. LATI/PUI/(CC for aircraft events).

ACAD-1510	2.5	*	T,R,MR,AF,CI	CLSRM	LATI

Goal. To prepare the PUI for the LAT stage of the curriculum.

Requirement

(1) Discuss

(a) Purpose of LAT.

(b) Syllabus description.

1 PUI expectations

(c) Required readings.

(d) Performance standards.

(2) Introduce

(a) LAT Philosophy, definitions, and Rules of Conduct.

(b) LAT Training Considerations.

(c) LAT Planning, briefing, and execution.

(d) LAT Techniques and procedures.

Prerequisite. INST-1235

ACAD-1511 0.5 * T,R,MR,AF,CI CLSRM LATI

LAT I Lecture

Goal. The PUI will have an introductory knowledge of LAT terms and definitions.

Required Reading. T&R Program Manual paragraphs 300, 301, 305; ANTTP 4.1.1, 4.2 - 4.2.3.

Prerequisite. ACAD-1510

ACAD-1512 0.5 * T,R,MR,AF,CI CLSRM LATI

LAT II Lecture

Goal. The PUI will have an introductory knowledge of LAT training considerations.

Required Reading. ANTTP 4.2.4 - 4.2.7.

Prerequisite. ACAD-1511

ACAD-1513 0.5 * T,R,MR,AF,CI CLSRM LATI

LAT III Lecture

Goal. The PUI will have an introductory knowledge of LAT maneuvers.

Required Reading. ANTTP 4.2.8 - 4.2.11.

Prerequisite. ACAD-1512

LAB-1520 4.0 * T,R,MR,AF,CI CLSRM LATI

Goal. Introduce VMPS functions for LAT mission planning and produce a loaded Data Transfer Module (DTM) for use on the LAB-1521 and SLAT-1530.

Requirement

(1) Discuss

(a) Military Training Routes (MTRs) as they relate to the AP-1/B.

(2) Introduce

(a) Route Planning Considerations.

1 Flight Plan generation.

a MTR overlays.

2 Ground Speed –vs- CAS.

3 Altitude Planning.

a Minimum Safe Altitude (MSA).

b Emergency Safe Altitude (ESA).

c Vertical Terrain Analysis using VMPS

(b) VMPS Drawing file properties/ colors.

1 Corridors.

2 Avoid Areas.

3 Climb/ Descent Lines.

4 Doghouses.

5 Modification of default VMPS properties.

(c) Chart Update Manual (CHUM) properties.

1 Electronic CHUM (ECHUM).

2 Manual CHUM (MCHUM).

(d) Create Digital flight brief.

(e) VMPS Route Card Generation.

1 MSA and ESA calculation and input.

Performance Standard

(1) Loaded DTM with all required mission data for the LAB-1521 and SLAT-1530.

Prerequisite. ACAD-1513

External Syllabus Support. JMPS

LAB-1521	4.0	*	T,R,MR,AF,CI	CMS	LATI

Goal. Introduce LAT CMS functions and manipulation.

Requirement

(1) Discuss

(a) Digital Terrain Elevation Data (DTED) verification.

(b) LAT CRM principles (PF/PNF).

(2) Introduce

(a) DDMS Threat manipulation.

1 Threat Placement.

2 Detection/ Engagement parameters.

3 Use of intervisibility.

(b) Digital Map Functionality.

1 Line of Sight (LOS).

2 Height Above Terrain (HAT).

3 Chart selection/use.

4 Map Zoom.

5 Map CTR/DCTR use.

6 TRN/Sun azimuth/Elevation.

7 Advanced waypoint manipulation.

a Use of Moving Waypoints.

b Category declutter.

(c) INAV operations.

Prerequisite. LAB-1520

SLAT-1530	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	LATI

Goal. Demonstrate/introduce LAT maneuvers and route execution using a DTM created by the PUI.

Requirement

(1) Discuss

(a) LAT Rules of Conduct.

(b) LAT Dive Recovery Rules.

(c) Vertical Maneuver Rules.

1 5 Degree Rule.

2 50 Percent Rule.

3 Small Descent Rule.

(d) LAT Turns and Altitude Recovery.

(e) ’G’ generation.

1 Aerodynamic limits (stall).

2 Structural Load Limiting (SLL).

(f) Task loading.

1 Terrain Clearance Tasks (TCTs).

2 Mission Tasks (MTs).

a Critical Tasks (CTs).

b Non-Critical Tasks (NCTs).

(g) RADALT use/ setup/ limitations.

1 Altitude deviation acknowledgment/ response.

(h) Emergency Procedures in the LAT environment.

(2) Demonstrate

(a) LAT dive recovery to 200 ft AGL.

(3) Introduce

(a) Low level and contour flight profiles.

(b) APLN Mode Turn Radius Maneuvers.

(c) Converting Turn Maneuver.

(d) CONV mode LAT at 50’AGL.

(e) Bunt Maneuver (CONV/APLN).

(f) Roll Maneuver (CONV/APLN).

(g) Level Quick Stop.

(h) Zoom Climb Maneuver.

(i) Inertia Maneuver.

(j) Max angle of Climb Maneuver.

(k) Climb to Dive Maneuver.

(l) LAT dive recovery to 200 ft AGL(min 2).

(m) LAT Navigation on a Low Level MTR.

(n) FLIR functionality.

1 FLIR Modes.

2 FLIR PT.

3 Add waypoint with FLIR.

4 FLIR Calibration.

(o) Minimum Altitude Capable (MAC) flight.

(p) Altitude deviation acknowledgment/ response.

(4) Review

(a) MMS Operation.

(b) DIGMAP Operation.

(c) INAV functionality.

(d) PNF duties and CRM responsibilities.

(5) Emergencies

(a) Single Engine Failure at low altitude.

(b) Stall and Recovery at Low Altitude.

Performance Standards

(1) Demonstrate proper procedures for LAT maneuvers IAW the MV-22 Air Naval Tactics, Techniques, and Procedures (ANTTP) Manual and the MV-22B Flight Training Manual (FTM).

(2) Execute CMS procedures in a timely manner with minimal assistance.

(3) Maintain Rules of Conduct (ROC) IAW T&R Program Manual

(4) Recognize indications, execute required memory items, exercise proper crew coordination and maintain control of the aircraft during simulated Emergency Procedures.

Prerequisite. LAB-1521

LAB-1522	4.0	*	T,R,MR,AF,CI	CLSRM	LATI

Goal. Successful completion of the VMPS progress check. Build and load a LAT mission from the AP-1/B to a DTM for use during the LAT-1531 and LAT-1532.

Requirement

(1) Evaluate

(a) Route Planning Considerations.

1 Flight Plan generation.

2 Ground Speed –vs- CAS.

3 Altitude Planning.

a Minimum Safe Altitude (MSA).

b Emergency Safe Altitude (ESA).

(b) VMPS Drawing file properties/ colors.

1 Corridors.

2 Avoid Areas.

3 Climb/ Descent Lines.

4 Doghouses.

(c) Chart Update Manual (CHUM) properties.

1 Electronic CHUM (ECHUM).

2 Manual CHUM (MCHUM).

(d) Create Digital flight brief.

(e) VMPS Route Card Generation.

1 MSA and ESA manipulation.

Performance Standards

(1) PUI successfully generates a complete VMPS LAT mission profile and loads it to a DTM with limited assistance.

Prerequisite. SLAT-1530

External Syllabus Support. JMPS

LAT-1531	1.5	*	T,R,AF,CI	1	MV-22B	A	LATI

Goal. Demonstrate/introduce LAT maneuvers and aircraft performance in the LAT environment.

Requirement

(1) Discuss

(a) LAT Rules of Conduct.

(b) LAT Dive Recovery Rules.

(c) Aircraft performance limits and characteristics.

(d) CONV/ APLN Stall –vs- AOB considerations.

(e) RADALT use.

(2) Demonstrate

(a) LAT dive recovery to 200 ft AGL.

(3) Introduce

(a) Low level and contour flight profiles.

1 Speed rush baseline.

(b) APLN Mode Turn Maneuvers.

(c) Converting Turn Maneuver.

(d) Bunt Maneuver.

(e) Roll Maneuver.

(f) Level Quick Stop.

(g) Zoom Climb Maneuver.

(h) Inertia Maneuver.

(i) Max angle of Climb Maneuver.

(j) Climb to Dive Maneuver.

(k) LAT dive recovery to 1000 ft AGL(min 2).

(4) Review

(a) Altitude deviation acknowledgment/response.

Performance Standards

(1) Demonstrate proper procedures for LAT maneuvers IAW the MV-22 Air Naval Tactics, Techniques, and Procedures (ANTTP) Manual and the MV-22B Flight Training Manual (FTM).

(2) Maintain Rules of Conduct (ROC) IAW T&R Program Manual.

Prerequisite. LAB-1522

LAT-1532	2.0	*	T,R,MR,AF,CI	1	MV-22B	A	LATI

Goal. Successful completion of the CMS progress check. Introduce LAT navigation, review LAT maneuvers, and evaluate the PUI's use of CMS.

Requirement

(1) Discuss

(a) LAT Rules of Conduct.

(b) Aircrew duties during LAT navigation.

(c) Lookout doctrine.

(d) FLIR, DIGMAP, and INAV operations during LAT navigation.

(e) Fuel management considerations.

(f) Navigation system failures.

(g) Bird strikes.

(2) Introduce

(a) LAT mission management.

1 TOT mission management.

2 CMS wind Setup.

3 BINGO flight plan/ no flight plan.

4 Fuel summary layer.

(3) Review

(a) LAT Dive Recovery Rules.

(b) LAT dive recovery to 1000 ft AGL.

(c) Altitude deviation acknowledgment/response.

(4) Evaluate

(a) INS update procedures.

(b) Waypoint management.

1 Add, edit, display, and delete waypoints using the CDU (manual entry, track-handle, and Overfly Store.

(c) Threat Management.

1 Add, edit, display, and delete threats using the CDU (manual entry) and the track-handle.

(d) DIGMAP Operation.

1 Build, activate, display, edit, and delete flight plans.

2 TRN/Sun azimuth/Elevation function.

3 Height Above Terrain (HAT).

4 LOS function.

(e) MMS Operation.

1 Using the cargo summary page, add and remove cargo weights using stations and zones.

Performance Standards

(1) Demonstrate proper procedures for LAT maneuvers IAW the MV-22 Air Naval Tactics, Techniques, and Procedures (ANTTP) Manual and the MV-22B Flight Training Manual (FTM).

(2) Execute CMS procedures in a timely manner with minimal assistance.

(3) Maintain Rules of Conduct (ROC) IAW T&R Program Manual.

(4) Arrive at last checkpoint within +/- 1 minute of intended TOT.

(5) Recognize indications, execute required memory items, exercise proper crew coordination and maintain control of the aircraft during simulated Emergency Procedures.

Prerequisite. LAT-1531

9. Night Systems (NS)

a. Purpose. To provide initial exposure to operations while using night vision goggles under light levels greater than or equal to .0022 lux (HLL) as predicted by the Solar/Lunar Almanac Prediction (SLAP) module. FOE: NVGs, HUD and FLIR.

b. General

(1) A designated NSI or NSFI is required for all NS instructional events. A CI that has completed the simulator portion of the NSFI syllabus may instruct initial SNS events.

(2) All aircraft events shall be conducted under HLL conditions.

c. Crew Requirement. P/PUI/CC/AO.

d. Academic Training. Prior to beginning flight training the PUI shall be familiar with the appropriate chapters of the MV-22B ANTTP, the MAWTS-1 Helicopter NVD Manual and the SLAP module.

ADL-1601	2.0	*	T,R,MR,AF,CI	CBT	

Night Vision Devices and functions

Goal. The PUI has completed all modules with a basic understanding NVDs and the night environment.

Modules

(1) Introduction to the Night Vision Device.

(2) Use of Night Vision Devices.

(3) FLIR System Basic Theory.

(4) The FLIR System.

Prerequisites. SINST-1233

ACAD-1610	0.5	*	T,R,MR,AF,CI	CLSRM	NSI/NSFI

Goal. To prepare the PUI for the NS stage of the curriculum.

Requirement

(1) Discuss

(a) Purpose of NS.

(b) Syllabus description.

1 PUI expectations

(c) Required readings.

(d) Performance standards.

(2) Introduce

(a) Solar Lunar Almanac Prediction (SLAP) software.

(b) NVG Composition.

(c) NVG Setup and Focusing procedures.

(d) NVD HUD.

(e) FLIR Basics.

Prerequisites. CAL-1332, ADL-1601

ACAD-1611	0.5	*	T,AF,CI	CLSRM	NSI/NSFI

FLIR Theory and Introduction Lecture

Goal. The PUI will have an introductory knowledge of the FLIR.

Required Reading. NVD Manual Chapter 2, 4.

Prerequisite. ACAD-1610

ACAD-1612	0.5	*	T,AF,CI	CLSRM	NSI/NSFI

FLIR Systems and Image Optimization Lecture

Goal. The PUI will have an introductory knowledge of FLIR systems and image optimization techniques.

Required Reading. NVD Manual Chapter 4.

Prerequisite. ACAD-1611

ACAD-1613	0.5	*	T,AF,CI	CLSRM	NSI/NSFI

FLIR Operational Considerations Lecture

Goal. The PUI will have an introductory knowledge of FLIR operational considerations.

Required Reading. NVD Manual Chapter 5.

Prerequisite. ACAD-1612

ACAD-1614	1.0	*	T,R,AF,CI	CLSRM	NSI/NSFI

MV-22B FLIR Lecture

Goal. The PUI will have an introductory knowledge of the function and operation of the MV-22B FLIR.

Required Reading. MV-22B NATOPS Chapter 16.9.

Prerequisite. ACAD-1613

ACAD-1615	1.0	*	T,R,AF,CI	CLSRM	NSI/NSFI

MV-22B HUD Lecture

Goal. The PUI will have an introductory knowledge of the function and operation of the MV-22B HUD.

Required Reading. MV-22B NATOPS Chapter 2.3.9.

Prerequisite. ACAD-1610

SNS-1630	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	NS	NSI/NSFI

Goal. Introduce HLL NVD FAM maneuvers in the simulator.

Requirement

(1) Discuss

(a) NVG Considerations.

1 NVG preflight and adjustments.

2 NVG field of view.

3 NVG Scan techniques/fixation tendencies.

4 NVG failures.

(b) FLIR Considerations.

1 Calibration.

2 Field of View –vs- Field of Regard.

3 Atmospheric Considerations.

(c) Use of SLAP.

1 Solar/Lunar illumination data.

2 Nautical twilight (CNT, EENT, BMNT).

(d) Weather brief/Atmospheric Considerations.

1 Effects on FLIR/NVGs.

(e) Goggle/de-goggle procedures.

(f) Cockpit lighting/MFD preflight.

(g) Visual illusions.

(h) Emergency procedures during NVD operations.

(i) Aircrew actions and callouts during NVD operations.

(2) Introduce

(a) NVD HUD symbology/control panel/declutter modes/ failure.

(b) Ground taxi.

(c) Low work.

(d) Transition to forward flight (from the hover).

(e) Landing Pattern and Approach.

(f) STO/ Rolling Take-off.

(g) Steep approach.

(h) Running landing.

(i) No hover landing.

(j) Transition to airplane mode from takeoff (attention to descending tendencies).

(3) Emergencies

(a) Pilot HUD Fail Advisory.

(b) PF NVG Failure.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Demonstrate proper NVD operation and HUD function IAW the MAWTS-1 NVD Manual and the MV-22B NATOPS Manual.

(3) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. ACAD-1614, ACAD-1615

NS-1631	1.5	*	T,R,CI	1	MV-22B	A	NS	NSI/NSFI

Goal. Introduce HLL NVD FAM maneuvers in the aircraft.

Requirement

(1) Discuss

(a) Review discussion items from SNS-180.

(b) NVD briefing guide.

(c) Loss of visual acuity/ distance estimation using NVGs.

(d) Terrain shadowing.

(e) Cockpit/aircraft configuration and lighting.

(2) Introduce

(a) Low work.

(b) Transition to forward flight (from a hover).

(c) Normal landing pattern and approach.

(d) STO/ Rolling Take-off.

(e) Running landing.

(f) Steep approach.

(g) No hover landing.

(h) Transition to airplane mode from takeoff.

(i) Landing pattern entry in airplane mode.

(j) Aircrew actions and callouts during NVD operations.

(3) Review

(a) NVG HUD operation.

(b) Ground taxi.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Demonstrate proper NVD operation and HUD function IAW MAWTS-1 NVD Manual and the MV-22B NATOPS Manual.

Prerequisite. SNS-1630

SNS-1632	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	NS	NSI/NSFI

Goal. Introduce NVG CALs (HLL) at various CAL sites utilizing NVDs in the simulator.

Requirement

(1) Discuss

(a) Artificial Light Sources.

(b) Cockpit setup for NVG landings.

(c) CMS and DDMS setup.

(d) FLIR operations.

(e) Scanning techniques.

(f) Standard terminology.

(g) Loss of visual contact with the ground/reference points.

(h) Vortex ring state.

(i) Aircrew duties and communications during NVG CAL operations.

(j) Power requirements/performance charts (HIGE, HOGE, height velocity diagram) with VMPS considerations.

(2) Introduce

(a) Power computations.

(b) CAL site evaluation.

(c) Approach.

1 Normal (minimum of 3).

2 Steep (minimum of 3).

(d) Vertical and no hover landings.

(e) Max performance take-off.

(f) Max gross weight take-off/ landing.

(g) Waveoff.

(3) Review

(a) NVG HUD operations.

(b) FLIR operations.

(4) Emergencies

(a) Single Engine Failure in Flight.

(b) Single Engine Failure, Hover.

(c) High Sink Rate in VTOL Mode.

(d) FLIR Failure.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Demonstrate proper NVD operation and HUD function IAW MAWTS-1 NVD Manual and the MV-22B NATOPS Manual.

(3) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisites. SNS-1631

NS-1633	1.5	*	T,R,MR,CI	1	MV-22B	A		NS NSI/NSFI

Goal. Introduce NVG HLL CALs at various CAL sites utilizing NVDs in the aircraft.

Requirement

(1) Discuss

(a) Review discussion items from SNS-182.

(b) Power requirements/ performance.

(c) Vortex Ring State.

(d) Scanning Techniques.

(e) Closure rates.

(f) Use of searchlights.

(2) Introduce

(a) CAL site evaluation.

(b) FLIR operations.

(c) CAL Pattern (minimum of 3).

(d) Steep Approach (minimum of 3).

(e) Vertical and no hover landings.

(f) Max performance take-off.

(g) Max gross weight take-off/landing.

(h) Wave off.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Demonstrate proper NVD operation and HUD function IAW MAWTS-1 NVD Manual and the MV-22B NATOPS Manual.

(3) Recognize excessive closure rates.

Prerequisites. NS-1631, SNS-1632

SNS-1634	2.0	*	T,AF,CI	2	FFS/FTD	S	TEN+	NS NSI/NSFI

Goal. Introduce night FORM utilizing NVGs (HLL) in the simulator.

Requirement

(1) Discuss

(a) Aircraft lighting and use.

(b) NVG formation considerations.

1 Position.

2 Visual reference points at night.

3 Nacelle angle cuing.

(c) Night scan/fixation tendencies.

(d) Depth perception/relative motion at night.

(e) Use of NVG HUD.

(2) Introduce

(a) Section takeoff from a hover.

(b) Section STO.

(c) Running/Carrier rendezvous.

(d) Formation position.

(e) Cross-over/cross-under.

(f) Turn patterns.

(g) Over-run/under-run.

(h) Breakup and rendezvous.

(i) Formation Transitions and Conversions (min 2 as wing).

(j) Lead changes.

(k) Wave-offs.

(l) Formation landings to a prepared surface (min of 3 as wing).

(3) Emergencies

(a) IIMC breakup and rejoin.

(b) Take-off aborts.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Demonstrate proper NVD operation and HUD function IAW MAWTS-1 NVD Manual and the MV-22B NATOPS Manual.

(3) Recognize excessive closure rates.

(4) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisites. SFORM-1431, SNS-1632

NS-1635	1.5	*	T,CI	2	MV-22B	A	NS	NSI/NSFI

Goal. Review night FORM utilizing NVDs (HLL) in the aircraft.

Requirement

(1) Discuss

(a) NVD briefing guide.

(b) Aircraft lighting and use.

(c) Position/visual reference points at night.

(d) Night scan/fixation tendencies.

(e) Depth perception/relative motion at night.

(f) Night formation hazards.

(g) Use of NVD HUD.

(h) Moon position in reference to lead aircraft.

(i) CRM.

(2) Introduce

(a) Section takeoff from a hover.

(b) Section STO.

(c) Running/Carrier rendezvous.

(d) Formation position.

(e) Cross-over/cross-under.

(f) Turn patterns.

(g) Over-run/under-run.

(h) Breakup and rendezvous.

(i) Formation Transitions and Conversions (min 2 as wing).

(j) Lead changes.

(k) Wave-offs

(l) Formation landings to a prepared surface (min of 3 as wing).

(m) Lost contact/rejoin.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Demonstrate proper NVD operation and HUD function IAW MAWTS-1 NVD Manual and the MV-22B NATOPS Manual.

(3) Recognize excessive closure rates.

Prerequisites. FORM-1432, NS-1633, SNS-1634

10. Cargo Operations

a. Purpose. To develop aircrew coordination and introduce day, internal cargo operations and single or dual point, CONV/APLN external load operations. FOE: Aircrew coordination related to internal/external cargo operations and crew chief development.

b. General. Simulated internal/external cargo operations shall be completed in a networked environment with the crew chief cabin task simulator. A minimum of 5 various internal load configuration take-offs/landings and 5 external hook-ups and deliveries are required.

c. Crew Requirements. IP/PUI/CC.

ADL-1701 1.5 * T,CI CBT

Goal. To introduce the PUI to external cargo operations, procedures, and considerations.

Modules

(1) Introduction.

(2) Purpose of Internal Cargo Operations.

Prerequisite. CAL-1334

ADL-1702 1.5 * T,CI CBT

Goal. To introduce the PUI to internal cargo operations, procedures, and considerations.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of Internal Cargo Operations.

Prerequisite. CAL-1334

ACAD-1710 1.0 * T,CI CLSRM CARGOI

Goal. To introduce the student to MV-22 prepare the PUI for the Cargo Operations stage of the curriculum.

Requirement

(1) Discuss

(a) Introduction.

1 Syllabus description.

2 Required readings. ANTTP 9.1 - 9.4

3 Performance standards.

Prerequisite. SINST-1233, ADL-1701, ADL-1702

ACAD-1711 2.0 * T,CI CLSRM CARGOI

Goal. To introduce the PUI to internal/external cargo operations, procedures, and considerations.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of Internal Cargo Operations.

2 Purpose of External Cargo Operations.

Prerequisite. ACAD-1710

External Syllabus Support. Cabin / Aircraft trainer.

SCARGO-1730 1.0 * T,CI 1 FFS/FTD S/A CARGOI

Goal. To demonstrate/introduce internal cargo operations.

Requirement

(1) Discuss

(a) Performance considerations.

1 Effect of wind on hover mast torque required.

2 Center of Gravity considerations and calculations.

(b) Interim Power considerations.

(c) CMS monitoring during flight.

(d) Simulator limitations.

(e) CRM considerations.

(2) Demonstrate/Introduce

(a) Power Checks.

(b) Approach to pickup zone.

(c) Cargo handling procedures.

(d) Use of the CMS Cargo Page.

(e) Wave-off considerations.

(f) Departure considerations.

(g) Max gross internal cargo operations.

1 Max VTOL (HIGE) departure (52,600#'s).

2 Max STO departure (57,000#'s).

3 Max self deployed RTO departure (60,500#'s).

(h) Departure considerations.

(3) Emergencies

(a) Engine Failures.

(b) Emergency Egress considerations with internal loads.

(c) Loss of ICS.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Successfully conduct 5 internal cargo load take-offs and landings.

(3) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisites. SCAL-1330, ACAD-1711

SCARGO-1731	1.0	*	T,CI	1	FFS/FTD	S/A	CARGOI

Goal. To demonstrate/introduce single or dual point cargo operations. Perform a minimum of five hookup and releases.

Requirement

(1) Discuss

(a) Performance considerations.

1 Effect of wind on hover mast torque required.

(b) Interim Power considerations.

(c) Load stability.

(d) CMS monitoring during flight.

(e) Hook release system.

(f) Simulator limitations.

(2) Demonstrate/Introduce

(a) Power Checks.

(b) Approach to pickup zone.

(c) Single or dual point cargo hookup.

(d) Approach and cargo release procedures.

(e) Wave-off with external load.

(f) Departure from pickup zone.

(g) Transition to APLN mode at least once with external

(g) Use of FLIR (Demonstrate only).

(3) Emergencies

(a) Cargo jettison criteria and procedures.

(b) Emergency procedures with external loads.

(c) Loss of ICS.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Successfully conduct 5 single point hookups and releases.

(3) Recognize indications, execute memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisites. SCAL-1330, ACAD-1711

11. Core Skill Introduction Check (RQD)

a. Purpose. To review all areas of instruction and demonstrate proficiency and knowledge of all maneuvers to certify the PUI as a Tiltrotor Second Pilot (T2P). FOE: T2P Check-ride.

b. General. The PUI will demonstrate proficiency through the Core Skill Introduction phase. Upon completion of RQD-6030, the PUI will be designated a T2P. RQD-6030 meets the requirements for the 7532 MOS and will serve as the initial NATOPS evaluation. The NATOPS open and closed book exams shall be completed, graded, and recorded prior to beginning the Core Skill Introduction Check Stage.

c. Crew Requirement. IP/PUI/CC.

d. Prerequisites. All previous Core Skill Introduction phases complete.

ACAD-6010	3.0	365	T,R,MR,AF,CI	E	CLSRM		STANI

Open Book NATOPS Examination

Goal. The Open Book Examination shall consist of, but not be limited to the NATOPS question bank. The purpose of the open book examination is to evaluate the airman’s knowledge of the appropriate publications and the aircraft.

Performance Standard. Achieve a minimum grade of qualified on the Open Book examination.

ACAD-6011	1.0	365	T,R,MR,AF,CI	E	CLSRM		STANI

Closed Book NATOPS Examination

Goal. The Closed Book Examination shall be limited to the NATOPS question bank. The purpose of the closed book examination portion is to evaluate the airman’s knowledge of the concerning normal/emergency procedures and aircraft limitations.

Performance Standard. Achieve a minimum grade of qualified on the Closed Book examination.

Prerequisite. ACAD-6010.

SREV-1830	2.0	*	T,R,MR,AF,CI	1	FFS/FTD	S	STANI

Goal. Review emergency procedures.

Requirement. PUI will be prepared to describe and conduct any previously introduced emergency procedure. At a minimum, the following will be reviewed:

(1) Review/Evaluate

(a) Engine Fire (In flight).

(b) Fire (Wing) (In flight).

(c) Single Engine Failure (In flight).

(d) Gearbox Impending Failure.

(e) ICDS Failure.

(f) Elevator Failure.

(g) Cockpit or Cabin Fire In flight.

(h) Smoke and Fume Elimination.

(i) Uncommanded Nacelle Movement.

(j) Critical Elevator Fault.

(k) Dual and Single FCC Failures.

(l) Multiple ADS Failure.

(m) Flapping Critical.

(n) Flapping Sensor Failure.

(o) Feathering High Hot/Flapping High Hot/Rotor Load High.

(p) Force Feel Failure.

(q) OEI Landing/Waveoff.

Performance Standards. Recognize indications, execute required memory items, know associated warnings, maintain control of the aircraft and exercise proper crew coordination during simulated Emergency Procedures.

Prerequisite. Core Skill Introduction complete, ACAD-6011.

SREV-1831	2.0	*	T,R,AF,CI	1	FFS/FTD	S	STANI

Goal. Review previous flight maneuvers.

Requirement

(1) Review/Evaluate. The PUI will be prepared to describe and conduct maneuvers from FAM and CAL stages of training. The following will be conducted at a minimum:

(a) Ground Taxi.

(b) Hover and Air Taxi.

(c) Normal Landing Pattern and Approach.

(d) No Hover Landing.

(e) Steep Approach.

(f) STO and Transition to Airplane Mode on Takeoff.

(g) Airplane Mode Pattern.

(h) Running landing.

(i) Level Transition and Conversion.

(j) High AOB in Airplane Mode.

(k) Use of Flight Director for cuing and commands.

(l) Normal CAL Pattern.

(m) Tactical Entries (Straight in, Offset, Teardrop).

(n) Power on and Power off stalls.

(o) Formation (minimum of 1 takeoff, approach and landing).

Performance Standards. Demonstrate proper procedures and execution of all previously introduced maneuvers.

Prerequisite. SREV-1830

REV-1832 1.5 * T,AF,CI 1 MV-22B A (N) (NSI)

Goal. Review Core Skill Introduction phase maneuvers.

Coordination. The PUI shall bring a pre-coordinated DTM, Load Comp, and Form-F.

Requirement

(1) Discuss. All previously introduced flight maneuvers, emergency procedures, aircraft limitations, and aircraft systems.

(2) Review. PUI must be able to safely demonstrate flight proficiency and knowledge of all maneuvers and procedures covered in the Core Skill Introduction stage. The IP will set the itinerary for the conduct of the event. At a minimum, conduct all FAM maneuvers (do not conduct stalls) listed in SREQ-1831.

Performance Standards. Demonstrate the capability to perform all functions of a T2P.

Prerequisite. SREQ-1831

ACAD-6012	1.0	365	T,R,MR,AF,CI	E		CLSRM		NI/ANI

Oral NATOPS Examination

Goal. The Oral shall consist of, but not be limited to the NATOPS question bank. The evaluator may draw upon their experience to propose questions of a direct and positive manner and in no way be opinionated to evaluate the airman's knowledge of the concerning normal/emergency procedures, aircraft limitations, and performance.

Performance Standard. Achieve a minimum grade of qualified on the Oral examination.

Prerequisite. REV-1832, ACAD-6011

RQD-6030	1.5	365	T,R,MR,AF,CI	E	1	MV-22B	A	NI/ANI

Goal. Conduct an objective evaluation of the airman's knowledge of mission planning, briefing, normal operating procedures (flight and ground), crew resource management, aircraft systems, performance criteria, emergency procedures, and debriefing. The focus is on normal and emergency procedures, not tactical execution. Emphasis shall be placed on the aforementioned items with the addition of USMC Admin SOP, local course rules, local SOP addendum, and admin flight procedures. The NATOPS evaluation is intended to evaluate compliance with NATOPS procedures. The NATOPS evaluation is the means to measure the airman's efficiency in the execution of normal operating procedures and reaction to emergencies and malfunctions. The NATOPS evaluation process should be as much a learning tool and/or experience as it is an evaluation.

Coordination. The pilot under evaluation shall bring a completed NATOPS evaluation card, pre-coordinated DTM, Load Comp, and Form-F.

Requirement

(1) Brief/discuss all previously introduced flight maneuvers, emergency procedures, aircraft limitations, and aircraft systems.

(2) PUI must be prepared to safely demonstrate flight proficiency and knowledge of all maneuvers and procedures covered in the Core Skill Introduction phase of training. The IP may or may not require the PUI to perform maneuvers from each area of the Core Skill Introduction syllabus (do not conduct stalls). The IP will set the itinerary for the conduct of the event.

Performance Standards

(1) The pilot under evaluation must be prepared to safely demonstrate flight proficiency and knowledge of all maneuvers and procedures described within the Flight Training Manual, NATOPS, OPNAV 3710.6 and in accordance with all SOPs. Upon successful completion of this event, the evaluator shall log the appropriate training code for tracking purposes.

(2) Demonstrate proficiency in all maneuvers performed in previous flight stages as selected by the IP.

(3) Perform all functions of a T2P.

Prerequisite. ACAD-6012.

211. CORE SKILL PHASE

1. General

a. Purpose. To teach the PUI the enabling Core Skills required to support mission skill execution.

b. Stages. The following stages are included in the Core Skill Phase of training.

(1) FAM

(2) CAL

(3) FORM

(4) LAT

(5) NS HLL

(6) NS LLL

(7) AAR

(8) TG

(9) EXT

(10) MAT

(11) GTR

(13) CQ

c. ROC will be per the T&R Program Manual.

d. Refer to paragraph 216 for the ACPM lectures required for this phase of training.

e. All ACAD and LAB events can be found in the MAWTS-1 MV-22B ASP.

2. Familiarization (FAM)

a. Purpose. To review aircraft flight characteristics, limitations, emergency procedures, day/night familiarization maneuvers, instrument procedures.

b. General. The PUI must be qualified as a T2P prior to beginning this stage of training.

c. Crew Requirements. P/P for simulators, P/P/CC if flown in aircraft.

ACAD-2010	1.0	*	T		CLSRM		

MV-22B SINCGARS / HAVEQUICK Lecture

Goal. The PUI will have an introductory knowledge of SINCGARS and HAVEQUICK radio waveforms and their utilization in the MV-22B.

Required Reading. NATOPS Chapter 15.15 through 15.17.

Prerequisite. T2P

ACAD-2011	1.0	*	T		CLSRM		

MV-22B SATCOM

Goal. The PUI will have an introductory knowledge of the SATCOM radio waveform and its utilization in the MV-22B.

Required Reading. NATOPS Chapter 15.10.

Prerequisite. T2P

LAB-2020	2.0	*	T		CLSRM		

ARC-210 Remote Control Head Computer Based Trainer Lab

Goal. The PUI will have an introductory knowledge of the functions of the ARC-210 Remote Control Head.

Required Reading. NATOPS Chapter 15.21.

Prerequisite. T2P

SFAM-2030	2.0	*		1	FFS/FTD	S/A	(N)

Goal. Review day or night unaided familiarization maneuvers and conduct an area familiarization if required.

Requirement

(1) Discuss

(a) Squadron SOPs.

(b) Local course rules.

(c) Delegation of communication responsibilities.

(d) Aircraft lighting and use.

(e) Night scan.

(f) Night fixation.

(2) Review

(a) Familiarization maneuvers.

(b) Operations at lighted and / or un-lighted fields.

(c) Emergency procedures with emphasis on emergencies that cannot be flown in the aircraft; i.e., engine failures (single & dual), ICDS failure, black cockpit, etc.

Performance Standards

(1) Demonstrate the ability to utilize Havequick, SINCGARS, and SATCOM communications.

(2) Demonstrate proficiency in familiarization maneuvers.

Required Reading. Local Airfield Operations Manual, Squadron Flight Operations Manual, ANTTP 1.1 - 1.6, ASTACSOP.

Prerequisite. ACAD-2010, ACAD-2011, LAB-2020.

SFAM-2031 2.0 365 T,R FFS/FTD S/A (N)

Goal. Review day or night instrument procedures.

Requirement

(1) Discuss

(a) Squadron SOP for instrument flight.

(b) Icing.

(c) ICAO flight plans and procedures.

(d) Discuss flight plans to VR/IRs, tanker tracks, and ships.

(e) Approach Mode.

(2) Review

(a) Instrument flight procedures.

(b) Emergency procedures.

Performance Standards

(1) Demonstrate proficiency in instrument flight planning, instrument procedures, and local squadron instrument SOPs.

Required Reading. NATOPS 13 & 14.3, ANTTP 1.8 - 1.11, 9.3 - 9.4.

Prerequisite. T2P.

3. Confined Area Landings (CAL)

a. Purpose. To develop proficiency in single, section, and division takeoffs and landings and tactical approaches to confined, unprepared, and reduced visibility areas.

b. General. All maneuver descriptions are in the MV-22B ANTTP Manual.

c. Crew Requirements. P/P for simulators, P/P/CC for aircraft events, P/P/CC/AO for CAL-2131.

ACAD-2110	0.5	*	T,R	CLSRM	

Reduced Visibility Landing Procedures

Goal. The PUI will have an introductory knowledge of the procedures for reduced visibility landings in the MV-22B.

Required Reading. NATOPS 9.9 & 14.4 - 14.5, ANTTP 3.3.

Prerequisite. T2P

SCAL-2130	1.0	*	T,R	FFS/FTD	S

Goal. Demonstrate/Introduce single ship RVLs. Review single ship CALs, tactical approaches, and tactical departures.

Requirement

(1) Discuss

(a) Landing zone evaluation and selection.

1 Soil composition.

2 Elevation and density altitude.

3 Micro terrain, obstacles, and aircraft clearances.

4 Wind effects.

(b) Standard approach procedures to RVLs.

(c) RVL procedures.

(d) Cockpit set-up and crew resource management during RVLs.

(e) Wave-off criteria for RVL.

(f) Takeoff procedures.

(2) Introduce

(a) RVLs with various levels of obscuration (minimum of 5 for initial events).

(b) Takeoffs and departures with various levels of obscuration.

Performance Standards

(1) Demonstrate the proper procedures for RVLs IAW the MV-22B ANTTP Manual.

Required Reading. ANTTP 3.1, 3.4, 3.5.

Prerequisite. ACAD-2110

CAL-2131 1.5 180 T,R 1 MV-22B A

Goal. Introduce day RVLs and review day single CALs.

Requirement

(1) Discuss

(a) Landing zone evaluation and selection.

1 Soil composition.

2 Elevation and density altitude.

3 Micro terrain, obstacles, and aircraft clearances.

4 Wind effects.

(b) Standard approach procedures to RVLs.

(c) RVL procedures.

(d) Cockpit set-up and crew resource management during RVLs.

(e) Wave-off criteria for RVL.

(f) Takeoff procedures.

(2) Introduce

(a) RVLs with various levels of obscuration (minimum of 5 for initial events).

(b) Takeoffs and departures with various levels of obscuration.

Performance Standards

(1) Demonstrate the proper procedures for RVLs IAW the MV-22B ANTTP Manual.

Required Reading. ANTTP 3.6

Prerequisite. SCAL-2130.

External Syllabus Support. Suitable landing site with obscurant and 7nm radius of protected airspace to 1000' AGL.

SCAL-2132 2.0 * T FFS/FTD S

Goal. Review single aircraft CALs. Demonstrate/introduce low and high altitude tactical approaches and departures to a confined area.

Requirement

(1) Discuss

(a) Approach considerations (high vs. low, threat, weather, size of flight).

(b) Tactical approach planning and JMPS considerations.

(c) Cockpit set-up and CRM during tactical approaches.

(2) Introduce

(a) Slope landings with respect to tail and nacelle clearance.

(b) Low altitude tactical approaches, landings and departures to a confined area. (minimum of 1 of each low altitude tactical approach in the ANTTP).

(c) High altitude tactical approaches, landings, and departures to a confined area. (minimum of 1 of each high altitude tactical approach in the ANTTP).

(d) CALs and departures at low power margins.

Performance Standards

(1) Demonstrate proper procedures for tactical CAL approaches IAW the MV-22B ANTTP Manual.

(2) Maintain the proper glide slope for obstacle clearance.

Required Reading. ANTTP 3.2

Prerequisite. SCAL-2130

CAL-2133 2.0 365 T 1 MV-22B A

Goal. Introduce low and high tactical approaches, landings, and departures to a confined area.

Requirement

(1) Discuss

(a) VMPS loadout input procedures.

(b) Performance calculations.

(2) Introduce

(a) Tactical approaches, landings and departures to a confined area. (minimum of 5 for initial sorties)

Performance Standards

(1) Demonstrate proper procedures for tactical CAL approaches IAW the MV-22B ANTTP Manual.

(2) Maintain the proper glide slope for obstacle clearance.

Prerequisite. SCAL-2132.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 15,000' AGL.

SCAL-2134 2.0 * T,R 2 FFS/FTD S TEN+

Goal. Demonstrate/introduce section low and high tactical approaches and departures to a confined area.

Requirement

(1) Discuss

(a) Lead and wingman responsibilities.

(b) Loss of visual contact/rejoining the flight.

(c) Discuss lead ship wake interaction.

(2) Introduce

(a) Section low altitude tactical approaches, landings and departures to a confined area. (minimum of 1 of each low altitude tactical approach in the ANTTP as wing).

(b) Section high altitude tactical approaches, landings, and departures to a confined area. (minimum of 1 of each high altitude tactical approach in the ANTTP as wing).

Performance Standards

(1) Demonstrate proper procedures for tactical CAL approaches IAW the MV-22B ANTTP Manual.

(2) Maintain the proper glide slope for obstacle clearance.

(3) Maintain the proper formation position for section CALs.

Required Reading. ANTTP 5.7 - 5.8.

Prerequisite. SCAL-2132

CAL-2135 2.0 365 T 2 MV-22B A

Goal. Introduce section low and high altitude tactical approaches, landings, and departures to a confined area.

Requirement

(1) Discuss

(a) Use of nacelles as an airspeed controller.

(b) Closure rates.

(c) Section takeoff.

(d) Transition/conversion between modes.

1 Nr settings (84-100%).

2 Nacelle rotation coordination/timing between aircraft.

3 Nacelle rotation rates.

(e) Section landings.

1 Wind effects.

2 Visual cues.

3 Glide slope.

(f) Loss of visual contact/rejoining of flight.

(g) Aircraft emergencies/system failures while flying as wing/lead.

(2) Introduce

(a) Section tactical approaches, landings, takeoffs, and departures to a confined area (minimum of 3 as wing for initial sorties).

(3) Review

(a) Running/Carrier rendezvous.

(b) Cruise principles.

(c) Lead changes.

Performance Standards

(1) Maintain the proper formation position for section CALs.

(2) Demonstrate proper procedures for tactical CAL approaches IAW the MV-22B ANTTP Manual.

(3) Maintain the proper glide slope for obstacle clearance.

Prerequisite. CAL-2133, SCAL-2134.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 15,000' AGL.

CAL-2136 1.5 365 T,R 3 MV-22B A

Goal. Introduce division low and high altitude tactical approaches, landings, and departures to a confined area.

Requirement

(1) Discuss

(a) Use of aircrew for situational awareness.

(b) Crew comfort level.

(c) Common terminology (visual, blind, tally, no-joy).

(d) Nacelle angle cuing.

(e) Inadvertent IMC.

(2) Introduce

(a) Division terminal area procedures.

(b) Division tactical approaches, landings, takeoffs, and departures to a confined area (minimum of 3 as dash 3 or 4 for initial sorties).

Performance Standards

(1) Maintain the proper formation position for division CALs.

(2) Demonstrate proper procedures for tactical CAL approaches IAW the MV-22B ANTTP Manual.

(3) Maintain the proper glide slope for obstacle clearance.

Required Reading. ANTTP 2.1 - 2.7.

Prerequisite. CAL-2135

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

4. Formation (FORM)

a. Purpose. To introduce tactical formations, lost contact procedures, tactical formation maneuvering, and formation instrument procedures.

b. General. All maneuver descriptions are in the MV-22B ANTTP Manual. It is expected that FORM-2183 will be flown in conjunction with CAL-2136.

c. Crew Requirements. P/P for simulators, P/P/CC/AO for aircraft events.

ACAD-2160 1.0 * T CLSRM

Tactical Formation Maneuvering

Goal. The PUI will have an introductory knowledge of Tactical Formation Maneuvering in the MV-22B.

Required Reading. ANTTP 5.1 - 5.6.1.1.3.2, 5.6.2.

Prerequisite. T2P

ACAD-2161 1.0 * T CLSRM

Section IFR Procedures

Goal. The PUI will have an introductory knowledge of Section IFR Procedures in the MV-22B.

Required Reading. ANTTP 5.6.3.

Prerequisite. T2P

SFORM-2180 1.0 * T,R 2 FFS/FTD S TEN+

Goal. Introduce tactical formations, tactical formation maneuvering, and lost contact procedures.

Requirement

(1) Discuss

(a) CRM.

(b) Crew comfort level.

(c) Common terminology.

(d) Lookout doctrine.

(e) Inter/intra-plane coordination.

(f) Lead/wingman responsibilities.

(g) Split section operations.

(2) Introduce

(a) Combat spread and combat cruise.

(b) All tactical formation maneuvers in the ANTTP (each in lead and wing).

(c) Tactical lead changes.

(d) IIMC break up and rendezvous.

(e) Simulated lost contact with subsequent rejoin enroute and at a point.

(3) Review

(a) Cruise formation and principles.

Performance Standards

(1) Execute all tactical formation maneuvers IAW the MV-22B ANTTP Manual.

(2) Maintain proper position in tactical formations IAW MV-22B ANTTP Manual.

Prerequisites. SFAM-2130, ACAD-2160.

SFORM-2181 1.0 180 T,R 2 FFS/FTD S TEN+

Goal. Introduce formation instrument procedures.

Requirement

(1) Discuss

(a) OPNAV 3710 requirements for section IFR.

(b) Planning and JMPS considerations.

(c) Departure, enroute, and arrival procedures.

(d) Intra-flight communication.

(e) ORM.

(f) Lead/wingman responsibilities.

(2)Introduce

(a) Section IFR departure and arrival procedures.

(b) ATC coordination.

(c) Enroute weather penetration.

(d) Lost communications procedures.

Performance Standards

(1) Demonstrate proper procedural knowledge of section IFR operations IAW MV-22B ANTTP Manual.

Prerequisites. SFAM-2031, ACAD-2161.

FORM-2182 2.0 365 T,R 2 MV-22B A

Goal. Introduce tactical formations, lost contact procedures, tactical formation maneuvering, and formation instrument procedures.

Requirement

(1) Discuss

(a) Tactical formation procedures.

(b) Section instrument procedures.

(2) Introduce

(a) Combat spread and combat cruise.

(b) All tactical formation maneuvers in the ANTTP (each in lead and wing)

(c) Tactical lead changes.

(d) IIMC break up and rendezvous.

(e) Simulated lost contact with wingman with subsequent rejoin enroute and at a point.

(f) Section IFR departure and arrival procedures.

(g) ATC coordination.

(h) Enroute weather penetration.

(i) Lost communications procedures.

Performance Standards

(1) Execute all tactical formation maneuvers IAW the MV-22B ANTTP Manual.

(2) Demonstrate the ability to control the flight through the use of tactical formations IAW MV-22B ANTTP Manual.

(3) Demonstrate proper procedural knowledge of section IFR operations IAW MV-22B ANTTP Manual.

Prerequisites. SFORM-2180, SFORM-2181.

FORM-2183 1.5 365 T 3 MV-22B A

Goal. Introduce division formations.

Requirement

(1) Discuss

(a) Use of aircrew for situational awareness.

(b) Crew comfort level.

(c) Common terminology (visual, blind, tally, no-joy).

(e) Inadvertent IMC.

(2) Introduce

(a) Division formations found in the MV-22B ANTTP manual.

(b) Division formation maneuvers along a route using one or more of the division formations found in the MV-22B ANTTP manual.

Performance Standards

(1) Maintain proper formation position during division formation maneuvers.

(2) Demonstrate situational awareness during division formation maneuvers.

Required Reading. ANTTP 5.6.1.2, 5.6.1.3.

Prerequisite. FORM-2182

5. Low Altitude Tactics (LAT)

a. Purpose. To develop proficiency in day LAT operations.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) Non-proficient aircrew require the supervision of a LAT Instructor.

(3) The PUI is considered to be LAT qualified upon completion of this stage and written designation by the unit commanding officer.

(4) LAT altitude restrictions and currency requirements are IAW the T&R Program Manual.

(5) Events should be flown in areas with significant vertical relief.

c. Crew Requirements. P/P for simulators, P/P/CC/AO for aircraft events.

ACAD-2210 0.5 * T,R CLSRM

LAT IV Lecture

Goal. The PUI will have an introductory knowledge of planning, briefing, and debriefing a LAT sortie.

Required Reading. AP-1B 1-1 through 1-3, 2-1, 2-2, ANTTP 5.1.4.2, 5.1.6.

Prerequisite. ACAD-2160

ACAD-2211 0.5 * T,R CLSRM

Tactical Aircrew Coordination Lecture

Goal. The PUI will have an introductory knowledge of required coordination between the pilots and aircrew during LAT.

Prerequisite. ACAD-2160

ACAD-2212 0.5 * T CLSRM

Route Planning Considerations Lecture

Goal. The PUI will have an introductory knowledge of night systems route planning considerations.

Required Reading. ANTTP 1.7.

Prerequisite. CAL-2135

LAB-2220 0.5 * T,R CLSRM

LAT Maneuver Walk Through

Goal. The PUI will be able to walk through all LAT maneuvers prior to executing them in the aircraft.

Required Reading. ANTTP 4.2.9 - 4.2.11.

Prerequisite. ACAD-2210

SLAT-2230 2.0 * T 1 FFS/FTD S TEN LATI

Goal. Introduce LAT maneuvers and navigation on a route in the contour profile.

Requirement

(1) Discuss

(a) Dive Recovery Rules.

(b) Small descent rule.

(c) Optical flow.

(d) Speed rush baseline.

(e) Sources of error during LAT.

1 Time to impact calculations.

2 Turning and looking.

3 G available / required.

(f) Crew Responsibilities.

1 Terrain Clearance Tasks (TCT).

2 Mission Tasks (MT).

a Critical (CT).

b Non Critical (NCT).

3 Mission Crosscheck Time (MCT).

(g) Display Utilization.

(i) FLIR.

1 DIGMAP.

2 HAT.

(h) Route Properties.

1 Weather & Wind Considerations.

2 Checkpoint Selection.

3 Vertical Planning.

4 Altitude/Speed Profiles.

5 L-Hour Planning.

6 Aircraft Performance.

(i) LAT Briefing Requirements.

(2) Introduce

(a) Break Turns.

(b) Oblique jinks.

(c) Dive entry using 50% rule.

(3) Review

(a) Navigation of a route.

1 Minimum of 100nm in airplane mode.

2 Minimum of 50nm in conversion mode.

(b) LAT maneuvers as applicable to complete the route.

(c) Mission Management.

1 Route.

2 Fuel.

3 L-hour management.

4 Flight Director usage.

(4) Emergencies

(a) Map fail.

(b) GPS Day Key INOP.

Performance Standards

(1) Complete all mission planning tasks related to JMPS and the DTM/RMU loads.

(2) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

(3) Remain oriented within the planned lateral boundaries of the route.

(4) Land at the planned LZ within +/-100 meters and +/- 30 seconds of L-hour.

(5) Demonstrate proper CRM principles in the LAT regime.

(6) Comply with ROC IAW T&R Program Manual and other governing directives.

Required Reading. ANTTP 4.1 - 4.2.10.

Prerequisite. SCAL-2132, LAB-2220

LAT-2231	2.0	365	T	1	MV-22B	A		LATI

Goal. Review LAT maneuvers and navigation on a route in the contour profile.

Requirement

(1) Discuss

(a) Stress and fatigue while flying LAT.

(b) Aircrew coordination during LAT.

(c) Squadron SOP for required equipment.

(d) Rules of Conduct (ROC).

(e) T&R Program Manual Rules.

1 Altitude Restrictions and Currency Requirements.

2 LAT Training with Embarked Troops.

(f) Fence Checks.

(g) Sensor Integration.

(2) Introduce

(a) Route Briefing.

(3) Review

(a) Break Turns.

(b) Oblique jinks.

(c) Dive entry using 50% rule.

(d) Navigation of a route of 100 nautical miles in the contour profile.

(4) Emergencies

(a) Bird strikes.

(b) Single Engine Failure.

(c) Controllability Check.

Performance Standards

(1) Complete all mission planning tasks related to JMPS and the DTM/RMU loads.

(2) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

(3) Brief the planned route.

(4) Remain oriented within the planned lateral boundaries of the route.

(5) Arrive at the destination +/- 30 seconds of planned time.

(6) Demonstrate proper CRM principles in the LAT regime.

(7) Comply with ROC IAW T&R Program Manual and other governing directives.

Required Reading. ANTTP 4.2.12 - 4.2.14.

Prerequisite. CAL-2133, ACAD-2211, ACAD-2212, SLAT-2230.

External Syllabus Support. Approved route/range space with vertical relief.

SLAT-2232	2.0	*	T	2	FFS/FTD	S	TEN+	LATI

Goal. Introduce section LAT maneuvers and navigation on a route in the contour profile.
Requirement

(1) Discuss

(a) Formation choices and lookout doctrine during section LAT.

(b) Formation considerations in restricted terrain.

(c) Airspeed selection.

(d) Lost sight ("Blind") procedures.

(e) Loss of communications.

(f) Inadvertent IMC procedures.

(g) Terminate and Knock-It-Off Criteria/Procedures.

(2) Introduce

(a) Section LAT maneuvers.

1 Break turns.

2 Oblique jinks.

3 50% rule dive entry.

(b) Navigation of a route in the wing position while in the contour profile in both combat cruise and combat spread.

1 Minimum of 100nm in airplane mode.

2 Minimum of 50nm in conversion mode.

(3) Emergencies

(a) Position disagree.

(b) INS X fail.

Performance Standards

(1) Complete all mission planning tasks related to JMPS and the DTM/RMU loads.

(2) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

(3) Maintain proper formation position IAW the MV-22B ANTTP Manual.

(4) Maintain situational awareness of the flight and terrain throughout.

(4) Remain oriented within the planned lateral boundaries of the route.

(5) Land at the planned LZ within +/-100 meters and +/- 30 seconds of L-hour.

(6) Demonstrate proper CRM principles in the LAT regime.

(7) Comply with ROC IAW T&R Program Manual and other governing directives.

Prerequisites. SFORM-2180, SLAT-2230.

LAT-2233	2.0	365	T,R	2	MV-22B	A		LATI

Goal. Review section LAT maneuvers and navigation on a route in the contour profile.

Requirement

(1) Discuss

(a) TCT TTPs.

(b) Operational Risk Management (Red vs Blue threat).

(2) Review.

(a) Section LAT maneuvers.

1 Break turns.

2 Oblique jinks.

3 50% rule dive entry.

(b) Navigation of a route of 100 nautical miles in the wing position while in the contour profile in both combat cruise and combat spread.

(3) Emergencies

(a) New EOB.

(b) Current FPLN Conflict.

(c) Excess Climb Power Required.

Performance Standards

(1) Complete all mission planning tasks related to JMPS and the DTM/RMU loads.

(2) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

(3) Maintain proper formation position IAW the MV-22B ANTTP Manual.

(4) Maintain situational awareness of the flight and terrain throughout.

(5) Remain oriented within the planned lateral boundaries of the route.

(6) Arrive at the destination +/- 30 seconds of planned time.

(7) Demonstrate proper CRM principles in the LAT regime.

(8) Comply with ROC IAW T&R Program Manual and other governing directives.

Prerequisites. FORM-2182, LAT-2231, SLAT-2232.

External Syllabus Support. Approved route/range space with vertical relief.

6. Night Systems (NS) High Light Level (HLL)

a. Purpose. To develop proficiency while using night vision goggles under light levels greater than .0022 lux as predicted by the SLAP module. Certify the PUI Night Systems Qualified (NSQ) HLL.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) An NSI is required for all unqualified pilots, and when a qualified aircrew loses proficiency in a NS LAT syllabus flight IAW the T&R Program Manual.

(3) Successful completion of this stage constitutes NSQ HLL. A qualification letter signed by the commanding officer stating the pilot is NSQ HLL is to be placed in the pilot's NATOPS jacket prior to the pilot carrying troops using NVDs.

c. Crew Requirements. P/P for simulators, P/P/CC/AO for aircraft events.

ACAD-2310 0.5 * T CLSRM NSI

Rotary Wing Mishap Lessons Learned Lecture

Goal. The PUI has a familiarity with recent night systems rotary wing mishaps.

Prerequisite. T2P.

ACAD-2311 0.5 * T CLSRM NSI

Fixed Wing Mishap Lessons Learned Lecture

Goal. The PUI has a familiarity with recent night systems fixed wing mishaps.

Prerequisite. T2P.

ACAD-2312 0.5 * T,R CLSRM NSI

Introduction to LASER Theory and Systems Lecture

Goal. The PUI will have an introductory knowledge of LASER theory and systems.

Prerequisite. T2P.

ACAD-2313	0.5	*	T		CLSRM				NSI

Sensor Integration Lecture

Goal. The PUI has a familiarity with methods for integrating various night system sensor on the MV-22B.

Required Reading. NATOPS 2.3.9, 2.12, 16.9, Helo NVD Manual Ch 5 (Part V)

Prerequisite. CAL-2135.

ACAD-2314	0.5	*	T		CLSRM				NSI

Tactics in the Night Environment Lecture

Goal. The PUI has a familiarity with tactics in the night environment.

Prerequisite. CAL-2135.

SNS-2330	2.0	*	T,R	2	FFS/FTD	S	TEN+	NS	NSI

Goal. Review single aircraft CALs and introduce single and section tactical approaches using NVDs in HLL.

Requirement

(1) Discuss

(a) Approach considerations at night (high vs. low, threat, weather, size of flight).

(b) Cockpit set-up and CRM during tactical approaches.

(c) NS RVL Procedures

(2) Introduce

(a) Slope landings with respect to tail and nacelle clearance.

(b) Tactical approaches, landings and departures to a confined area. (minimum of 3 as lead and 3 as wing)

(c) Wingman responsibilities.

(d) Loss of visual contact/rejoining the flight.

(e) Crew comfort level during NVD CAL operations.

(f) Lead changes.

(3) Review

(a) Single aircraft CALs in HLL.

(b) RVL Procedures.

Performance Standards

(1) Demonstrate proper procedural knowledge for NVD CALs IAW the MV-22B ANTTP Manual and the MAWTS-1 NVD Manual.

(2) Demonstrate proper NVD scanning techniques IAW the MAWTS-1 NVD Manual.

(3) Maintain the proper glide slope for obstacle clearance.

(4) Recognize proper formation positions for NVD section CALs.

Required Reading. T&R Program Manual paragraphs 306, 308, and 311, FW NVD Manual Ch 9

Prerequisites. SCAL-2132, SCAL-2134, ACAD-2310, ACAD-2311, ACAD-2312.

NS-2331	2.0	365	T	1	MV-22B	A		NS	NSI

Goal. Review FAM maneuvers and single aircraft NVD CALs in HLL. Introduce tactical approaches using NVDs in HLL.

Requirement

(1) Discuss

(a) Pilot and aircrew duties during NVD CAL operations.

(b) Crew comfort level during NVD CAL operations.

(c) Tactical approach geometry and set-up.

(d) Brown out/white out.

(e) HUD utilization.

(f) FLIR calibration.

(g) Use of the FLIR for LZ identification.

(2) Introduce

(a) NVD tactical approaches, landings, and departures to a confined area (minimum of 5 for initial events).

(3) Review

(a) RVL Procedures.

Performance Standards

(1) Demonstrate proper procedural knowledge for NVD CALs IAW the MV-22B ANTTP Manual and the MAWTS-1 NVD Manual.

(2) Demonstrate proper NVD scanning techniques IAW the MAWTS-1 NVD Manual.

(3) Maintain the proper glide slope for obstacle clearance.

Prerequisites. CAL-2133, SNS-2330, ACAD-2313.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

NS-2332	2.0	365	T,R	2	MV-22B	A		NS	NSI

Goal. Introduce formation flight, section CALs, and tactical approaches using NVDs in HLL.

Requirement

(1) Discuss

(a) Aircraft lighting during NVD formation.

(b) Lighting requirements per the T&R Program Manual and the FAA.

(c) Inadvertent IMC.

(d) Lead ship wake interaction and visual checkpoints on NVDs.

(2) Introduce

(a) NVD formation (combat cruise and combat spread).

(b) NVD section tactical approaches, departures, takeoffs and landings (minimum of 3 as wing for initial events).

Performance Standards

(1) Maintain proper position during NVD formation maneuvers IAW the MV-22B ANTTP.

(2) Maintain flight integrity during NVD section CALs.

(3) Maintain awareness of wingman’s position and provide adequate landing area.

Prerequisites. CAL-2135, FORM-2182, NS-2331.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

SNS-2333	2.0	*	T	2	FFS/FTD	S	TEN+	NS	NSI

Goal. Introduce single aircraft and section NVD LAT maneuvers and navigation in HLL.

Requirement

(1) Discuss

(a) CRM: Heads down requirements for the PNAC, lookout doctrine, use of CMS for navigation, use of the flight director.

(b) NVD LAT techniques.

(c) Section/formation considerations.

(d) Optical flow and speed rush

(e) NVG HUD use in the LAT environment.

(f) Route planning considerations and JMPS utilization.

(g) Conversion mode NS LAT.

(2) Introduce

(a) NVD LAT navigation of 100nm route in the contour profile.

(b) NVD LAT formation flight.

(c) NVD LAT maneuvers

(3) Review. SFORM-2180, SLAT-2310, ACAD-2314.

Performance Standards

(1) Maintain proper flight integrity IAW the MV-22B ANTTP Manual during NVD LAT flight.

(2) Maintain terrain awareness and avoidance during NVD LAT maneuvers.

(3) Land at the planned LZ within +/- 100 meters and +/- 30 seconds of planned time.

(4) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

Required Reading. FW NVD Manual Ch 10.

Prerequisites. SLAT-2232, SNS-2330, ACAD-2314.

NS-2334	2.0	240	T	1	MV-22B	A	NS	NSI

Goal. Introduce aircraft maneuver performance, LAT maneuvers and navigation using NVDs.

Requirement

(1) Discuss

(a) LAT briefing guide.

(b) Cockpit display configurations.

(c) Use of NVD HUD layers for LAT navigation.

(d) FLIR utilization in checkpoint identification and terrain avoidance.

(e) T/O, enroute, approaches, and landing procedures.

(f) RADALT settings and altitude changes.

(g) Airspeed/hazard avoidance.

(h) Crew comfort level during NVD LAT.

(i) Required equipment for NS LAT.

(2) Introduce.

(a) NVD LAT navigation of 100nm route in the contour profile.

(b) NVD LAT maneuvers.

(3) Review

(a) FLIR, digital map and INAV operations.

Performance Standards

(1) Maintain terrain awareness and avoidance during NVD LAT maneuvers.

(2) Arrive at the destination +/- 30 seconds of planned time.

(3) Demonstrate proficiency in the use of the NVG HUD and FLIR.

(4) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

Prerequisites. LAT-2233, NS-2331, SNS-2333.

External Syllabus Support. Approved route/range space with vertical relief.

NS-2335	2.5	240	T,R	2	MV-22B	A	NS	NSI

Goal. Introduce section NVD LAT maneuvers and navigation using NVDs under HLL conditions.

Requirement

(1) Discuss

(a) Review pilot and crew chief/observer duties in the LAT environment.

(b) Review common terminology used during formation flight in the LAT environment.

(c) Altitude awareness.

(d) Review section considerations and wingman awareness.

(2) Introduce

(a) NVD LAT formation flight.

(b) NVD LAT maneuvers as a section.

(3) Review

(a) NVD LAT navigation of 100nm route in the contour profile.

(b) NS CALS.

Performance Standards

(1) Maintain proper flight integrity during NVD LAT navigation.

(2) Arrive at the destination +/- 30 seconds of planned time.

(3) Maintain proper flight integrity during NVD section CALs.

(4) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

(5) Maintain terrain awareness and avoidance during NVD LAT maneuvers.

Prerequisites. NS-2332, NS-2334

External Syllabus Support. Approved route/range space with vertical relief.

7. Night Systems (NS) Low Light Level (LLL)

a. Purpose. To develop proficiency while using night vision goggles under light levels less than .0022 lux LLL as predicted by the SLAP module. Certify the PUI Night Systems Qualified [NSQ LLL].

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) An NSI is required for unqualified pilots, and when a qualified aircrew loses proficiency in a NS LAT syllabus flight IAW the T&R Program Manual.

(3) Successful completion of this stage constitutes NSQ. A qualification letter signed by the commanding officer stating the pilot is NSQ is to be placed in the pilot’s NATOPS jacket prior to the pilot carrying troops using NVDs in LLL conditions.

c. Crew Requirements. P/P for simulators, P/P/CC/AO for aircraft events.

SNS-2380	2.0	*	T,R	2	FFS/FTD	S	TEN+	NS	NSI

Goal. Introduce single aircraft and section CALs using NVDs in LLL.

Requirement

(1) Discuss

(a) Crew comfort level during NVD LLL operations.

(b) NVD LLL considerations for tactical approaches.

(c) NVD LLL CAL techniques.

(d) Aircraft lighting considerations during NVD LLL operations.

(e) Low altitude emergencies.

(f) Wingman responsibilities.

(g) Loss of visual contact/rejoining the flight.

(2) Introduce

(a) Tactical approaches, landings and departures to a confined area (minimum of 3 as lead and 3 as wing).

(b) CALS with reduced power margin operations.

(3) Review. SNS-2330

Performance Standards

(1) Demonstrate proper procedural knowledge for NVD LLL CALs IAW the MV-22B ANTTP Manual and the MAWTS-1 NVD Manual.

(2) Demonstrate proper NVD LLL scanning techniques IAW MAWTS-1 NVD Manual.

(3) Maintain the proper glide slope for obstacle clearance.

(4) Maintain proper formation positions for NVD LLL section CALs.

Required Reading. Helo NVD Manual Ch 19.

Prerequisites. NS-2332

NS-2381	2.0	240		1	MV-22B	A		NS	NSI

Goal. Introduce FAM maneuvers, single aircraft CALs, and tactical approaches using NVDs in LLL.

Requirement

(1) Discuss

(a) LLL CAL considerations.

(b) Tactical approach geometry and set-up.

(c) Reduced visibility landings.

(d) HUD utilization.

(e) Inadvertent IMC.

(f) Light pollution considerations.

(2) Introduce

(a) NVD tactical approaches, landings, and departures to a confined area (minimum of 5 for initial events).

(3) Review. NS-2331.

Performance Standards

(1) Execute proper procedures for NVD LLL CALs IAW the MV-22B ANTTP Manual and the MAWTS-1 NVD Manual.

(2) Demonstrate proper NVD scanning techniques IAW the MAWTS-1 NVD Manual.

(3) Maintain the proper glide slope for obstacle clearance.

Prerequisites. NS-2335, SNS-2380.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

NS-2382	2.0	240	T,R	2	MV-22B	A	NS	NSI

Goal. Introduce night tactical formation maneuvering and section CALs using NVDs in LLL.

Requirement

(1) Discuss

(a) Crew duties during NVD formation operations.

(b) Aircraft lighting during NVD formation in LLL.

(c) Night tactical formation maneuvering.

(2) Introduce

(a) NVD formation (combat cruise and combat spread).

(b) NVD section tactical approaches, departures, takeoffs and landings (minimum of 3 as wing for initial events).

(3) Review. NS-2332.

Performance Standards

(1) Maintain proper position during NVD formation maneuvers IAW the MV-22B ANTTP.

(2) Maintain flight integrity during NVD section CALs.

(3) Maintain awareness of wingman's position and provide adequate landing area.

Prerequisite. NS-2381

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

SNS-2383	2.0	*	T	2	FFS/FTD	S	TEN+	NS	NSI

Goal. Introduce NVD section LAT maneuvers and navigation under LLL conditions.

Requirement

(1) Discuss

(a) CRM (PAC and PNAC duties, look-out doctrine, heads-down requirement).

(b) Terrain awareness and visual acuity under LLL conditions.

(c) Effects of shadowing under LLL conditions.

(d) Inadvertent IMC in the LAT environment.

(e) GPS failure/INS alignment procedures.

(2) Introduce

(a) NVD LAT navigation of 100nm route in the contour profile.

(b) NVD LAT formation flight.

(c) NVD LAT maneuvers

(d) NS LAT route briefing (student to brief the route).

Performance Standards

(1) Maintain proper flight integrity IAW the MV-22B ANTTP Manual during NVD LAT flight.

(2) Maintain terrain awareness and avoidance during NVD LAT maneuvers.

(3) Land at the planned LZ within +/- 100 meters and +/- 30 seconds of planned time.

(4) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

Prerequisites. SNS-2333, SNS-2380

NS-2384	2.5	180	T,R	2	MV-22B	A	NS	NSI

Goal. Introduce NVD section LAT navigation flight under LLL conditions.

Requirement

(1) Discuss

(a) Checkpoint selection.

(b) JMPS utilization for route planning.

(c) Load planning and fuel planning.

(d) ECHUM and manual CHUM utilization.

(e) Nav/Threat/Map overlay manipulation.

(f) L-hour timing techniques.

(g) LLL formation considerations.

(h) LLL LAT considerations (speed rush, terrain awareness, MAC).

(i) LLL ROC and Dive recovery rules.

(2) Introduce.

(a) NVD LAT navigation of 100nm route in the contour profile.

(b) NVD LAT formation flight.

(c) NVD LAT maneuvers

Performance Standards

(1) Maintain proper flight integrity IAW the MV-22B ANTTP Manual during NVD LAT flight.

(2) Maintain terrain awareness and avoidance during NVD LAT maneuvers.

(3) Land at the planned LZ within +/- 100 meters and +/- 30 seconds of planned time.

(4) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

Prerequisites. NS-2382, SNS-2383.

NS-2385	2.5	240	T,R	3	MV-22B	A	NS	NSI

Goal. Introduce division formations and division CALs using NVDs under LLL conditions.

Requirement

(1) Discuss

(a) Division formation considerations.

(b) Nacelle angle cuing.

(c) Inadvertent IMC.

(d) LZ selection.

(e) Tactical approaches.

(2) Introduce

(a) NVD LLL division cruise principles, formation maneuvering.

(b) NVD section tactical approaches, departures, takeoffs and landings (minimum of 3 as wing for initial events).

(c) NVD LLL division lead changes.

(d) Division Box.

(e) Division Fluid Four.

Performance Standards

(1) Maintain proper position during NVD LLL division formation maneuvers and landings IAW the MV-22B ANTTP Manual.

(2) Maintain awareness of both wingmen and provide adequate landing area during NVD LLL CALs.

(3) Maintain flight integrity during NVD division CALs.

Prerequisites. NS-2382.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

8. Air to Air Refueling (AAR)

a. Purpose. To develop proficiency in day and NVD AAR.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual, and ATP-56.

(2) A minimum of 5 contacts and movement to the refueling position are required to successfully complete each initial flight.

(3) An AARI is required for all initial sorties. Aircrew who have completed their initial AAR sortie (day or night) and have lost proficiency in that sortie may regain proficiency by flying with an aircraft commander who is proficient in that sortie.

c. Crew Requirements. P/P for simulators, P/P/CC for day aircraft events, P/P/CC/AO for night aircraft events.

ACAD-2410	0.5	*	T,R		CLSRM			AARI

MV-22B Air to Air Refueling Lecture

Goal. The PUI will have a familiarity with MV-22B air to air refueling.

Required Reading. NATOPS 9.2, ANTTP 6.1 - 6.5, ATP-56B Part 1 (Ch 1, Annex 1A, Ch 2, Ch 3 paragraph 3001, 3002, 3005, 3006, 3007), ATP-56B Part 2 (Ch 1 para 1001-1006, 1010-1012, Annex 1a-1g, Ch 2, Annex 2g, Ch 3-4, Ch 5 para 506, 510-514, Annex 5a-5c).

Prerequisite. ACAD-2160

SAAR-2430	1.0	*	T	1	FFS/FTD	S		AARI

Goal. Demonstrate/introduce day AAR.

Requirement

(1) Discuss

(a) CRM during AAR and crew comfort level.

(b) Rendezvous procedures, both VMC and IMC.

(c) Airspeeds/altitudes.

(d) Cross-overs.

(e) Reel response.

(f) Inadvertent disconnects.

(g) Fuel siphoning.

(h) Emergency disconnect.

(i) EMCON refueling.

(j) MOA and Warning area procedures.

(2) Demonstrate/Introduce

(a) Introduce basic scan and flight techniques required to refuel from the KC-130.

(b) Rendezvous (minimum of 2 for initial events).

(c) Join-up.

(d) Contact/fuel transfer.

(e) Post AAR procedures.

(f) Emergency breakaway.

Performance Standards

(1) Demonstrate proper knowledge of AAR procedures IAW the MV-22B ANTTP Manual and the ATP-56.

(2) Recognize proper visual reference points IAW the MV-22B ANTTP Manual.

Required Reading. ANTTP 6.6

Prerequisites. SFORM-2180, ACAD-2410.

AAR-2431	1.5	365	T,R	1	MV-22B	A		AARI

Goal. Introduce day AAR.

Requirement

(1) Discuss

(a) CRM during AAR and crew comfort level.

(b) Rendezvous procedures in VMC conditions.

(c) Airspeeds/altitudes.

(d) Cross-under.

(e) Reel response.

(f) Inadvertent disconnects.

(g) Fuel siphoning.

(h) Emergency disconnect.

(2) Introduce

(a) Rendezvous.

(b) Join-up.

(c) Contact/fuel transfer (minimum of 5 for initial events).

(d) Post AAR procedures.

(e) Emergency breakaway.

Performance Standards

(1) Execute proper AAR procedures IAW the MV-22B ANTTP Manual and the ATP-56.

(2) Maintain proper visual reference points IAW the MV-22B ANTTP Manual.

Prerequisites. FORM-2182, SAAR-2430.

External Syllabus Support. Approved tanker.

SAAR-2432	1.0	*	T	1	FFS/FTD	S		NS	AARI

Goal. Introduce night aided AAR.

Requirement

(1) Discuss

(a) CRM during NVD AAR.

(b) Comfort level.

(c) Closure rates.

(d) Depth perception.

(e) Receiver/tanker lighting.

(f) Visual illusions.

(g) Inadvertent IMC.

(h) Emergency procedures.

(i) Visual signals.

(j) Tanker sequence.

(2) Demonstrate/Introduce. NVD AAR.

Performance Standards

(1) Demonstrate proper knowledge of night/NVD AAR procedures IAW the MV-22B ANTTP Manual and the ATP-56.

(2) Recognize proper night/NVD visual reference points IAW the MV-22B ANTTP Manual.

Required Reading. ANTTP 6.7, Helo NVD Manual Ch 18.

Prerequisites. SNS-2330, SAAR-2430.

AAR-2433	1.5	365	T,R	1	MV-22B	A		NS	AARI

Goal. Review NVD AAR.

Requirement. Introduce night AAR while using NVDs.

(1) Discuss

(a) CRM during NVD AAR.

(b) Comfort level.

(c) Closure rates.

(d) Depth perception.

(e) Receiver/tanker lighting.

(f) Visual illusions.

(g) Inadvertent IMC.

(h) Emergency procedures.

(i) Visual signals.

(j) Tanker sequence.

(k) NVD failures.

(l) NVD rendezvous.

(2) Introduce

(a) Rendezvous.

(b) Join-up (minimum of 2 for initial events).

(c) Contact/fuel transfer.

(d) Post AAR procedures.

(e) Emergency breakaway.

Performance Standards

(1) Execute proper NVD AAR procedures IAW the MV-22B ANTTP Manual and the ATP-56.

Prerequisites. AAR-2431, SAAR-2432, NSQ for the appropriate light level.

External Syllabus Support. Approved tanker.

9. Tail Gunnery (TG)

a. Purpose. To develop the ability to control the employment of the MV-22B Tail Gun.

b. General. At the completion of this stage, the PUI will demonstrate the ability to control the employment of the MV-22B tail gun from a hover, approaching the landing zone, departing the landing zone and enroute to the landing zone. Either the M240D or the GAU-16, or both, may be used to satisfy the flight events in this stage.

c. Crew Requirements. P/P/CC/AO for aircraft events.

ACAD-2510	0.5	*	T	CLSRM

M240D Familiarization Lecture

Goal. The PUI will have a familiarity with the operation of the M240D tail gun.

Required Reading. ANTTP 7.1 - 7.2.

Prerequisite. T2P

ACAD-2511 0.5 * T CLSRM

GAU-16 Familiarization Lecture

Goal. The PUI will be familiar with operation of the GAU-16 tail gun.

Required Reading. NAVAIR 11-95-13.

Prerequisite. T2P

TG-2532 1.5 365 T 2 MV-22B A

Goal. To introduce MV-22B tail gun employment during the day.

Requirement

(1) Discuss

(a) Standard terminology for control of crew served weapons.

(b) ICS procedures.

(c) Weapon safety for both weapons.

(d) Weapon malfunctions/stoppages for both weapons.

(e) Emergencies (aircraft & both weapons).

(f) Specifications of both MV-22B crew served weapons (tracer burnout range, maximum range, time of flight).

(g) MV-22B crew served weapons effects on various targets (buildings, unarmored vehicles, armored vehicles).

(h) Types of ammunition for both weapons.

(i) Wingman awareness and formation considerations during aerial gunnery.

(2) Introduce

(a) Preparation of weapons and aircraft.

(b) Weapon conditions and standard weapon commands.

(c) Air-to-ground gunnery.

(d) Fields of Fire and Sectors of Fire.

Performance Standards. Execute proper procedures for ordnance delivery IAW the MV-22B ANTTP Manual.

Required Reading. ANTTP 7.3 - 7.6

Prerequisites. CAL-2135, ACAD-2510, ACAD-2511.

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate gunnery range, Moving Land Target (MLT).

TG-2535	1.5	365	T,R	2	MV-22B	A	NS

Goal. To introduce defensive weapons employment utilizing the Night Vision Systems onboard the MV-22B (NVG and FLIR).

Requirement

(1) Discuss

(a) CRM during night AG.

(b) Effects of weapon employment on NVGs.

(c) Target identification at night and EOTDA.

(d) Use of IR LASER pointers (performance characteristics, operating procedures, ICS procedures, and safety considerations).

(e) Emergencies (aircraft & weapons).

(f) NVD procedures/failures.

(g) Wingman awareness during NVG AG.

(2) Introduce

(a) Preparation of weapons and aircraft for night gunnery operations.

(b) Night air-to-ground gunnery.

(c) Multiple aircraft Tail Gunnery at night.

(3) Review

(a) Fields of Fire and Sectors of Fire.

(b) Weapon conditions and standard weapon commands.

Performance Standards. Execute proper procedures for NVD ordnance delivery IAW the MV-22B ANTTP Manual.

Required Reading. ANTTP 7.7, Helo NVD Manual Ch 16 (I-IV, VI)

Prerequisites. NS-2312, NS-2382 (if LLL), TG-2532.

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate gunnery range, Moving Land Target (MLT).

10. External Operations (EXT)

a. Purpose. To develop proficiency in day and NVD external load operations from confined areas.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) An NSI is required for initial NVD external events.

c. Crew Requirements. P/P for simulators.

SEXT-2630	1.0	*	T	1	FFS/FTD	S		NS	NSI

Goal. Introduce NVD single and dual point external load hook-ups and drops to a confined area (conversion and airplane modes).

Requirement

(1) Discuss

(a) NVD considerations during external lift operations.

(b) Use of the FLIR to monitor the load.

(c) NVD emergencies with external load.

(2) Introduce

(a) NVD external load hook-ups and drops to a confined area.

(b) NVD external operations (minimum of 5 pick-ups for initial events.

(c) Convert to airplane mode at least once with external.

Performance Standards

(1) Demonstrate knowledge of proper external procedures IAW the MV-22B ANTTP Manual.

Required Reading. NATOPS 9.4, ANTTP 9.1 - 9.2, Helo NVD Manual 14

Prerequisites. SNS-2330.

EXT-2632	1.5	365	T, R	1	MV-22B

Goal. Review single point or dual point external load hook-ups and drops to a confined area.

Requirement

(1) Discuss

(a) Crew responsibilities and communications during external operations.

(b) Aircraft hook release systems. Hook preflight and checks.

(c) Approach to LZ. Downwash, static electricity, FOD, and precision hover.

(d) Cargo hook-up procedures and heading control.

(e) Power checks, switchology, and HST brief.

(f) HST composition, functions, and signals.

(g) HST safety brief.

(h) Power settling.

(i) Pilot induced oscillations.

(j) Reduced visibility conditions.

(k) Terrain/obstacle clearance.

(l) Inadvertent IMC procedures.

(m) Aircraft emergencies with external load (flight control system failures).

(n) Tactical considerations during external lift operations.

(o) Aerodynamic characteristics of external loads.

(p) Light and heavy external load considerations.

(2) Demonstrate/Introduce

(a) External load hook-ups and drops to a confined area (minimum of 5 for initial events).

(b) Waveoff with external load.

Performance Standards

(1) Execute proper external procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper ICS terminology during external operations.

(3) Place the load within 10 meters of desired location.

Prerequisites. CAL-2133.

External Syllabus Support. External load, HST, approved LZ with 7nm of protected airspace to 1000' AGL.

EXT-2634	1.5	240	T,R	1	MV-22B	NS	NSI

Goal. Introduce single or dual point external cargo operations at night using NVDs.

Requirement

(1) Discuss

(a) Any previously introduced EXT stage item.

(b) Review performance charts and JMPS considerations.

(c) NVD briefing guide.

(d) Aircraft and landing zone lighting.

(e) Aircraft emergencies with external load (Cargo hook fault caution, auto jettison not active caution, any previously discussed EP).

(2) Demonstrate/Introduce

(a) Identifying the zone and load using NVDs.

(b) External load hook-ups and drops to a confined area (minimum of 5 for initial events).

(3) Review. Power checks.

Performance Standards

(1) Execute proper NVD external procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper ICS terminology during external operations.

(3) Place load within 10 meters of desired location.

Prerequisites. NS-2331, NS-2381(if LLL), SEXT 2630, EXT-2632.

External Syllabus Support. External load, HST, approved LZ with 7nm of protected airspace to 1000' AGL.

12. Mountain Area Training (MAT)

a. Purpose. To develop proficiency in day and NVD mountainous terrain operations.

b. General. All maneuver descriptions are in the MV-22B ANTTP Manual.

c. Crew Requirements. P/P.

ACAD-2710	0.5	*	T	CLSRM

High Altitude Operations Lecture

Goal. The PUI has a familiarity with MV-22B external operations.

Required Reading. NATOPS 22, 23, 30, 31, ANTTP Ch 3.3.5, 3.3.6

Prerequisite. CAL-2135.

SMAT-2730 1.0 365 T,R 1 FFS/FTD S

Goal. Introduce CALs in mountainous terrain in day conditions.

Requirement

(1) Discuss

(a) High altitude physiology emergencies.

(b) Wind and weather effects.

(c) High altitude operations. Power available vs power required.

(2) Introduce

(a) Mountainous area operations.

(b) Pinnacle landings.

(c) Slope landings.

(d) Landings and operations in valleys and canyons.

(e) Crosswind landings.

(f) Various short takeoff techniques at altitude.

(3) Review. SCAL-2130, SCAL 2132.

Performance Standards

(1) Demonstrate knowledge of proper MAT procedures IAW the MV-22B ANTTP Manual and NATOPS.

(2) Execute up-slope/down-slope and cross-slope landings.

(3) Properly calculate power available and power required for high altitude LZs.

Prerequisites. CAL-2135, ACAD-2710.

SMAT-2731 1.0 365 T,R 1 FFS/FTD S NS

Goal. Introduce CALs in mountainous terrain in night conditions using NVDs.

Requirement

(1) Discuss

(a) Waveoffs during mountainous terrain NVD operations.

(b) Visual illusions on NVDs in mountainous terrain.

(2) Introduce

(a) NVD mountainous terrain operations.

(b) NVD landings in mountainous areas.

(3) Review. SNS-2330.

Performance Standards

(1) Demonstrate knowledge of proper MAT procedures IAW the MV-22B ANTTP Manual and NATOPS.

(2) Execute up-slope/down-slope and cross-slope landings.

(3) Properly calculate power available and power required for high altitude LZs.

Prerequisites. SNS-2330, SMAT-2730

13. Ground Threat Reaction (GTR)

a. Purpose. To develop proficiency in the use of Electronic Warfare Principles, Aircraft Survivability Equipment (ASE), and threat reactions versus counter enemy surface-to-air threats.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) A WTI is required for all initial sorties in each POI. Aircrew who have completed their initial GTR sorties and have lost proficiency in that sortie may regain proficiency by flying with a LATI who is proficient in that sortie.

(3) The flight lead shall be GTR-2832 proficient and specifically brief all applicable GTR training rules per the MV-22B ANTTP Manual and T&R Program Manual.

(4) GTR-2832 shall be conducted against a threat emitter; e.g. SA-6, ZSU-23-4, etc. and requires an electronic warfare range.

(5) All initial sorties are to be done during the day. Subsequent execution of sorties that the PUI is proficient in may be done at night.

c. Crew Requirements. P/P for simulators, P/P/CC/AO for aircraft events.

ACAD-2810	1.0	*	T	CLSRM	WTI

MV-22B ALE-47 Lecture

Goal. The PUI will have a familiarity with the operation of the MV-22B ALE-47.

Required Reading. NATOPS 18.1.3, NATIP ASE Chapter, Classified ANTTP 2.7 - 2.8.

Prerequisite. T2P.

ACAD-2811 1.0 * T CLSRM WTI

MV-22B APR-39 Lecture

Goal. The PUI will have a familiarity with the operation of the MV-22B APR-39.

Required Reading. 18.1.1, NATIP ASE Chapter, Classified ANTTP 2.4 - 2.5.

Prerequisite. T2P

ACAD-2812 1.0 * T CLSRM WTI

MV-22B AAR-47 Lecture

Goal. The PUI will have a familiarity with the operation of the MV-22B AAR-47.

Required Reading. 18.1.2, NATIP ASE Chapter, Classified ANTTP 2.6.

Prerequisite. T2P

ACAD-2813 1.0 * T CLSRM WTI

AAA Threat to Assault Support Lecture

Goal. The PUI will have a familiarity with the threat of AAA to assault support.

Required Reading. AFTTP 3-1 AAA Chapter.

Prerequisite. T2P.

ACAD-2814 1.0 * T CLSRM WTI

IR SAM Threat to Assault Support Lecture

Goal. The PUI will have a familiarity with the threat of IR SAMS to assault support.

Required Reading. AFTTP 3-1 IR SAM Chapter.

Prerequisite. T2P

ACAD-2815 1.0 * T CLSRM WTI

RADAR SAM Threat to Assault Support Lecture

Goal. The PUI will have a familiarity with the threat of RADAR SAMS to assault support.

Required Reading. AFTTP 3-1 RADAR SAM Chapter.

Prerequisite. T2P

ACAD-2816	0.5	*	T		CLSRM			WTI

Specific Excess Power and Energy/Maneuverability

Goal. The PUI has an introductory knowledge of specific excess power and energy/maneuverability charts and characteristics of the MV-22B.

Required Reading. NATIP performance charts chapter.

Prerequisite. LAT-2233.

ACAD-2817	1.0	*	T,R		CLSRM			WTI

MV-22B Ground Threat Reaction Lecture

Goal. The PUI will have a familiarity with the reaction maneuvers executed by the MV-22B as a result of a ground threats.

Required Reading. Classified ANTTP 2.1 - 2.3, 2.9 - 2.14, Basic Radar Principles (MAWTS-1 Read Ahead), Basics of Electronic Warfare (MAWTS-1 Read Ahead).

Prerequisite. LAT-2233

LAB-2820	0.5	*	T,R		CLSRM			WTI

MV-22B Ground Threat Reaction Walk through

Goal. The PUI will have a solid understanding of all GTR maneuvers prior to inflight execution.

Required Reading: ANTTP Appendix A.

Prerequisite. ACAD-2817

SGTR-2830	2.0	*	T	1	FFS/FTD	S	TEN	(NS)	WTI

Goal. Introduce operation of onboard ASE to include strengths and weaknesses of ASE vs non-RADAR AAA and IR SAMs. Introduce defensive tactics vs non-RADAR AAA and IR SAMs.

Requirement

(1) Discuss

(a) Operation of the ALE-47, APR-39, AAR-47.

(b) Strengths and weaknesses of each ASE system vs non-RADAR AAA and IR SAMs.

(c) CRM as it applies to the use of onboard ASE and threat detection.

(d) Defensive tactics against non-RADAR AAA and IR SAMs.

(e) All available flare expendables.

(f) ROC per T&R Program Manual.

(g) Non-RADAR GTR line numbers.

(2) Introduce

(a) Use of all onboard ASE.

(b) Defensive tactics against non-RADAR AAA and IR SAMs.

Performance Standards

(1) Properly operate all ASE IAW the the MV-22B ANTTP Manual.

(2) Recognize proper defensive tactics vs non-RADAR AAA and IR SAMs.

Prerequisites. LAT-2233, LAB-2820.

SGTR-2831	2.0	365	T,R	2	FFS/FTD	S	TEN+	(NS)	WTI

Goal. Review operation of onboard ASE to include strengths and weaknesses of ASE vs RADAR SAMs. Introduce defensive tactics vs RADAR SAMs and review defensive tactics vs. non-RADAR AAA and IR SAMs

Requirement

(1) Discuss

(a) ALE-47 programs.

(b) CRM as it applies to the defensive maneuvers and threat detection.

(c) Defensive tactics against RADAR SAMs.

(d) All available chaff expendables.

(e) ROC per T&R Program Manual.

(f) RADAR GTR line numbers.

(g) Threat countertactic matrix.

(2) Introduce

(a) Single and section maneuvering against RADAR SAMS.

(b) Defensive tactics against RADAR SAMs.

(3) Review

(a) Non-RADAR and IR SAM threat reactions.

Performance Standards

(1) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(2) Execute proper defensive tactics vs all threats IAW the MV-22B ANTTP Manual.

(3) Demonstrate knowledge of basic RADAR principles.

Prerequisites. SGTR-2830.

GTR-2832	1.5	365	T,R	2	MV-22B	A		(NS)	WTI

Goal. Review procedures to counter a RADAR SAMs with a multi-aircraft flight.

Requirement

(1) Discuss

(a) Selection of countermeasure programs.

(b) Set-up of ASE to defend against a ground threat.

(c) Threat reaction and post engagement reaction.

(d) SPOT reporting.

(e) GTR line numbers.

(f) GTR training rules.

(2) Introduce

(a) Section maneuvering against surface-to-air missile and RADAR threat systems.

(b) Section maneuvering against non-RADAR threats.

(c) Threat avoidance maneuvers and/or tactics to defeat threat systems.

(d) Use of expendables as a section to defeat threat systems.

Performance Standards

(1) Execute threat reaction maneuvers IAW the MV-22B ANTTP Manual.

(2) Properly maneuver the section in response to a threat IAW the MV-22B ANTTP Manual.

(3) Properly employ all ASE IAW the MV-22B ANTTP Manual and NATIP.

(4) Demonstrate knowledge of IR SAMs and countermeasures.

Prerequisites. SGTR-2831.

Ordnance. 60 chaff and 30 flares.

External Syllabus Support. EW emitter, chaff and flare capable range, ground fire indication.

14. Carrier Qualification (CQ)

a. Purpose. To qualify the PUI in flight operations from a carrier deck or ship platform under day and NVD conditions.

b. General

(1) Refer to LHA/LHD/MCS NATOPS Manuals for carrier operations. Refer to NWP-42 for air capable ship operations.

(2) CQ-2935 shall be flown under HLL conditions for initial qualifications. An NSI is required for unqualified pilots on NVD CQ flights.

(3) IAW NATOPS and NAVMC 3500.14, a pilot is CQ upon completion of CQ-2935.

(4) The IP will emphasize proper communication procedures, patterns, and aviation operations in the shipboard environment per aircraft and ship NATOPS and NAVMC 3500.14.

c. Crew Requirements. P/P/CC (AO required for NVD CQ).

ACAD-2910 0.5 * T CLSRM

MV-22B Shipboard Operations Lecture

Goal. The PUI has a familiarity with MV-22B Shipboard Operations.

Required Reading. NATOPS 8, LHA/LHD NATOPS Ch 2-6, 7.2, 7.3, App A & D, Ships Facilities Resume.

Prerequisite. T2P

SCQ-2930 1.0 365 T,R 1 FFS/FTD S

Goal. Introduce day CQ pattern and procedures to various L-Class ships.

Requirement

(1) Discuss

(a) Emergency procedures in the shipboard environment (engine failures, nacelle blower failures, fires).

(b) Various patterns around the ship.

(c) Different Case departures and arrivals.

(2) Demonstrate/Introduce

(a) Carrier operation.

1 Airplane and conversion mode arrivals.

2 Charlie pattern for LHA/LHD and LPD/LSD (minimum of 5 for initial events).

3 Communication procedures.

4 Lights and light signals.

5 LSE signals and procedures.

6 Waveoff.

7 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

(g) Balanced flight approach.

(h) Shipboard INS alignment procedures.

Performance Standards

(1) Demonstrate proper knowledge of day shipboard procedures IAW the LHA/LHD/MCS NATOPS, and NWP-42.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide approaches.

(3) Maintain proper closure rate during approaches.

Prerequisites. SCAL-2132.

CQ-2931 1.5 365 T,R 1 MV-22B A

Goal. Introduce day CQ patterns and procedures in a Field Carrier Landing Practice (FCLP) scenario.

Requirement

(1) Discuss

(a) Crewmember duties during CQs.

(b) Any item discussed or introduced on SFCLP-2830.

(2) Introduce

(a) Carrier operation.

1 Charlie pattern (minimum of 5 for initials).

2 Communication procedures.

3 Lights and light signals.

4 LSE signals and procedures.

5 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

(g) Balanced flight approach.

Performance Standards

(1) Properly execute the CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide approaches.

(3) Maintain proper closure rate during approaches.

Prerequisites. CAL-2133, SCQ-2930

External Syllabus Support. FCLP site.

CQ-2932 1.5 365 T,R 1 MV-22B A

Goal. Day qualification flight.

Requirement

(1) Discuss. Any FCLP discussed/introduced item.

(2) Introduce

(a) Air capable amphibious ship operations.

1 Airplane and conversion mode arrivals.

2 Charlie pattern (minimum of 5 for initial events).

3 Communication procedures.

4 Lights and light signals.

5 LSE signals and procedures.

6 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

(g) Balanced flight approach.

(h) Wake interaction with other aircraft.

Performance Standards

(1) Properly execute CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide approaches.

(3) Maintain proper closure rate during approaches.

Prerequisite. CQ-2931.

External Syllabus Support. Landing platform afloat.

SCQ-2933	1.0	365	T,R	1	FFS/FTD	S	NS	NSI

Goal. Introduce NVD CQ pattern and procedures.

Requirement

(1) Discuss

(a) Emergency procedures in the shipboard environment (engine failures, nacelle blower failures, fires).

(2) Demonstrate/Introduce

(a) Carrier operations using NVDs.

1 Arrival.

2 Night landing patterns (minimum of 5 for initials).

3 Communication procedures.

4 Night shipboard lighting and light signals.

5 LSE signals and procedures.

6 Waveoff.

7 Departure.

(b) Self-taxi procedures.

(c) STOs.

(d) Steady heading approach.

(e) 45° slide approach.

(f) Balanced flight approach.

Performance Standards

(1) Demonstrate proper knowledge of NVD shipboard procedures IAW the MV-22B NATOPS, LHA/LHD/MCS NATOPS, and NWP-42.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide approaches.

(3) Maintain proper closure rate during approaches.

Required Reading. Helo NVD Manual Ch 17.

Prerequisites. SNS-2330, SFCLP-2930.

CQ-2934	1.0	365	T,R	1	MV-22B	A	NS	NSI

Goal. Introduce night aided CQ patterns and procedures in a FCLP scenario.

Requirement

(1) Discuss

(a) Differences and similarities of day and night takeoff and landing techniques.

(b) Crewmember duties during NVD CQs.

(c) Any item discussed or introduced on SCQ-301.

(2) Introduce

(a) Carrier operations using NVDs.

1 Airplane and conversion mode arrivals.

2 Night takeoff/landing patterns (minimum of 5 for initial events).

3 Communication procedures.

4 Night shipboard lighting and light signals peculiar to night operations.

5 LSE signals and procedures.

6 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

(g) Balanced flight approach.

Performance Standards

(1) Properly execute the NVD CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide NVD approaches.

(3) Maintain proper closure rate during NVD approaches.

Prerequisites. NS-2331, CQ-2931, SCQ-2933

External Syllabus Support. FCLP site.

CQ-2935	1.5	365	T,R	1	MV-22B	A		NS	NSI

Goal. NVD qualification flight.

Requirement

(1) Discuss

(a) Aircraft lighting configurations.

(b) Deck lighting configurations.

(c) LSE signals and NVD requirements.

(d) Voice procedures at night.

(e) Closure rates and depth perception over water at night.

(f) Night waveoff signals and procedures.

(g) Egress peculiar to shipboard operations at night utilizing NVDs.

(h) Any previously discussed/introduced FCLP/CQ item.

(2) Introduce

(a) Air capable amphibious ship operations.

1 Airplane and conversion mode arrivals.

2 Night landing patterns (minimum of 5 for initial events).

3 Communication procedures.

4 Lights and light signals.

5 LSE signals and procedures.

6 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

(g) Balanced flight approach.

Performance Standards

(1) Properly execute NVD CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide NVD approaches.

(3) Maintain proper closure rate during NVD approaches.

Prerequisites. NSQ HLL, CQ-2932, CQ-2934.

External Syllabus Support. Landing platform afloat.

212. MISSION SKILL PHASE

1. General

a. This phase of training is designed to enable pilots to obtain proficiency in Mission Skills. Mission Skills are designed to fulfill the requirements of the VMMs Mission Essential Task List as defined by the associated Marine Corps Task (MCT).

b. 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 escort aircraft (fixed or rotary wing), ASE (ALE-47, APR-39, etc.) and use of the defensive weapon system. On certain events, integration with other ACE assets is required.

c. Discuss items for each event in this stage are designed to be the focus of scenario-based training for planning and execution, not necessarily for discussion during individual cockpit briefs. However, this does not preclude these items from being discussed during cockpit briefs.

d. Specific planning responsibilities should be delegated to PUIs in order to obtain a broad exposure to mission planning. Instructors shall ensure sufficient time is provided to complete all planning tasks.

e. Initial flights will be instructed by a designated section leader.

f. Stages. The following stages are included in the Mission Skill Phase of training.

(1) SEA

(2) SHORE

(3) AS

(4) AD

(5) TRAP

(6) AE

g. ROC will be per the T&R Program Manual.

h. Refer to paragraph 216 for the ACPM lectures required for this phase of training.

i. Lectures listed in each stage must be completed in order to successfully complete the stage. However, they can be taught at any time and are not necessarily prerequisites for the simulator or flight events in the stage.

j. Aircrew shall complete all initial simulator and flight events in this phase of training in accordance with the requirements in the individual event header. Aircrew who have completed a simulator or flight event in this phase of training may maintain or regain proficiency in that same event by flying that event with a minimum of a section under (NS) conditions.

2. Operate from Expeditionary Sea Based Sites (SEA)

a. Purpose. This stage of training is designed to fulfill the requirement set in MCT 1.3.3.3.1, Conduct Aviation Operations From Expeditionary Sea-Based Sites.

b. Crew Requirement. P/P/CC/AO.

ACAD-3010	1.0	*	T			CLSRM				

Assault Support Key Players Lecture

Goal. The PUI will have a familiarity with assault support key players.

Required Reading. ANTTP Chapter 1.4 and 1.5.

Prerequisite. T2P

SSEA-3030	2.0	240	T,R	2	FFS/FTD	S	TEN+	NS	SECLD	

Goal. Introduce a sea-based assault support mission in a medium threat environment using NVDs.

Requirement

(1) Discuss

(a) Night medium threat tactics.

(b) Objective area planning for a night medium threat mission.

(c) ASE utilization planning for night missions.

(d) Effects of ordnance and expendables on NVDs.

(e) Deck cycle considerations.

(f) Operations utilizing a sea based command & control.

(g) Aerial refueling in a tactical environment.

(2) Introduce. Tactical planning, briefing, and execution of a night medium threat mission using NVDs. The PUI will assist in the planning and conduct of the tactical brief. Planning should emphasize shipboard considerations.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Properly employ escorts versus the threat.

(5) Accomplish the assigned mission.

Required Reading. ANTTP 8.8, 8.10 - 8.11, Ch 13.

Prerequisites. NSQ (NS-2384-2385), CQ-2935, AAR-2413, TG-2531, GTR-2832.

3. Operate from Expeditionary Shore Based Sites (SHORE)

a. Purpose. This stage of training is designed to fulfill the requirement set in MCT 1.3.3.3.2, Conduct Aviation Operations From Expeditionary Shore-Based Sites.

b. Crew Requirement. P/P/CC/AO.

ACAD-3110 1.0 * T CLSRM

Assault Support Mission Planning Lecture

Goal. The PUI will have a familiarity with assault support mission planning considerations.

Required Reading. ANTTP 1.8, MAWTS-1 Assault Support Planning Guide

Prerequisite. T2P

ACAD-3111 1.0 * T CLSRM

Objective Area Planning Lecture

Goal. The PUI will have a familiarity with planning objective areas.

Required Reading. ANTTP Chapter 1.7.7

Prerequisite. T2P

ACAD-3112 0.5 * T CLSRM

ACEOI Lecture

Goal. The PUI will have a familiarity with effectively using an ACEOI.

Required Reading. ASTACSOP page 205-228.

Prerequisite. T2P

SSHORE-3130 2.0 365 T 3 FFS/FTD S/A TEN+ (NS) SECLD

Goal. Introduce a tactical assault support mission in a low threat environment from an expeditionary shore-based site.

Requirement

(1) Discuss

(a) Definition of low threat environment per the T&R Program Manual.

(b) Threat analysis.

(c) Tactics used in a low threat environment.

(d) Use of tactical SOPs.

(e) Tactical route planning considerations.

(f) Use of onboard navigation systems.

(g) Use of ASE in a low threat environment.

(h) CRM during ingress, objective area actions, and egress.

(2) Introduce. Tactical planning, briefing, and execution of a low threat mission. The PUI will assist in the planning and conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly execute the fence checks and employ all ASE appropriately.

(3) Accomplish the assigned mission.

Required Reading. ANTTP 8.6

Prerequisites. NSQ (NS-2384-2385), TG-2531, SMAT-2731, GTR-2831

SHORE-3131	3.0	240	T,R	2	MV-22B	A		NS	SECLD

Goal. Introduce an assault support mission in a medium threat environment with integrated fires in the objective area from an expeditionary shore-based site.

Requirement

(1) Discuss

(a) Mission planning considerations for long-range missions.

(b) Pick-up zone planning.

(c) Escort considerations.

(d) Fire support considerations and control measures.

(e) FARP planning.

(f) Contingency planning.

(2) Introduce. Tactical planning, briefing, and execution of a medium threat mission on NVDs. The PUI will assist in the planning and the conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Properly employ escorts versus the threat.

(5) Demonstrate proper knowledge of NVD tactical considerations IAW the MV-22B ANTTP Manual and MAWTS-1 NVD Manual.

(6) Accomplish the assigned mission.

Required Reading. ANTTP 6.8 - 6.10

Prerequisites. NSQ (NS-2384-2385), TG-2531, SMAT-2731, GTR-2832.

Ordnance. 600 rounds 7.62, 40 chaff, 50 flares.

External Syllabus Support: 7.62 and expendable capable range, EW emitter, RW/FW attack aircraft, and approved LZ.

4. Assault Support (AS)

a. Purpose. To introduce day and night assault support tactical mission planning, briefing and execution. This stage of training is designed to fulfill the requirement set in MCT 1.3.4.1, Conduct Combat Assault Transport.

b. Crew Requirement. P/P/CC/AO.

ACAD-3210	1.0	*	T			CLSRM				

GCE Raid Planning Lecture

Goal. The PUI will have a familiarity with GCE Raid Planning.

Prerequisite. T2P.

ACAD-3211	0.5	*	T			CLSRM				

Execution Checklist Lecture

Goal. The PUI will have a familiarity with an execution checklist.

Prerequisite. T2P.

ACAD-3212	1.0	*	T			CLSRM				

Rapid Response Planning Lecture

Goal. The PUI will have a familiarity with an rapid response planning.

Required Reading. WTI ACE Battle Staff Planning Guide.

Prerequisite. T2P.

SAS-3230	2.0	365	T		2	FFS/FTD	S/A	TEN+	(NS)	SECLD

Goal. Introduce an assault support mission in a low threat environment using a minimum of a section.

Requirement

(1) Discuss

(a) Definition of low threat per the T&R Program Manual.

(b) Objective area analysis/planning.

(c) Fire support coordination measures.

(d) Pick-up zone planning.

(e) Escort considerations.

(f) FARP planning.

(g) Contingency planning.

(h) Use of the DIGMAP including RMU loading and threat management.

(2) Introduce. Tactical planning, briefing, and execution of a low threat mission. The PUI will assist in the planning and the conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Accomplish the assigned mission.

Required Reading. ANTTP 8.1 - 8.3.

Prerequisites. NSQ (NS-2384-2385), TG-2531, SMAT-2731, GTR-2831.

AS-3231	3.0	240	T,R	3	MV-22B	A		NS	SECLD

Goal. Introduce a night assault support mission in a medium threat environment using a minimum of a division.

Requirement

(1) Discuss

(a) Use of SERE information.

(b) Review ROE.

(c) Review objective area analysis.

(d) Review objective area planning.

(e) Review contingency planning.

(f) Review items from the 2000 Tactics stage as required for the tactical scenario.

(2) Introduce. Tactical planning, briefing, and execution of a medium threat mission. The PUI will assist in the planning and the conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Properly employ available escorts versus the threat.

(5) Accomplish the assigned mission.

Prerequisites. NSQ (NS-2384-2385), TG-2531, SMAT-2731, GTR-2832.

Ordnance. 600 rds 7.62, 40 chaff and 50 flares.

External Syllabus Support. 7.62 and expendable capable range, EW emitter, RW/FW attack aircraft, and approved LZ.

5. Aerial Delivery (AD)

a. Purpose. This stage of training is designed to fulfill the requirement set in MCT 4.3.4 Conduct Air Delivery.

b. General. All external cargo operations shall utilize HST support.

c. Crew Requirement. P/P/CC/AO.

SAD-3330	2.0	240	T,R	2	FFS/FTD	S	TEN+	NS	SECLD

Goal. Introduce an aerial delivery mission in a medium threat environment using a minimum of a section with integrated fires in the objective area.

Requirement

(1) Discuss

(a) Definition of medium threat per the T&R Program Manual.

(b) Mission planning considerations for aerial delivery missions.

(c) Objective area analysis/planning.

(d) Fire support coordination measures.

(e) Pick-up zone planning.

(f) Escort considerations.

(g) HST coordination/planning.

(h) Contingency planning.

(2) Introduce. Tactical planning, briefing, and execution of a medium threat mission. The PUI will assist in the planning and the conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Properly employ escorts versus the threat.

(5) Accomplish the assigned mission.

Required Reading. ANTTP 8.4

Prerequisites. NSQ (NS-2384-2385), TG-2533, EXT-2634, SMAT-2731, GTR-2832.

6. Tactical Recovery of Aircraft and Personnel (TRAP)

a. Purpose. To introduce day and NVD low threat tactical mission planning, briefing, and execution. This stage of training is designed to fulfill the requirement set in MCT 6.2.1.1 Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP).

b. Crew Requirement. P/P/CC/AO.

ACAD-3410 1.0 * T CLSRM

Personnel Recovery Lecture

Goal. The PUI will have a familiarity with Personnel Recovery.

Required Reading. ANTTP 8.7.

Prerequisite. T2P

ACAD-3411 1.0 * T CLSRM

Tiltrotor Escort Tactics Lecture

Goal. The PUI will have a familiarity with Tiltrotor Escort Tactics.

Required Reading. Classified ANTTP Ch 4.

Prerequisite. T2P

TRAP-3430 3.0 240 T,R 2 MV-22B A (NS) SECLD

Goal. Introduce a tactical recovery of aircraft or personnel mission.

Requirement

(1) Discuss

(a) TRAP mission analysis.

(b) Threat analysis.

(c) ASTACSOP TRAP Template.

(d) Alert postures.

(e) Tactical route planning considerations.

(f) Use of onboard navigation systems.

(g) Use of ASE in a medium threat environment.

(h) CRM during ingress, objective area actions, and egress.

(2) Introduce. Tactical planning, briefing, and execution of a TRAP mission. The PUI will assist in the planning and conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly execute fence checks and employ all ASE appropriately.

(3) Accomplish the assigned mission.

Prerequisites. NSQ (NS-2384-2385), TG-2533, SMAT-2731, GTR-2832.

Ordnance. 600 rds 7.62, 40 chaff, 50 flares.

External Syllabus Support. 7.62 and expendable capable range, aircraft to perform RMC, RESCORT/RESCAP, approved LZ.

7. Air Evacuation (AE)

a. Purpose. To introduce day and NVD assault support tactical mission planning, briefing and execution. This stage of training is designed to fulfill the requirement set in MCT 6.2.2 Conduct Air Evacuation.

b. Crew Requirement. P/P/CC/AO.

ACAD-3510 1.0 * T CLSRM

NEO Execution Lecture

Goal. The PUI will have a familiarity with NEO Execution.

Required Reading. ANTTP 8.5.

Prerequisite. T2P

ACAD-3511 1.0 * T CLSRM

MOUT Lecture

Goal. The PUI will have a familiarity with MOUT.
Prerequisite. T2P

ACAD-3512 1.0 * T CLSRM

CASEVAC Lecture

Goal. The PUI will have a familiarity with CASEVAC.

Required Reading. ANTTP 8.5.

Prerequisite. T2P

AE-3530 3.0 240 T,R 2 MV-22B A (NS) SECLD

Goal. Introduce a medium threat air evacuation mission using a minimum of a section.

Requirement

(1) Discuss

(a) Alert postures/stand-by timelines.

(b) Objective area analysis/planning.

(c) Fire support coordination measures.

(d) Tactical airspace considerations.

(e) Escort considerations.

(f) FARP planning.

(g) Contingency planning.

(2) Introduce. Tactical planning, briefing, and execution of a air evacuation mission. The PUI will assist in the planning and the conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Accomplish the assigned mission.

Prerequisites. NSQ (NS-2384-2385), TG-2531, SMAT-2731, GTR-2832.

Ordnance. 600 7.62, 40 chaff, 50 flares.

External Syllabus Support. 7.62 and expendable capable range, approved LZ.

213. CORE PLUS SKILL PHASE

1. General. This phase addresses training in Core Plus Skill events. Prior to training in this phase a pilot should be complete with core skills training.

a. Stages. The following stages are included in the Core Plus Skill Phase of training.

(1) DCM

(2) CBRN

(3) AI/E

(4) TAC

(5) CQ

(6) MAT

(7) RGR

(8) RI/E (Mission Plus)

b. ROC will be per the T&R Program Manual.

c. Pilots may fly night flights using NVDs in this level under HLL or LLL conditions provided they are NSQ for that light level.

d. Refer to paragraph 216 for ACPM lectures required for this phase of training.

2. Defensive Combat Measures (DCM)

a. Purpose. To introduce and develop proficiency in tactics and aerial defensive measures used to evade enemy air-to-air threats.

b. General

(1) PUIs in this stage must be LAT qualified, and proficient.

(2) A DCMI is required for all non-proficient PUIs.

(3) The flight lead must be DCM qualified and specifically brief all applicable DCM training rules per the MV-22B NTTP Manual, the Aviation T&R Program Manual, and this Manual.

(4) After completion of DCM-4031 the PUI is DCM Qualified (DCMQ).

(5) The flight lead shall brief aggressor aircrew per Aviation T&R Program Manual and brief training rules prior to each flight.

(6) Sequences for all DCM flights shall be flown as outlined in the MV-22B ANTTP DCM Guide.

c. Crew Requirements. P/P for simulators, P/P/CC/AO for aircraft events.

ACAD-4010	1.0	*	T	CLSRM	WTI

Attack Helicopter Threat to Assault Support

Goal. The PUI will have an introductory knowledge specific attack helicopter threats to assault support aircraft.

Required Reading. AFTTP 3-1 threat helicopter chapter.

Prerequisite. LATQ

ACAD-4011	1.0	*	T	CLSRM	WTI

Fixed Wing Threat to Assault Support

Goal. The PUI will have an introductory knowledge of the fixed wing threat to assault support.

Required Reading. AFTTP 3-1 fixed wing threat chapter.

Prerequisite. LATQ

ACAD-4012	1.0	*	T,R	CLSRM	DCMI

Defensive Combat Maneuvers

Goal. The PUI will have an introductory knowledge of MV-22B Defensive Combat Manuevers.

Required Reading. ANTTP Ch 15, T&R Program Manual paragraph 312.1 and 312.4

Prerequisite. GTR-2832.

LAB-4020	0.5	*	T,R	CLSRM	DCMI

Defensive Combat Maneuver Walk-through

Goal. The PUI will have an satisfactory knowledge of MV-22B defensive combat maneuvers prior to inflight execution.

Required Reading. ANTTP Appendix B.

Prerequisite. ACAD-4012.

SDCM-4030	2.0	365	T, R	2	FFS/FTD	S	TEN+		DCMI

Goal. Introduce DCM against a FW aggressor.

Requirement

(1) Discuss

(a) Crew comfort level.

(b) Lookout doctrine.

(c) Common terminology.

(d) Situational awareness.

(e) Closure rate, radius of turn and energy state.

(f) FW weapons parameters and considerations.

(g) DCM training rules.

(h) DCM line numbers.

(i) Tactical formation maneuvering versus a FW aggressor.

(2) Introduce. Tiltrotor DCM versus a single FW aggressor per the MV-22B ANTTP Manual.

(3) Review. Intraplane and interplane communication.

Performance Standards

(1) Execute proper DCM vs a FW threat IAW the MV-22B ANTTP Manual.

(2) Maintain DCM ROC IAW the Aviation T&R Program Manual.

Prerequisites. LATQ, GTR-2832, LAB-4020

DCM-4031	2.0	365	T, R	2	MV-22B	A			DCMI

Goal. Introduce section DCM against a FW aggressor.

Requirement

(1) Discuss

(a) Lookout doctrine.

(b) Situational awareness.

(c) Adversary aircraft parameters.

(d) Adversary weapons parameters, envelopes, and considerations.

(e) Mutual support.

(2) Demonstrate/Introduce

(a) Tiltrotor DCM versus a single FW aggressor per the MV-22B ANTTP Manual.

(b) DCM line numbers in accordance with the MV-22B ANTTP.

(c) Aggressor attacks at various altitudes.

Performance Standards

(1) Execute proper DCM vs a FW threat IAW the MV-22B ANTTP Manual.

(2) Maintain DCM ROC IAW the Aviation T&R Program Manual.

Prerequisites. SDCM-4030.

Ordnance. 60 flares.

External Syllabus Support. FW adversary, ACM range space.

3. Chemical, Biological, Radiological and Nuclear (CBRN)

a. Purpose. To introduce the AR-5 CBRN protective mask and associated CBRN equipment.

b. General. For safe execution of all flights, 1 pilot shall remain unmasked during flights in the aircraft.

c. Crew Requirement. P/P.

LAB-4120 0.5 * T CLSRM

CBRN Equipment Fitting and Familiarization

Goal. The PUI is introduced to CBRN protective equipment and is fitted with the required gear for flight operations.

Required Reading. NATIP CBRN Chapter.

Prerequisite. T2P

SCBRN-4130 1.0 * T FFS/FTD S

Goal. Demonstrate the ability to conduct flight in an CBRN environment with mask and gear donned during day conditions.

Requirement

(1) Discuss

(a) CRM while masked, to include emergency procedures and ground handling signals.

(b) Mask limitations pertaining to vision and scan.

(c) Physiological limitations and fatigue factors imposed by CBRN protective equipment.

(d) Mask maintenance and factors that render the mask unserviceable.

(2) Demonstrate. Proper mask use (donning and doffing).

(3) Introduce

(a) CBRN defensive suit.

(b) Start while masked.

(c) Taxi while masked.

(d) Takeoff and landings while masked.

(e) Normal flight operations while masked.

Performance Standards

(1) Properly don CBRN protective equipment and conduct flight maneuvers.

(2) Demonstrate knowledge of CBRN operations IAW the MV-22B ANTTP Manual.

Required Reading. NATOPS 2.11, NAVAIR 00-80T-121

Prerequisites. SCAL-2132, LAB-4120.

SCBRN-4131	1.0	365	T,R	FFS/FTD	S	NS

Goal. Demonstrate the ability to conduct flight in an CBRN environment with mask and gear donned during NVD conditions.

Requirement

(1) Discuss

(a) NVD limitations pertaining to vision and scan.

(b) CRM while wearing the mask and NVDs.

(2) Demonstrate. Proper mask use (donning and doffing).

(3) Introduce

(a) CBRN defensive suit.

(b) Start while masked.

(c) Taxi while masked.

(d) Takeoff and landings while masked.

(e) Normal flight operations while masked.

Performance Standards

(1) Properly don CBRN protective equipment and conduct flight maneuvers with NVDs.

(2) Demonstrate knowledge of CBRN operations IAW the MV-22B ANTTP Manual.

Prerequisites. SNS-2330, SCBRN-4130.

4. Alternate Insertion/Extraction Techniques (AI/E)

a. Purpose. To develop proficiency in Tiltrotor alternate insertion and extraction techniques and procedures.

b. General. Initial AIE-4230 through AIE-4233 shall be conducted during the day. Subsequent execution of AIE-4230 through AIE-4233 may be conducted at night. Pilots shall be NSQ for the appropriate light level if conducting AIE-4230 through AIE-4233 using NVDs. AIE-4234 shall not be conducted at night.

c. Crew Requirement. P/P/CC.

ACAD-4210 0.5 * T CLSRM

Aerial Delivery / PARAOPS

Goal. The PUI will have an introductory knowledge of procedures to execute aerial delivery and PARAOPS from the MV-22B.

Required Reading. ANTTP 8.9, Ch 10.

Prerequisite. T2P

ACAD-4211 0.5 * T CLSRM

Fastrope, Rappel, SPIE, Hoisting Operations

Goal. The PUI will have an introductory knowledge of procedures to execute Fastrope, Rappel, SPIE, and hoisting operations from the MV-22B.

Required Reading. NATOPS 9.7 - 9.8, ANTTP Ch 11.1 - 11.5, 11.7.

Prerequisite. T2P

ACAD-4212 0.5 * T CLSRM

Helocast Operations

Goal. The PUI will have an introductory knowledge of procedures to execute Helocast from the MV-22B.

Required Reading. ANTTP 11.6.

Prerequisite. T2P

AIE-4230 1.5 365 T,R 1 MV-22B A (NS)

Goal. Introduce aerial delivery of cargo procedures.

Requirement

(1) Discuss

(a) CRM during aerial deliveries.

(b) Voice communication/standard terminology during aerial deliveries.

(c) Tactical considerations for aerial delivery of cargo.

(d) Proper rigging and preflight of equipment to be inserted by aerial delivery.

(2) Introduce. Insertion of cargo by aerial delivery.

Performance Standards

(1) Execute airdrop procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during airdrop operations.

Prerequisites. CAL-2133, ACAD-4210

External Syllabus Support. Aerial Delivery Platoon, CMS bundle.

AIE-4231 1.5 365 T,R 1 MV-22B A (NS)

Goal. Introduce PARAOPS procedures.

Requirement

(1) Discuss

(a) CRM during PARAOPS.

(b) Voice communication/standard terminology during PARAOPS.

(c) Tactical considerations for aerial delivery of troops.

(2) Introduce. PARAOPS.

Performance Standards

(1) Execute PARAOPS procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during PARAOPS operations.

Prerequisites. CAL-2133, ACAD-4210

External Syllabus Support. Jumpmaster, qualified troops.

AIE-4232 1.5 365 T,R 1 MV-22B A (NS)

Goal. Introduce conduct of SPIE Rig.

Requirement

(1) Discuss

(a) HIGE/HOGE requirements.

(b) CRM. Pilots, crew chief, RST Master and RST Safety Observer brief together.

(c) Voice communication/standard terminology.

(d) ICS failures/hand and arm signals.

(e) Current Force Order/Wing SOP.

(f) Obstacle clearance.

(g) Emergency procedures.

(2) Introduce

(a) Inspection of SPIE Rig.

(b) Skills involved for holding extended hover.

(c) Troop insertion/extraction via SPIE Rig.

Performance Standards

(1) Maintain stable hover when extracting/inserting troops.

(2) Execute proper SPIE procedures IAW the MV-22B ANTTP Manual.

Prerequisites. EXT-2632, EXT-2634 (if done at night), ACAD 4211.

External Syllabus Support. Ropemaster, qualified troops.

AIE-4233 1.5 365 T,R 1 MV-22B A (NS)

Goal. Introduce insertion procedures via fast rope, rappel or hoisting.

Requirement

(1) Discuss

(a) HIGE/HOGE requirements.

(b) Pilot flying, pilot monitoring, and crew chief duties.

(c) RST brief.

(d) Voice communication/standard terminology.

(e) ICS failure/hand and arm signals.

(f) Current Force Order/Wing SOP.

(g) Obstacle clearance/wave-off.

(h) Hoist system operation.

(i) Emergency procedures: Engine failure, uncommanded nacelle movement, nacelle blower failure.

(2) Introduce

(a) Preflight of fast rope/rappel rigging and hoist system.

(b) Skills involved for holding an extended hover.

(c) Troop insertion via fast rope/rappelling/hoisting.

Performance Standards

(1) Maintain stable hover when deploying troops.

(2) Execute proper AIE procedures IAW the MV-22B ANTTP Manual.

(3) Maintain obstacle clearance.

Prerequisites. EXT-2632, EXT-2634 (if done at night), ACAD 4211.

External Syllabus Support. Ropemaster, qualified troops.

AIE-4234 1.5 365 T,R 1 MV-22B A

Goal. Introduce aerial insertion of troops and equipment via helo cast and/or soft duck (deflated rubber boat) and introduce SAR operations.

Requirement

(1) Discuss

(a) CRM while performing helo cast or soft duck.

(b) Proper rigging and preflight of equipment to be inserted via helo cast and soft duck.

(c) Low altitude aircraft emergencies over water.

(d) Ditching/water landing.

(e) Salt encrustation/compressor stall.

(f) Helo cast/soft duck aerial delivery altitudes and airspeeds.

(g) Voice communications/standard terminology.

(h) Flight Director search patterns.

(2) Introduce

(a) Insertion of troops and equipment by helo cast or soft duck.

(b) Preflight of aircraft, troops and equipment for helo cast or soft duck.

(c) SAR patterns and over-water hoisting operations.

Performance Standards

(1) Execute helo cast or soft duck procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during helo cast or soft duck operations.

Prerequisite. CAL-2133, EXT-2632, ACAD-4212.

External Syllabus Support. Castmaster, qualified troops.

5. Tactics (TAC)

a. Purpose. To introduce day and/or NVD high threat tactical mission planning, briefing and execution.

b. General

(1) Initial tactics flight events 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. A Tactical Simulation Instructor (TSI) is required to build and run the scenario in the Tactical Environment Network. To the greatest extent possible the scenarios should incorporate the employment of escort aircraft (fixed or rotary wing), ASE (ALE-47, APR-39, etc.) and use of the defensive gun.

(2) Discuss items for each event in this stage are designed to be the focus of scenario-based training for planning and execution, not necessarily for discussion during individual cockpit briefs. However, this does not preclude these items from being discussed during cockpit briefs.

(3) Specific planning responsibilities should be delegated to PUIs in order to obtain a broad exposure to mission planning.

(4) Initial flights will be instructed by a designated section leader.

c. Crew Requirement. P/P.

STAC-4330	2.0	365	T,R	2	FFS/FTD	S	TEN+	SECLD

Goal. Introduce an assault support mission in a high threat environment using a minimum of a section.

Requirement

(1) Discuss

(a) ACE and GCE coordination during mission planning.

(b) Immediate re-embarkation/emergency extract.

(c) Definition of high threat per the Aviation T&R Program Manual.

(d) Onboard navigation systems.

(e) CBRN considerations as required for the tactical scenario.

(2) Introduce. Tactical planning, briefing, and execution of a high threat mission during the day. The PUI will assist in the planning and conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Properly employ available escorts versus the threat.

(5) Demonstrate proper knowledge of tactical considerations IAW the MV-22B ANTTP Manual.

Prerequisites. AS-3230, AS-3231

STAC-4331	2.0	365	T,R	3	FFS/FTD	S	TEN+	NS	SECLD

Goal. Introduce an assault support mission in a high threat environment using a minimum of a division.

Requirement

(1) Discuss

(a) High threat escort considerations.

(b) Immediate re-embarkation/emergency extract.

(c) NVD mission planning.

(d) Onboard navigation systems.

(e) ASE use at night.

(f) NS CBRN considerations as required for the tactical scenario.

(2) Introduce. Tactical planning, briefing, and execution of a high threat mission during the night. The PUI will assist in the planning and conduct of the tactical brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Properly plan the use of available escorts versus the threat.

(5) Demonstrate proper knowledge of NVD tactical considerations IAW the MV-22B ANTTP Manual and MAWTS-1 NVD Manual as applicable for the mission.

Prerequisites. AS-3230, AS-3231.

6. Carrier Qualification (CQ)

a. Purpose. Qualify the PUI in flight operations from a carrier deck or ship platform under night unaided conditions.

b. General

(1) Refer to the LHA/LHD/MCS NATOPS Manuals for carrier operations. Refer to NWP-42 for air capable ship operations.

(2) IPs will emphasize proper communication procedures, patterns, and aviation operations in the shipboard environment per aircraft and ship NATOPS, and T&R Program Manual.

c. Crew Requirement. P/P/CC.

SCQ-4430	1.0	365	T,R	1	FFS/FTD	S	N*

Goal. Introduce night unaided CQ pattern and procedures.

Requirement

(1) Discuss. Any previously discussed/introduced CQ item.

(2) Introduce

(a) Carrier operation.

1 Takeoff/landing patterns (minimum of 5 for initial events).

2 Communication procedures.

3 Lights and light signals.

4 LSE signals and procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up side slip characteristics.

(e) Steady heading approach (port winds).

(f) Balanced flight approach.

(g) 45° slide approach (starboard winds).

Performance Standards

(1) Demonstrate proper knowledge of night unaided shipboard procedures IAW the LHA/LHD/MCS NATOPS, and NWP-42.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide night unaided approaches.

(3) Maintain proper closure rate during approaches.

Prerequisites. SCQ-2930.

CQ-4431	1.0	365	T,R	1	MV-22B	A	N*	

Goal. Introduce night unaided CQ patterns and procedures in a FCLP scenario.

Requirement

(1) Discuss

(a) Differences and similarities of day and night landing and takeoff techniques.

(b) Review CQ-2931 discussion items.

(2) Introduce

(a) Carrier operation.

1 Night takeoff/landing patterns (minimum of 5 for initials).

2 Communication procedures.

3 Lights and light signals peculiar to night operations.

4 LSE signals and procedures.

5 Carrier aided and unaided lighting configurations.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up side slip characteristics.

(e) Steady heading approach (port winds).

(f) Balanced flight approach.

(g) 45° slide approach (starboard winds).

(h) Shipboard INS alignment procedures.

Performance Standards

(1) Properly execute the night unaided CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45° slide night unaided approaches.

(3) Maintain proper closure rate during night unaided approaches.

Prerequisites. CQ-2931, SCQ-4430

External Syllabus Support. FCLP area.

CQ-4432	1.5	365	T,R	1	MV-22B	A		N*

Goal. Night unaided qualification flight.

Requirement

(1) Discuss

(a) Aircraft ditching.

(b) Emergency egress procedures.

(2) Introduce

(a) Procedures for unaided landings and takeoffs.

(b) Night unaided patterns (minimum of 5 for initials).

(c) Unaided approaches and landings.

(d) Aircraft lighting configuration.

(e) Deck lighting configuration.

(f) Unaided closure rates.

(3) Review

(a) CRM.

(b) Emergency Egress Lighting System (EELS).

(c) LSE signals.

(d) Voice procedures.

Performance Standards

(1) Properly execute the night unaided CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Maintain proper glide slope for steady heading, balanced flight, and 45º slide night unaided approaches.

(3) Maintain proper closure rate during night unaided approaches.

Prerequisites. CQ-2932, CQ-4431.

External Syllabus Support. Landing platform afloat.

7. Mountain Area Training (MAT)

a. Purpose. To develop proficiency in day and NVD mountainous terrain operations. Landings should be conducted at zones above 6,000'.

b. Crew Requirement. P/P/CC.

MAT-4530	1.5	365	T,R	1	MV-22B	A

Goal. Introduce operations and landings in mountainous terrain.

Requirement

(1) Discuss. Any previously discussed MAT item.

(2) Introduce

(a) Mountainous area operations.

(b) Pinnacle landings.

(c) Slope landings.

(d) Landings and operations in valleys and canyons.

(e) Crosswind landings.

(3) Review. CAL-2133.

Performance Standards

(1) Execute proper MAT procedures IAW the MV-22B ANTTP Manual.

(2) Execute up-slope/down-slope and cross-slope landings.

(3) Properly calculate power available and power required for high altitude LZs.

Prerequisites. CAL-2133, SMAT-2730.

MAT-4531 1.5 365 T,R 1 MV-22B A NS

Goal. Introduce NS operations and landings in mountainous terrain.

Requirement

(1) Discuss. Any previously discussed MAT item.

(2) Introduce

(a) NVD mountainous terrain operations.

(b) NVD CALs in mountainous areas.

(3) Review. NS-2331.

Performance Standards

(1) Execute proper NVD MAT procedures IAW the MV-22B ANTTP Manual.

(2) Execute up-slope/down-slope and cross-slope NVD landings.

(3) Properly calculate power available and power required for high altitude LZs.

Prerequisites. SMAT-2731, MAT-4530, NSQ for the appropriate light level.

7. Rapid Ground Refueling (RGR)

a. Purpose. To introduce day and night rapid ground refueling and FARP procedures.

b. Crew Requirement. P/P/CC/AO.

ACAD-4610 1.0 * T,R CLSRM

MV-22B Rapid Ground Refueling and FARP Lecture

Goal. The PUI will have an introductory knowledge of the MV-22B Rapid Ground Refueling equipment and FARP setup.

Required Reading. NATOPS 9.11, ANTTP Ch 12

Prerequisite. T2P

LAB-4620 2.0 * T 1 MV-22B A

Rapid Ground Refueling Lab

Goal. The PUI will have an introductory knowledge of the set-up of an MV-22B RGR site.

Prerequisite. ACAD-4610.

RGR-4630	0.5	365	T,R	1	MV-22B	A	(NS)	

Goal. Introduce an RGR mission.

Requirement

(1) Discuss

(a) RGR site evaluation and selection.

(b) Fuel planning.

(c) RGR site security considerations.

(d) Ordnance and arming considerations.

(e) FARP site aircraft control considerations.

(f) Command and control considerations.

(2) Introduce. Tactical planning, briefing, and execution of an RGR mission during day or night. The PUI will assist in the planning and conduct of the RGR brief.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Safely control all aircraft through the RGR site.

(3) Provide fuel and/or ordnance as required to receivers.

Prerequisites. CAL-2133, NS-2331, NS-2381 (if LLL), RGR-4620.

External Syllabus Support. Approved site for refueling operations, receiver.

8. Rapid Insertion/Extraction Mission (RI/E)

a. Purpose. To demonstrate proficiency in Tiltrotor rapid insertion and extraction techniques and procedures. This stage of training is designed to fulfill the requirement set in MCT 1.3.4.1.1 Conduct Airborne Rapid Insertions / Extraction.

b. General. Initial RIE-4730 may be conducted day or night. Pilots shall be complete in the appropriate AIE skill prior to conducting RIE-4730 and NSQ for the appropriate light level if conducting RIE-4730 using NVDs.

c. Crew Requirement. P/P/CC/AO.

RIE-4730	2.5	365	T,R	1	MV-22B	A	(NS)	SECLD

Goal. Demonstrate the ability to execute rapid insertion / extraction operations in a tactical environment.

Requirement

(1) Discuss

(a) CRM during AIE.

(b) Tactical considerations for applicable AIE mission.

(2) Review

(a) Appropriate AIE skill.

Performance Standards

(1) Execute AIE procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during AIE operations.

(3) Complete the assigned mission.

Prerequisites. Appropriate AIE skill proficient.

External Syllabus Support. Jumpmaster/Castmaster/HRST Master, qualified troops.

214. INSTRUCTOR TRAINING PHASE (5000)

1. General. This phase addresses instructor training.

a. Stages. The following stages are included in the Instructor Training Phase.

(1) BIP

(2) FIT

(3) FLSE

(4) AARI

(5) TSI

(6) LATI

(7) NSFI

(8) DCMI

(9) NSI

(10) WTI

b. ROC will be per the T&R Program manual.

c. Pilots may flight night flights using NVDs in this level under HLL or LLL conditions provided they are NSQ for that light level.

d. Refer to paragraph 216 for ACPM lectures required for this phase of training.

2. Basic Instructor Pilot Training

a. Purpose. To develop qualified Basic Instructor Pilots (BIPs) using a standardized instructor training program. This syllabus is designed to prepare future aircraft commanders to instruct specific Core Skill events in the simulator and aircraft. This portion of the syllabus shall be used by VMM squadrons to assist in instructor standardization.

b. General

(1) All maneuver descriptions are in the MV-22B NATOPS and the MV-22B ANTTP Manual.

(2) Conduct Instructor Under Training (IUT) events with a designated Section Leader proficient in the event.

(3) IUT flights will emphasize instructional techniques, briefing, and debriefing. The IUT will be capable of demonstrating all training objectives listed for the referenced syllabus flight. Emphasis on all flights is on training objectives, method of instruction, and student problem areas.

c. Crew Requirements. P/P for simulators.

ACAD-5010	4.0	*	T,R			CLSRM				

Basic Flight Instructor Course

Goal. The PUI will have an introductory knowledge of instructional techniques, briefing and debriefing styles, and tactical risk mitigation for instructional sorties.

Prerequisite. Recommended by the Squadron Standardization Board.

SBIP-5030	2.0	*	T,R	E	1	FFS/FTD	S	E		SECLD

Goal. Introduce Familiarization, Confined Area Landing, and Formation instruction techniques.

Requirement

(1) Discuss

(a) All “discuss” items in the FAM, CAL, and FORM stage events with emphasis on IUT instructional technique.

(b) Comfort level.

(c) Simulator preparation for a networked event

(2) Review. All FAM, CAL, and FORM stage maneuvers with emphasis on instructional technique.

Performance Standards

(1) Execute proper CAL approaches IAW MV-22B ANTTP Manual and provide accompanying inflight description.

(2) Provide accurate instruction on glide slope correction to achieve proper normal and steep approach glide slope.

(3) Maintain proper formation positioning while flying in combat cruise and combat spread

Prerequisites. ACAD-5010, FAM, CAL, FORM stage complete, and recommended by the Squadron Standardization Board.

SBIP-5031	2.0	*	T,R	E	1	FFS/FTD	S	E	SECLD

Goal. Introduce instructional techniques regarding external operations, mountain area training, and carrier qualification.

Requirement

(1) Discuss

(a) Simulator set-up for externals.

(b) All EXT, MAT, or CQ stage discuss item.

(2) Review. All EXT, MAT, and CQ stage maneuvers with emphasis on instructional technique.

Performance Standards

(1) Execute proper MAT approaches IAW MV-22B ANTTP Manual and provide accompanying inflight description.

(2) Provide accurate instruction on glide slope correction to and precision hover skills during external operations.

(3) Maintain proper glideslope and closure rate during CQs.

Prerequisite. ACAD-5010, EXT, MAT, and CQ stage complete, and recommended by the Squadron Standardization Board.

3. FRS Instructor/Contract Simulator Instructor Training

a. Purpose. To develop qualified FRS Instructor Pilots (IPs) and Contract Instructors (CIs) using a standardized instructor training program. This syllabus is designed to prepare FRS IPs to instruct Core Skill Introduction phase events in the simulator and aircraft and CIs to instruct Core Skill Introduction phase events in the simulator.

b. General

(1) The PUI must be a section leader prior to beginning this stage of training.

(2) Conduct Instructor Under Training (IUT) events with a designated Standardization Pilot.

(3) IUTs should fly in the right seat.

(4) CIs will complete all events in the simulator.

(5) For CV-22 to MV-22B conversion pilots, the syllabus events will emphasize the CV/MV differences, focus on the NAVMC training policies, and emphasize common student problem areas. Upon completion of the CV-22 to MV-22B differences portion of the FRS IP Syllabus, Instrument evaluation, and NATOPS evaluation, the FRS Commanding Officer may designate the PUI as an MV-22B Aircraft Commander.

(6) Completion of an IUT event will qualify an instructor to instruct that phase of training.

(7) Completion of SFIT-5146 qualifies CIs to instruct the Core Skill Introduction phase simulator LAT event.

(8) Completion of the simulator portion of the MV-22B NSFI syllabus in accordance with the MAWTS-1 Course Catalog qualifies CIs to instruct Core Skill Introduction simulator NS events. IPs shall be designated an NSI or NSFI prior to instructing Core Skill Introduction NS events.

(9) Prerequisites listed with each event apply to the IP syllabus.

(10) All FRS instructor pilots and Contract Instructors will complete the FIT syllabus beginning with ACAD-5111. ACAD-5110 through FIT-5136 is designed for CV-22 conversion pilots.

c. Training Objectives. All IUT flights emphasize instructional techniques, briefing, and debriefing. The IUT will be capable of demonstrating all training objectives listed for the referenced syllabus flight. Emphasis on all flights is on training objectives, method of instruction, and student problem areas. At the completion of this stage of training, the FRS IP will be qualified to instruct Core Skill Introduction events in the aircraft and simulator and CIs will be qualified to instruct corresponding Core Skill Introduction events in the simulator.

d. Crew Requirements. P/P for simulators, P/P/CC if flown in aircraft.

ACAD-5110	1.0	*	CV		CLSRM			OPS

CV-MV Pilot Stage Inbrief

Goal. The PUI will have an introductory knowledge of the CV-22 to MV-22 syllabus and expectations.

SFIT-5130	2.0	*	CV	1	FFS/FTD	S	N*	FAMI

Goal. Review FAM maneuvers (day and night)and Course Rules.

Requirement

(1) Discuss

(a) Local course rules.

(3) Review

(a) Hover Nacelle Drills.

(b) Air Taxi Nacelle Drills.

(c) CONV pattern.

(d) Normal Approach.

(e) Steep Approach (standard/nose low).

(f) Airplane mode pattern.

(g) Emergency Landing Pattern.

(4) Emergencies

(a) Single engine failure.

(b) Dual engine failure.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(2) Be able to state indications, execute/recite memorized items, exercise proper crew coordination, and maintain control of the aircraft during simulated emergency procedures.

Prerequisite. ADL-0001, LAB-0200, ADL-0012, ADL-0014, ACAD-0109, LAB-1020, ACAD-5110.

SFIT-5131	2.0	*	CV	1	FFS/FTD	S	NAVI

Goal. Practice day VFR navigation (no lower than 500 feet AGL) utilizing the aircraft navigation system, the flight director system, and the aircraft mission management system, to arrive at the objective(s). Review the use of Flight Director commands, coupled modes, and AUTO NAC during enroute and APPR flight.

Requirement

(1) Preflight preparation.

(a) Operate the mission planning station and the VMPS program.

(b) Plan the route as assigned.

(c) Add, edit, and delete the Aircraft Load as necessary.

(d) Calculate and print a Load Comp Form.

(e) Calculate aircraft CG and print DD-365-F.

(f) Add an appropriate waypoint set to the mission binder. Add an appropriate Comm Plan to the mission binder. Write the mission to the DTM.

(g) Develop appropriate graphics for route brief.

(h) Print kneeboard cards.

(2) Discuss

(a) Conduct route preflight brief (conduct of flight portion of PCL).

(3) Review

(a) Flight director commands and coupled modes.

1 Core modes, INAV, APPR.

(b) Activate and display a coupled approach (APPR) leg.

(c) Utilize the aircraft navigation/CMS to execute assigned mission.

(d) Preflight NAV/CMS/MMS.

(e) Flight Plan (FPLN) Management.

(f) DDMS Operation.

(g) Utilize CRM during VFR navigation.

Performance Standards

(1) Accurately conduct mission preflight planning utilizing the mission planning station and VMPS.

(2) Accurately operate MSN Data Load, WYPT, FPLN, INAV, and MSN key functionality.

(3) Execute a navigation route maintaining orientation +/- 1 nautical mile enroute; +/- 500 meters in the objective area; and landing in the objective within +/- 1 minute.

(4) Properly activate and operate the DDMS and the Flight Director during VFR navigation.

(5) Utilize CRM principles.

Prerequisite. SFIT-5130

SFIT-5132	2.0	*	CV	1	FFS/FTD	S		CALI

Goal. Review the fundamental elements of tactical inserts and extracts, the RVL profile, and use of FLIR.

Requirement

(1) Discuss

(a) Pitch up side slip characteristics.

(b) Hover CPLD.

(c) Augmented hover landings.

(d) RVL Profile.

(e) Digital Map.

(f) Scan, MFD set up, aids and automation.

(g) CAL application of FLIR.

(2) Review

(a) CONV CAL Patterns.

(b) APLN tactical entries.

(c) Waveoff.

(d) RVL Profile (min 2).

(e) Jump Takeoff.

(3) Emergencies

(a) Single Engine failure.

(b) Single Engine Waveoffs.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM.

(2) Recognize proper glide slope for CAL approaches.

(3) Recognize criteria and execute wave off.

(4) Recognize indications and execute required memory items, know associated warnings, and exercise proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. SFIT-5131

SFIT-5133	2.0	*	CV	1	FFS/FTD	S	(N)	INSTI

Goal. Conduct IFR Flight operations. Introduce operation of Flight Director Commands and the Mission Management systems. A complete flight shall be conducted including: flight planning, filing, clearance, departure, enroute/cruise, descent, and instrument approaches.

Coordination. IP shall designate a departure and destination location where training is to be conducted. The IP shall issue to the PUI appropriate information for preflight

planning; including a DD-175-1, appropriate NOTAMS, and an aircraft load.

Preflight Planning. PUI will conduct all appropriate preflight planning to include: completed DD-175, loading flight plan, waypoint set, comm plan, and at least one drawing file of a special use airspace on a DTM.

Requirement

(1) Discuss

(a) VMPS flight planning.

1 Flight plan flies loaded to the DTM.

(b) Flight Plan/DD-175.

1 Aircraft Designation/TD Code.

2 Route, altitude, CAS vs TAS.

3 MV-22B Minimum fuel requirements.

4 Alternate airfield selection.

(c) Flight Director operation and limitations.

1 Pre-takeoff preparation.

2 During takeoff and departure.

3 During the enroute and descent.

4 During the instrument approach.

5 Aircrew coordination.

(d) Standard Terminal Arrivals. (STAR)

(e) Approach criteria for Multi-piloted aircraft.

(f) Closing of the Flight Plan.

(2) Review

(a) Takeoff/Departure Phase.

(b) Enroute procedures Phase.

(c) Descent/Arrival Phase.

(d) Non Precision Approaches.

(e) Precision Approaches.

(f) Missed approach procedures.

Performance Standards

(1) Accurately conduct preflight planning and complete required documents to conduct an IFR flight.

(2) Conduct all maneuvers IAW MV-22B Flight Training Manual.

(3) Execute Pilot Not Flying duties IAW with the MV-22B Flight Training Manual.

(4) Accurate and timely use of the Flight Director Cues, Commands, and Coupled modes for IMC flight.

Prerequisite. SFIT-5131

FIT-5134	3.0	*	CV	1	MV-22B	A		FAM/CALI

Goal. Review FAM maneuvers and CAL procedures/patterns to include tactical approaches.

Requirement

(1) Discuss

(a) Major aircraft systems/differences.

(b) Effects of Saturating Control Power.

(c) Trim System.

(d) Failures Leading to the Loss of Flapping Control, Limiting, Cueing Functions.

(e) TAC aircraft signing procedures.

(f) MAF procedures.

(g) HOTSEAT procedures.

(3) Review

(a) STO and RTO.

(b) APLN/CONV pattern.

(c) Hover and No-hover landings.

(d) ROL.

(e) Steep approach/nose low steep approach.

(f) MGW takeoffs and landings.

(g) Slow flight in airplane mode.

(h) High AOB (APLN Mode).

(i) Practice power on/off stalls.

(j) Overhead Break Entry.

(k) CONV CAL Pattern.

(l) Straight in Tactical entry.

(m) RVL profile.

(n) Augmented Cpld Hover.

(o) 90 degree Tactical entry.

(p) 180 degree Tactical entry.

(q) PF and PNF callouts.

(4) Emergencies

(a) Any major system EP.

Performance Standards

(1) Conduct all maneuvers IAW MV-22B FTM and ANTTP.

(2) Recognize indications and execute required memory items, know associated warnings, and exercise proper crew coordination during simulated emergency procedures and system failures.

Prerequisite. SFIT-5130, SFIT-5132

SFIT-5135	2.0	*	CV	2 FFS/FTD	S	TEN+	FORMI

Goal. Review formation flight, introduce sections landings to an LZ and IIMC procedures.

Requirement

(1) Discuss

(a) Cruise position and visual reference points.

(b) Considerations of close formation, closure rates and situational awareness.

(c) Lost Communication Procedures.

(2) Review

(a) Section takeoff.

(b) Section STO.

(c) Running/Carrier rendezvous.

(d) Cruise position.

(e) Cross-over/cross-under.

(f) Turn patterns (CONV and APLN).

(g) Over-run or under-run.

(h) Breakup and rendezvous.

(i) Formation Transition and Conversion.

(j) Lead changes.

(k) Section landings to a large LZ (min of 2 as a wingman).

(3) Emergencies.

(a) IIMC breakup and rejoin (CONV and APLN).

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual and NATOPS.

Prerequisite. SFIT-5132

FIT-5136	2.0	*	CV	2	MV-22B	A	FORMI

Goal. Review formation flight and procedures in the aircraft.

Requirement

(1) Discuss

(a) Cruise positions and appropriate reference points.

(b) Formation aborts and waveoffs.

(2) Review

(a) Section STO.

(b) Section takeoff.

(c) Running/Carrier rendezvous.

(d) Cruise position.

(e) Cross-over/cross-under.

(f) Turn patterns (CONV and APLN).

(g) Over-run/under-run.

(h) Breakup and rendezvous.

(i) Formation Transition and Conversion (min of 2 of each as a wingman).

(j) Lead changes.

(k) Section landings to runway or large LZ (min 3 as a wingman).

(l) TAC signing procedures.

(3) Emergencies

(a) IIMC breakup and rejoin (CONV and APLN).

Performance Standards

(1) Conduct all maneuvers IAW MV-22B Flight Training Manual and NATOPS.

Prerequisite. FIT-5134, SFIT-5135

ACAD-5111 16.0 * T,R,CI,CV CLSRM

Basic Flight Instructor Course

Goal. The PUI has an introductory knowledge of instructional techniques, briefing and debriefing styles, and defensive positioning for instructional sorties.

Prerequisite. Recommended by the Squadron Standardization Board

FIT-5140 2.0 * T,R,CI,CV E 1 MV-22B A/S STANI

Goal. Introduce the IP brief and demonstrate standardized procedures for flight planning, preflight, and all day FAM stage maneuvers.

Requirement. IP and IUT will discuss preflight and post-flight pilot briefings. IUT will observe preflight, cockpit procedures, techniques of instruction, and local course rules. Instructors shall emphasize the ability to teach, evaluate problems, and apply corrective instruction.

(1) Review (at a minimum)

(a) Ground Taxi.

(b) Hover and Air Taxi.

(c) Normal Landing Pattern and Approach.

(d) No Hover Landing.

(e) Steep Approach.

(f) STO and Transition to Airplane Mode on Takeoff.

(g) Airplane Mode Pattern.

(h) Running landing.

(i) Level Transition and Conversion.

(j) High AOB in Airplane Mode.

(k) Use of Flight Director for cuing and commands.

(l) Power off stall.

Performance Standards

(1) Successfully describe all FAM maneuvers IAW MV-22B Flight Training Manual.

(2) Successfully execute all FAM maneuvers IAW MV-22B Flight Training Manual with accompanying in-flight description.

Prerequisites. Section Leader.

FIT-5141	1.0	*	T,R,CI,CV	E	1	MV-22B	A/S	N*	STANI

Goal. Review familiarization stage maneuvers at night.

Requirement. IUT will discuss all items and perform all maneuvers in the night familiarization stage events with emphasis on IUT instructional technique.

Performance Standards

(1) Successfully describe all FAM maneuvers and night considerations IAW MV-22B Flight Training Manual.

(2) Successfully execute all night FAM maneuvers IAW MV-22B Flight Training Manual with accompanying inflight description.

Prerequisites. FAM-5140

SFIT-5142	2.0	*	T,R,CI,CV	E	1	FFS/FTD	S/A	(N)	STANI

Goal. Review basic instrument, IFR planning, filing, airway navigation, and instrument approach procedures.

Requirement

(1) Discuss

(a) IFR planning.

(b) Filing a DD-175.

(c) Airway procedures.

(d) Precision/non-precision approaches.

(2) Review

(a) Instrument checklist.

(b) Attitude instrument flight.

(c) Standard rate climbing and descending turns.

(d) Recovery from unusual attitudes.

(e) Vertical S-1 pattern.

(f) Oscar pattern.

(g) Fly a minimum of 1 precision and 1 non-precision approach.

Performance Standards

(1) Successfully describe BI maneuvers, IFR Planning, filing, airways navigation, and instrument approach procedures IAW MV-22B Flight Training Manual and NATOPS Instrument Flight Manual.

(2) Execute BI maneuvers, airways navigation, and instrument approaches IAW MV-22B Flight Training Manual and NATOPS Instrument Flight Manual with accompanying in-flight description.

Prerequisites. Section Leader.

FIT-5143	1.5	*	T,R,CI,CV	E	1	MV-22B	A/S	STANI

Goal. Review CAL instruction techniques.

Requirement

(1) Discuss

(a) All “discuss” items in the CAL stage events with emphasis on IUT instructional technique.

(b) Comfort level.

(2) Review. All CAL stage maneuvers with emphasis on instructional technique.

Performance Standards

(1) Execute proper CAL approaches IAW MV-22B Flight Training Manual and provide accompanying inflight description.

(2) Provide accurate instruction on glide slope correction to achieve proper normal and steep approach glide slope.

Prerequisites. Section Leader.

SFIT-5144	1.5	*	T,R,CI,CV	E	1	FFS/FTD	S/A	STANI

Goal. Review navigational instructional techniques.

Requirement. Brief and fly a navigational flight introducing all onboard navigational equipment. Discuss all items and perform all maneuvers in the navigation stage events with emphasis on IUT instructional technique.

Performance Standards. Provide accurate flight instruction on navigation procedures and systems.

Prerequisites. Section Leader.

FIT-5145	1.5	*	T,R,CI,CV	E	2	MV-22B	A/S	STANI

Goal. Review formation instructional techniques, formation stage maneuvers and emphasize closure rates and radius of turn.

Requirement. Brief and fly a formation flight introducing all formation maneuvers. Discuss all items and perform all maneuvers in the formation stage events with emphasis on IUT instructional technique. Emphasize cruise turns and section CALs.

Performance Standards

(1) Successfully brief a formation flight to accomplish all formation maneuvers.

(2) Conduct formation maneuvers and section CALs IAW MV-22B Flight Training Manual and MV-22B ANTTP Manual.

Prerequisites. Section Leader.

SFIT-5146	2.0	*	CI	E	1	FFS/FTD	S	LATI

Goal. Demonstrate the ability to instruct LAT maneuvers in conversion and airplane modes and LAT navigation.

Requirement

(1) Discuss

(a) LAT “stair step” to lower altitudes (currency/comfort level).

(b) Power settling.

(c) Altitude effects with nacelle rotation.

(d) LAT turns vs stall speeds.

(e) Control laws.

(f) Use of FLIR/digital map (by PNAC).

(g) Crew comfort levels/climb to cope.

(h) Flight safety/emergencies/pilot's reduced reaction times at low altitudes.

(i) Standard terminology.

(j) Instructor Pilot, IUT and crew chief duties during LAT maneuvers and navigation.

(2) Review

(a) All LAT maneuvers in conversion and airplane mode.

(b) LAT navigation.

Performance Standards

(1) Successfully describe LAT maneuvers IAW MV-22B Flight Training Manual and MV-22B ANTTP Manual.

(2) Conduct LAT Maneuvers IAW MV-22B Flight Training Manual and MV-22B ANTTP Manual with accompanying inflight description.

(3) Navigate a LAT route of a minimum of 5 checkpoints instructing proper terminology, crew coordination, use of the digital map, use of the Flight Director, tactical flight considerations, and timing. Maintain planned course +/- 1,000 meters and arrive at the final checkpoint within 30 seconds of the planned time.

Prerequisites. FIT-5144

SFIT-5147 2.0 * T,R,CI,CV E 1 FFS/FTD S/A STANI

Goal. Review internal and external cargo operations. Demonstrate the standardized procedures for conducting day CONV/APLN external and internal cargo operations and simulator setup. Perform a minimum of five internal arrivals and departures and five external hookups and releases.

If flown in the aircraft vice simulator, the flight is incomplete until the EXT-IUT receives standardized training in the simulator on proper device setup and operation ISO external operations.

Requirement

(1) Discuss

(a) Simulation set-up and limitations.

(b) VMMT-204 Flight SOP IRT externals.

(c) External stage performance standards.

(d) Performance charts.

(e) Effect of wind on hover mast torque required.

(f) CG considerations and calculations

(g) Interim power considerations.

(h) VMPS and MMS considerations.

(i) Load stability.

(j) Hook release system.

(k) Common student tendencies

(2) Review

(a) Power Checks.

(b) Max gross internal/ external cargo operations.

1 VTOL/ STO/ RTO.

(c) Approach to pickup zone.

(d) External cargo hookup.

(e) Approach and cargo release procedures.

(f) Wave-off considerations for internal/external loads.

(g) Departures from pickup zone.

(h) Use of FLIR.

(3) Emergencies

(a) Cargo jettison criteria and procedures.

(b) Emergency procedures with external loads.

(c) Engine Failures.

(d) Emergency egress considerations with internal loads.

(e) Loss of ICS.

Performance Standards

(1) Successfully describe all maneuvers IAW MV-22B Flight Training Manual.

(2) Execute all maneuvers IAW MV-22B Flight Training Manual.

(3) Successfully conduct 5 internal arrivals and departures and 5 external hookups and releases.

Prerequisite. Section Leader, FIT-5143

FIT-5148	2.0	*	T,R,CI,CV	1	MV-22B	A		(N)	STANI

Goal. Stan Pilot check flight.

Requirement. Instructors shall evaluate the prospective Stan Pilot in all previously introduced stages of instruction for standardized flight procedures and instrument flight techniques.

Performance Standards

(1) The prospective Stan Pilot shall demonstrate knowledge of all chapters of the MV-22B Flight Training Manual.

(2) Demonstrate a high level of instructional capability to certify IPs capable of instructing all stages of the Core Skill Introduction phase of training IAW MV-22B Flight Training Manual and NATOPS.

Prerequisites. CIs must complete all FRS IUT flights in the simulator. FRS IPs must be a Section Leader and must have completed FIT 5140-5145 and FIT 5147.

4. Flight Leadership Standardization Evaluator (FLSE)

a. Purpose. To certify pilots for designation as Flight Leadership Standardization Evaluators (FLSE) in accordance with the T&R Program Manual.

b. General

(1) 2d MAW is the FLSE model manager for standardization across the MV-22B community. Wing designated FLSE Program Coordinators will coordinate with the FLSE Model Manager for MV-22B standardization across the Wing.

(2) Where staffing positions allow, the MAG Commanding Officer will designate a senior FLSE to ensure standardization within the MAG and to coordinate with the Wing FLSE Program Coordinator.

(3) Each MV-22B squadron Commanding Officer will nominate a minimum of two FLSEs to their corresponding MAG Commanding Officer.

(4) Each FLSE will be designated in writing by the MAG Commanding Officer.

(5) The MAG Operations department will be responsible for coordinating the scheduling of FLSE required flights.

(6) FLSEs will evaluate at least one in-aircraft event in each flight leadership POI.

(7) MV-22B FLSE designated personnel shall attend MAG-sponsored semi-annual FLSE standardization training.

(8) FLSE certification of prospective flight leaders for deployed units or locations where a FLSE from a different unit is not available to conduct the certification may be conducted by an internal FLSE with MAG/MAGTF Commander approval.

(9) FLSE redesignation criteria for aircrew that do not require Core Skill Introduction Refresher training is at the discretion of the MAG CO. For aircrew that require Core Skill Introduction Refresher training, the minimum redesignation requirement is successful completion of the FLSE POI.

c. Prerequisites. FLSEs shall be designated MV-22B Division Leaders.

ACAD-5210	1.0	*	T,R	E	CLSRM	FLSE

FLSE Lecture

Goal. The PUI will be familiar with 2d MAW and local Wing and MAG FLSE SOPs, FLSE scheduling, and FLSE standardization.

Required Reading. The PUI will be well versed in the academic readings, classes, and chalk talks required for the prospective stage.

Prerequisite. Recommended by the Squadron Standardization Board.

5. Air to Air Refueling Instructor (AARI)

a. Purpose. To certify the MV-22B pilot as an instructor capable of safely conducting ground and airborne instruction of the MV-22B AAR syllabus.

b. General

(1) The PUI must be NSQ LLL and AAR-2433 complete prior to beginning this stage of training.

(2) The AAR IUT syllabus shall be flown with a proficient AARI.

(3) Successful completion of the AAR-5331 flight will certify the pilot as an AARI. The designation will then be made at the discretion of the commanding officer.

(4) Prior to the certification flight, the PUI shall present the MV-22B Air to Air Refueling class.

(5) Previously designated MV-22B AARIs returning to the MV-22B requiring Refresher or Modified Refresher training as defined in T&R Program Manual must be recertified by a proficient AARI. Recertification shall consist of the class presentation and AAR-5331.

c. Crew Requirements. P/P for simulator events, P/P/CC for aircraft events.

ACAD-5310	1.0	*	T	CLSRM	AARI

AARI Lecture

Goal. The PUI will instruct the MV-22B Air to Air Refueling class to a designated AARI.

Prerequisite. Recommended by the Squadron Standardization Board.

SAAR-5330	2.0	*	T	1	FFS/FTD	S	(NS)	AARI

Goal. Demonstrate day, night, and NVD AAR proficiency and instructional technique.

Requirement

(1) Discuss

(a) Aircraft set-up/checklist for AAR.

(b) Comfort level.

(c) Rendezvous procedures, both VMC and IMC.

(d) Airspeeds/altitudes.

(e) Cross-overs.

(f) Closure rates.

(g) Depth perception.

(h) Receiver/tanker lighting.

(i) Inadvertent IMC.

(j) Reel response.

(k) Inadvertent disconnects.

(l) Fuel siphoning.

(m) Emergency disconnect.

(2) Review

(a) Basic scan and flight techniques required to refuel from the tanker.

(b) Rendezvous.

(c) Join-up.

(d) Contact/fuel transfer (minimum of 3 day, 3 night unaided, and 3 NVD plugs).

(e) Post AAR procedures.

(f) Emergency breakaway.

Performance Standards

(1) Provide academic instruction on day, night, and NVD AAR procedures including voice procedures, rendezvous procedures, visual checkpoints, lighting, and EPs IAW the MV-22B ANTTP Manual, the Air-to-Air Refueling Manual, and the MAWTS-1 NVD Manual.

Prerequisites. RQD-6035, AAR-2433, ACAD-5310

AAR-5331	2.0	*	T,R	E	1	MV-22B	A	NS	AARI

Goal. Demonstrate the ability to plan, brief, and instruct NVD AAR.

Requirement

(1) Discuss

(a) Aircraft set-up/checklist for AAR.

(b) Comfort level.

(c) Rendezvous procedures, both VMC and IMC.

(d) Airspeeds/altitudes.

(e) Cross-overs.

(f) Reel response.

(g) Refueling emergencies.

(h) Closure rates.

(i) Depth perception.

(j) Receiver/tanker Lighting.

(k) Inadvertent IMC.

(2) Review

(a) Scan and flight techniques required to refuel from the tanker using NVDs.

(b) Rendezvous.

(c) Join-up.

(d) Contact/fuel transfer (minimum of 5 contacts).

(e) Post AAR procedures.

(f) EMCON refueling.

Performance Standards

(1) Provide cockpit briefing on NVD AAR procedures and EMCON refueling procedures.

(2) Conduct successful NVD contacts with accompanying inflight description.

Prerequisite. SAAR-5330

External Syllabus Support. Approved tanker.

6. Tactical Simulation Instructor (TSI)

a. Purpose. To certify the MV-22B pilot as a TSI capable of providing tactical simulation training in the MV-22B.

b. General. Reference the MAWTS-1 Course Catalog for the detailed TSI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5510	1.0	*	T,R			CLSRM	TSI

TEN Functions and Operation

Goal. The PUI will have an introductory knowledge of the functions and operation of the TEN.

Prerequisite. Recommended by the Squadron Standardization Board.

ACAD-5511	1.0	*	T			CLSRM	TSI

Trainer IOS Functions and Operations

Goal. The PUI has an introductory knowledge of the functions and operation of the trainer’s IOS.

Prerequisite. Recommended by the Squadron Standardization Board.

ACAD-5512	1.0	*	T			CLSRM	TSI

Tactical Scenario Development

Goal. The PUI has an introductory knowledge of how to develop a valid tactical scenario that meets the pilots’ learning objectives and is supportable within the TEN.

Prerequisite. Recommended by the Squadron Standardization Board.

LAB-5520	2.0	*	T		1	CMD Post S	TSI

Reference the MAWTS-1 Course Catalog for the TSI POI.

LAB-5521	2.0	*	T,R	E	1	CMD Post S	TSI

Reference the MAWTS-1 Course Catalog for the TSI POI.

7. Low Altitude Tactics Instructor (LATI)

a. Purpose. To certify the MV-22B pilot as a LATI capable of safely conducting instruction in the MV-22B Low Altitude Tactics syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the detailed LATI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5610	1.0	*	T			CLSRM			LATI

LATI Lecture

Goal. The PUI will instruct the MV-22B LAT IV class to a designated LATI.

Prerequisite. Recommended by the Squadron Standardization Board.

SLAT-5630	2.0	*	T	E	1	FFS/FTD	S		LATI

Reference the MAWTS-1 Course Catalog for the LATI POI.

LAT-5631	2.0	*	T	E	2	MV-22B	A		LATI

Reference the MAWTS-1 Course Catalog for the LATI POI.

LAT-5632	2.0	*	T,R	E	2	MV-22B	A		LATSTANI

Reference the MAWTS-1 Course Catalog for the LATI POI.

SLAT-5633	2.0	*	T,R	E	1	FFS/FTD	S		MAWTS1IP

Reference the MAWTS-1 Course Catalog for the LATI POI.

8. Night Systems Familiarization Instructor (NSFI)

a. Purpose. To certify the MV-22B pilot as a Night Systems Familiarization Instructor (NSFI) capable of conducting ground and airborne instruction of the MV-22B Night Vision Device (NVD) Core Skill Introduction Phase flight syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the detailed NSFI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5710	1.0	*	T			CLSRM			NSI

NSFI Lecture

Goal. The PUI will instruct one of the MV-22B NS classes to a designated NSI.

Prerequisite. Recommended by the Squadron Standardization Board.

SNS-5730	2.0	*	T	E	1	FFS/FTD	S/A	NS	NSFI/NSI

Reference the MAWTS-1 Course Catalog for the NSFI POI.

NS-5731	2.0	*	T	E	1	MV-22B	A	NS	NSFI/NSI

Reference the MAWTS-1 Course Catalog for the NSFI POI.

NS-5732	2.0	*	T,R	E	2	MV-22B	A	NS	NSI

Reference the MAWTS-1 Course Catalog for the NSFI POI.

9. Defensive Combat Maneuvers Instructor (DCMI)

a. Purpose. To certify the MV-22B pilot as an instructor capable of safely conducting instruction of the MV-22B defensive combat maneuvering (DCM) syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the detailed DCMI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5810	1.0	*	T	CLSRM	DCMI

DCMI Lecture

Goal. The PUI will instruct the Defensive Combat Maneuvers class to a designated DCMI.

Prerequisite. Recommended by the Squadron Standardization Board.

SDCM-5830	2.0	*	T	E	2	FFS/FTD	S	DCMI

Reference the MAWTS-1 Course Catalog for the DCMI POI.

DCM-5831	2.0	*	T	E	2	MV-22B	A	DCMI

Reference the MAWTS-1 Course Catalog for the DCMI POI.

DCM-5832	2.0	*	T,R	E	2	MV-22B	A	MAWTS IP

Reference the MAWTS-1 Course Catalog for the DCMI POI.

10. Night Systems Instructor (NSI)

a. Purpose. To certify the MV-22B pilot as a Night Systems Instructor (NSI) capable of safely conducting ground and airborne instruction of the MV-22B Night Vision Device (NVD) flight syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the NSI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5910	1.0	*	T	CLSRM	NSI

NSI Lecture

Goal. The PUI will instruct one of the MV-22B NS classes to a designated NSI.

Prerequisite. Recommended by the Squadron Standardization Board.

SNS-5930	2.0	*	T	E	1	FFS/FTD	S	NS	NSI

Reference the MAWTS-1 Course Catalog for the NSI POI.

NS-5931	2.0	*	T	E	1	MV-22B	A	NS	NSI

Reference the MAWTS-1 Course Catalog for the NSI POI.

SNS-5932	2.0	*	T	E	2	FFS/FTD	S	NS	NSI

Reference the MAWTS-1 Course Catalog for the NSI POI.

NS-5933	2.0	*	T	E	2	MV-22B	A	NS	NSI

Reference the MAWTS-1 Course Catalog for the NSI POI.

NS-5934	2.0	*	T,R	E	1	MV-22B	A	NS	MAWTS1IP

Reference the MAWTS-1 Course Catalog for the NSI POI.

NS-5935	2.0	*	T,R	E	2	MV-22B	A	NS	MAWTS1IP

Reference the MAWTS-1 Course Catalog for the NSI POI.

11. Weapons and Tactics Instructor (WTI)

a. Purpose. To certify the MV-22B pilot as a Weapons and Tactics Instructor (WTI) capable of safely conducting ground and airborne instruction of the MV-22B tactical flight syllabus.

b. General. Reference the MAWTS-1 WTI Course Catalog for the detailed WTI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

d. Total Training Events. Reference the MAWTS-1 Course Catalog for individual event requirements.

WTI-5950	504.0	*	T	E	MAWTS1IP

Goal. The PUI will instruct receive all academic and flight instruction in accordance with the MAWTS-1 WTI Course Catalog.

215. REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD) PHASE (6000)

1. Purpose. To establish training for specific requirements and flight leadership designations.

2. General

a. Squadrons will use this phase of training for check flights and designations. The PUI will demonstrate sound levels of aircraft/flight leadership and judgment required in a combat environment.

b. Requirement and flight leadership codes in the 6000 Phase may be logged in conjunction with other 2000-4000 codes completed during the event. For example, SL-6134 may be flown in conjunction with SHORE-3131. When the flight to attain the requirement / designation is complete, a letter from the squadron commanding officer awarding the designation shall be placed in the NATOPS and APR before that designation may be utilized.

c. After the commanding officer has designated the PUI in writing as gaining a designation, Operations shall make the required qualification or designation entry into M-SHARP.

3. Requirements

a. Purpose. To track requirements as outlined in the MV-22B NATOPS, OPNAVINST 3710.7 and OPNAVINST 1542.7.

b. General. This section allows squadrons to document and track annual NATOPS and Instrument check flights as well as CRM training.

c. Crew Requirements. All checks will be per all applicable directives. NATOPS and Instrument checks may be accomplished in the trainer or the aircraft.

ACAD-6010	3.0	365	T,R,CI,CV	E	CLSRM	NI/ANI

Open Book NATOPS Examination

Goal. The Open Book Examination shall consist of, but not be limited to the NATOPS question bank. The purpose of the open book examination is to evaluate the airman’s knowledge of the appropriate publications and the aircraft.

Performance Standard. Achieve a minimum grade of qualified on the Open Book examination.

ACAD-6011	1.0	365	T,R,CI,CV	E	CLSRM	NI/ANI

Closed Book NATOPS Examination

Goal. The Closed Book Examination shall be limited to the NATOPS question bank. The purpose of the closed book examination portion is to evaluate the airman’s knowledge of the concerning normal/emergency procedures and aircraft limitations.

Performance Standard. Achieve a minimum grade of qualified on the Closed Book examination.

Prerequisite. ACAD-6010

ACAD-6012	1.0	365	T,R,CI,CV	E	CLSRM	NI/ANI

Oral NATOPS Examination

Goal. The Oral shall consist of, but not be limited to the NATOPS question bank. The evaluator may draw upon their experience to propose questions of a direct and positive manner and in no way be opinionated to evaluate the airman’s

knowledge of the concerning normal/emergency procedures, aircraft limitations, and performance.

Performance Standard. Achieve a minimum grade of qualified on the Oral examination.

Prerequisite. ACAD-6011

ACAD-6013 6.0 365 T,R,CI,CV E CLSRM INSTEVAL

Instrument Ground School

Goal. The Instrument Ground School shall be a Commander Naval Air Forces (CNAF) approved syllabus and at a minimum cover the following topics:

(1) Spatial disorientation.

(2) CNO GPS Policy Statement and GPS fundamentals to include RNAV (GPS) and Required Navigation Performance (RNP).

(3) Reduced Vertical Separation Minimums (RVSM) procedures.

(4) Requirements and denial reports.

(5) Use of non-DoD instrument approach/departure reports.

(6) Use of non-DoD GPS NOTAMS systems (Jeppeson GPS NOTAMS and Databases).

Performance Standards. Successful completion of Instrument Ground School.

ACAD-6014 2.0 365 T,R,CI,CV E CLSRM INSTEVAL

Open Book NATOPS Instrument Examination

Goal. The Open Book Instrument Examination shall consist of, but is not be limited to knowledge of the NATOPS, NATOPS Instrument Flight Manual, FAR/AIM and/or aeronautical publications which are applicable, normal/emergency instrument ground and flight procedures, weather, aircraft limitations, and performance, and any subject listed for in OPNAVINST 3710.7 Series. The examination shall include questions on the following subjects.

(1) Pertinent Navy or Marine Corps regulations, orders, and instructions.

(2) Pertinent parts of the Federal Aviation Regulations (FAR), other regulations, and/or aeronautical publications which are applicable.

(3) Interpretation of weather information normally used in flight planning.

Performance Standard. Achieve a minimum grade of qualified on the Open Book examination.

Prerequisite. ACAD-6013

ACAD-6015	1.0	365	T,R,CI,CV	E		CLSRM		INSTEVAL

Oral NATOPS Instrument Examination

Goal. The Oral shall consist of, but is not be limited to knowledge of the NATOPS, NATOPS Instrument Flight Manual, FAR/AIM and/or aeronautical publications which are applicable, normal/emergency instrument ground and flight procedures, weather, aircraft limitations, and performance. Additionally, the instructor/evaluator may draw upon their individual experience to propose questions of a direct and positive manner to evaluate the airman's knowledge and understanding.

Performance Standards. Achieve a minimum grade of qualified on the Oral examination.

Prerequisite. ACAD-6014

ACAD-6016	1.0	365	T,R,CI,CV	E		CLSRM		CRMF/I

Crew Resource Management Refresher Lecture

Goal. Review the 7 critical CRM skills during a mission scenario as well as during emergencies and system failures.

Performance Standards. Successful completion of the CRM lecture.

RQD-6030	1.5	365	T,R,CI,CV	E	1	FFS/FTD	S/A	(N)	NI/ANI

Goal. Conduct an objective evaluation of the airman's knowledge of mission planning, briefing, normal operating procedures (flight and ground), crew resource management, aircraft systems, performance criteria, emergency procedures, and debriefing. The focus is on normal and emergency procedures, not tactical execution. Emphasis shall be placed on the aforementioned items with the addition of USMC Admin SOP, local course rules, local SOP addendum, and admin flight procedures. The NATOPS evaluation is intended to evaluate compliance with NATOPS procedures. The NATOPS evaluation is the means to measure the airman's efficiency in the execution of normal operating procedures and reaction to emergencies and malfunctions. The NATOPS evaluation process should be as much a learning tool and/or experience as it is an evaluation.

Coordination. The pilot under evaluation shall bring a completed NATOPS evaluation card, pre-coordinated DTM and load comp.

Requirement. The proficiency expected by the evaluator in this flight shall be commensurate with the experience level

and highest flight leadership designation of the pilot under evaluation.

Performance Standards. The pilot under evaluation must be prepared to safely demonstrate flight proficiency and knowledge of all maneuvers and procedures described within the Flight Training Manual, NATOPS, OPNAV 3710.6 and in accordance with all SOPs. Upon successful completion of this event, the evaluator shall log the appropriate training code for tracking purposes.

Prerequisite. ACAD-6012

RQD-6031	1.5	365	T,R,CI,CV	E	1	FFS/FTD	S/A		(N)	CRMF

Goal. Review CRM principles while executing a simulated mission scenario.

Requirement. Review the 7 critical CRM skills during a mission scenario as well as during emergencies and system failures.

Performance Standards. Pilots shall demonstrate effective use of the 7 critical CRM skills in accordance with OPNAVINST 1542.7, MV-22B NATOPS, and applicable directives.

Prerequisites. ACAD-6016

RQD-6032	2.0	365	T,R,CI,CV	E	1	FFS/FTD	S/A		(N)	INSTEVAL

Goal. Following completion of the ground evaluation events, an instrument flight/simulator evaluation event shall be flown and completed with a grade of “Qualified.” The evaluator shall conduct an objective evaluation of the airman’s knowledge of flight planning, filing, briefing, conduct of flight under normal operating conditions, emergency procedures, closing out flight plans, and debriefing.

Performance Standards. Execute flight and/or ground operations safely IAW OPNAV 3710.7 Series, Platform NATOPS, NATOPS Instrument Flight Manual, and local training SOPs. All areas on the instrument flight evaluation are critical. An “Unsatisfactory” grade in any area shall result in an “Unsatisfactory” grade for the flight.

Prerequisite. ACAD-6015

RQD-6033	2.0	*	T	E	1	FFS/FTD	S/A			

Goal. Conduct a Tiltrotor Aircraft Commander (TAC) review.

Requirement. This flight will review all practicable day operations and procedures contained in the T&R syllabus in preparation for the TAC check.

Performance Standards

(1) Conduct day Core Skill and Mission Skill events IAW applicable manuals.

(2) Demonstrate sound knowledge of NATOPS limits, EPs, and aircraft systems.

Prerequisites. Recommendation by Squadron Standardization Board.

RQD-6034	2.0	*	T	E	1	FFS/FTD	S/A		N

Goal. Conduct a night TAC review.

Requirement. Continuation of review flight to include night operations and procedures.

Performance Standards

(1) Conduct night/NVD Core Skill and Mission Skill events IAW applicable manuals.

(2) Demonstrate sound knowledge of SOPs, T&R Program Manual regulations, and OPNAV regulations.

Prerequisites. Recommendation by Squadron Standardization Board.

RQD-6035	2.0	*	T,R	E	1	MV-22B	A	(N)	NI/ANI

Goal. Conduct a TAC check.

Requirement. Squadrons shall evaluate pilots for the TAC designation per the criteria in the MV-22B NATOPS Flight Manual, OPNAVINST 3710.7, and local SOPs. This flight will cover all practicable operations and procedures contained in the T&R syllabus.

Performance Standards

(1) Conduct day, night, and/or NVD Core Skill and Mission Skill events IAW applicable manuals.

(2) Demonstrate situational awareness, CRM, and operational knowledge necessary to be a TAC.

(3) Demonstrate sound knowledge of the MV-22B ANTTP Manual and MV-22B tactical employment.

Prerequisites. NSQ (NS-2384-2385), EXT-2634, MAT-2731, CQ-2935, BIP syllabus complete, RQD-6033, RQD-6034.

RQD-6036	2.0	90	T,R,CV	E	1	FFS/FTD	S/A	(N)	

Goal. Emergency Procedures review.

Requirement. This flight will review MV-22B emergency procedures and fulfills the requirement of the 90 day EP review requirement.

Performance Standards

(1) Comply with MV-22B NATOPS procedures while dealing with non-normal conditions.

Prerequisites. T2P

4. Section Lead

a. Purpose. To prepare and evaluate PUI's ability to plan, brief, and lead a section of MV-22Bs in a tactical environment.

b. General

(1) All Basic pilots are required to complete the entire syllabus. Transition pilots who were previously designated section leaders in their prior T/M/S may be assigned to the MV-22B Transition Section Leader syllabus.

(2) Section Leader re-designation is at the discretion of the commanding officer for previously designated MV-22B/CV-22 section leaders that do not require Core Skill Introduction Refresher training. The minimum re-designation requirement for aircrew that require Core Skill Introduction Refresher training is successful completion of the R-coded section leader events.

(3) PUI shall conduct the following day and night workup sorties in order to develop the prospective section lead's flight leadership skills.

(4) Either the SL-6133 or SL-6134 shall be a FLSE event.

(5) For tactical events, flight scheduling shall provide adequate time for the PUI, evaluator, and mission planners / participants to conduct mission analysis and planning.

(6) Pilots who complete the SL-6134 training event may be designated an MV-22B Section Leader. A letter designating the pilot as a section leader shall be placed in the NATOPS jacket and APR.

(7) Formal assignment to the section leader syllabus shall be preceded by a build-up period established by Group or Squadron SOP. This training, which would normally include leading training flights under the supervision of a designated section leader, shall be designed to provide the board with an indication of an individual's readiness to enter the syllabus and will be recorded with the SL-6130 tracking code.

c. Prerequisites

(1) Mission Skill complete.

(2) Minimum of 50 Hours as Tiltrotor Aircraft Commander (TAC).

(3) Recommended by the Squadron Standardization Board.

d. External Syllabus Support. The SL-6133 requires a scenario administered by a TSI. Scenarios shall be designed to accommodate the dominant elements listed in the event description but should be tailored to the unit's next deployment (i.e. shore based versus MEU(SOC)).

e. Crew Requirements. Lead: PUI/T2P, Wing: TAC/T2P.

SELF PACED READINGS	DATE COMP
MCWP 5-1, Marine Corps Planning Process	
NTTP 3-22.5 ASTACSOP Tactical Pocket Guide	
NTTP 3-22.3 MV-22B Chapter 1 Mission Planning	
NTTP 3-22.3 MV-22B Chapter 2 Mission Management	
NTTP 3-22.3 MV-22B Chapter 3 Tac Approach & Remote Area Ldg	
NTTP 3-22.3 MV-22B Chapter 4 Enroute Tactics	
NTTP 3-22.3 MV-22B Chapter 6 Refuel	
NTTP 3-22.3 MV-22B Chapter 8 Alternate Insert and Extract	
NTTP 3-22.3 MV-22B Chapter 9 Assault Support	
Local Range Regulations/Procedures	
ACPM-8630	
ACPM-8660	

ACAD-6110 1.0 * T CLSRM SECLD

Mission Analysis

Goal. The PUI will have an understanding of how to appropriately analyze a mission.

Required Reading. How to Plan a Helicopterborne Assault

Prerequisite. T2P

ACAD-6111 1.0 * T CLSRM SECLD

Tactical Flight Briefing

Goal. The PUI will have an understanding of how to accurately plan and brief an assault flight.

Prerequisite. T2P

LAB-6120 0.3 * T,CV CLSRM SECLD

Section IFR Departure and Arrival Chalk Talk
Goal. The PUI will have an understanding of how to lead a section through an IFR Departure and Arrival.

Prerequisite. Recommended by the Squadron Standardization Board.

LAB-6121 0.3 * T,CV CLSRM SECLD

IIMC Break-up and Rejoin Chalk Talk

Goal. The PUI will have an understanding of how to lead a section through a IIMC Break-up and rejoin.

Prerequisite. Recommended by the Squadron Standardization Board.

LAB-6122	0.3	*	T,CV			CLSRM		SECLD

Section High Altitude Tactical Approach Chalk Talk

Goal. The PUI will have an understanding of how to lead a section through high altitude tactical approach.

Prerequisite. Recommended by the Squadron Standardization Board.

LAB-6123	0.3	*	T,CV			CLSRM		SECLD

LAT Formation and Blind procedures Chalk Talk

Goal. The PUI will have an understanding of how to lead a section through a LAT route and deal with going Blind.

Prerequisite. Recommended by the Squadron Standardization Board.

LAB-6124	0.3	*	T,CV			CLSRM		SECLD

Section Aerial Refueling Chalk Talk

Goal. The PUI will have an understanding of how to lead a section through an aerial refueling operation.

Prerequisite. Recommended by the Squadron Standardization Board.

SL-6130	0.0	*	T,CV	E	2	MV-22B	A/S	(NS)	SECLD

Goal. To be used as a tracking code for all “brief and lead” events prior to entry into the formal section leader syllabus.

SSL-6131	2.0	*	T,CV	E	2	FFS/FTD	S	SECLD

Goal. Demonstrate the ability to discuss, brief, and execute section responses for basic administrative section leader skills to include various off-normal and additive conditions in a training environment.

Requirement

(1) Discuss/Review

(a) Section IFR departure.

(b) Section Abort.

(c) Section IFR Arrival.

(d) Deliberate enroute weather penetration.

(e) Inadvertent IMC.

(f) Tanker rendezvous.

(g) Lost sight during LAT in mountainous terrain.

(h) Join up procedures (day and night).

(i) Wingman Lost Comm.

(j) Wingman emergency or system failure.

(k) Downed aircraft/OSC duties.

(2) Review. Briefing of various administrative and emergency coordinating instructions.

Performance Standards

(1) Demonstrate awareness and understanding of procedures during the discussion portion of the brief.

(2) Brief procedures in accordance with applicable directives and local SOP.

(3) When confronted with various off-normal or additive conditions control the flight IAW the flight brief, applicable directives, and local SOP.

Prerequisite. Mission Skill complete, 50 Tiltrotor Aircraft Commander (TAC) Hours, recommended by the Squadron Standardization Board.

SSL-6132 2.0 * CV E 2 FFS/FTD S TEN+ NS SECLD

Goal. Demonstrate the ability to brief and lead a section NS LAT route to an L-Hour in a training environment utilizing a high-low-high profile.

Requirement

(1) Discuss

(a) LAT and Night ROC.

(b) Fuel Planning and intra-flight CMS management.

(c) Lighting.

(d) TOT planning.

(e) Divert planning and procedures.

(2) Review

(a) Flight preparation to include DTM loading, smart pack publication, and briefing materials.

(b) Flight brief.

(c) Turn-up, check-in, taxi procedures.

(d) Section IFR procedures.

(e) Route activation/entry.

(f) TACFORM.

(g) Tactical approach and landing.

(h) Contingencies.

Performance Standards

(1) Direct and supervise flight members during planning.

(2) Demonstrate awareness of all LAT and NS ROC.

(3) Maintain flight integrity during all enroute and TACFORM maneuvers.

(4) Provide a stable, predictable platform for the wingman during the terminal phase of flight.

(5) Demonstrate sound judgment in responding to contingencies and off-normal conditions.

Prerequisite. SL-6131.

SL-6133 2.0 * T,CV E 2 MV-22B A (NS)FLSE/DIVLD

Goal. Demonstrate the ability lead a section in a low to medium threat environment. At the discretion of the evaluator, the PUI may be assigned a General Support, CASEVAC, TRAP, or R&S Insert/extract mission during planning.

Requirement

(1) Discuss

(a) Mission Analysis.

(b) Supporting arms and communications requirements.

(c) Escort considerations and planning.

(d) Go, No-Go criteria.

(e) Tactical patience.

(f) Ground threat reaction.

(g) Weapons/expendables employment.

(2) Review

(a) Flight preparation to include DTM loading, smart pack publication, and briefing materials.

(b) Flight brief.

(c) Turn-up, check-in, taxi procedures.

(d) Threat Update/DASC Coordination.

(e) Fence Checks.

(f) Fuel planning (route and timeline changes).

(g) Threat reaction.

(h) Actions in the objective area.

(i) Tactical Reports.

(j) Contingencies.

Performance Standards

(1) Direct and supervise flight members during planning.

(2) Conduct coordination with supported and supporting agencies during planning.

(3) Properly assess the threat and identify counter tactics.

(4) Develop and brief a coherent, effective objective area plan with special emphasis on the use of onboard weapons.

(5) Demonstrate sound decision making in response to off-normal and additive conditions to ensure mission success.

(6) Successfully complete the assigned mission while preserving assigned assets.

Prerequisite. SL-6132

SL-6134 2.0 * T,R,CV E 2 MV-22B A (NS)FLSE/DIVLD

Goal. Section leader certification flight. Demonstrate the ability to lead a section in a low to medium threat environment. At the discretion of the evaluator, the PUI may be assigned a General Support, CASEVAC, TRAP, or R&S Insert/extract mission during planning.

Requirement. The PUI will be evaluated from mission receipt to mission completion. The PUI shall conduct mission analysis, direct and complete planning tasks based on resources and time available, deliver the brief, and successfully lead the section to execute the assigned mission.

Performance Standards

(1) Direct and supervise flight members during planning.

(2) Conduct coordination with supported and supporting agencies during planning.

(3) Properly assess the threat and identify counter tactics to defeat.

(4) Develop and brief a coherent, effective objective area plan with special emphasis on the use of onboard weapons.

(5) Demonstrate sound decision making in response to off-normal and additive conditions to ensure mission success.

(6) Successfully complete the assigned mission while preserving assigned assets.

Prerequisite. SL-6133, SL academics complete.

5. Division Lead

a. Purpose. To prepare and evaluate PUI's ability to plan, brief, and lead a division of MV-22Bs in a tactical environment.

b. General

(1) All Basic pilots are required to complete the entire syllabus. Transition pilots who were previously designated division leaders in their prior T/M/S may be assigned to the MV-22B Transition Division Leader syllabus.

(2) Division Leader re-designation is at the discretion of the commanding officer for previously designated MV-22B/CV-22 division leaders that do not require Core Skill Introduction Refresher training. The minimum re-designation requirement for aircrew that require Core Skill Introduction Refresher training is successful completion of the R-coded division leader events.

(3) For tactical events, flight scheduling shall provide for adequate planning time for the PUI, the evaluator, and mission planners/participants.

(4) Either DL-6232 or DL-6233 shall be evaluated by a Flight Leader designated as an FLSE.

(5) Pilots who complete the DL-6233 may be designated an MV-22B Division Leader. A letter designating the pilot as a division leader shall be placed in the NATOPS jacket and APR.

(6) Formal assignment to the division leader syllabus shall be preceded by a build-up period established by Group or Squadron SOP. This training, which would normally include leading training flights under the supervision of a designated division leader, shall be designed to provide the board with an indication of an individual's readiness to enter the syllabus and will be recorded with the DL-6230 tracking code.

c. Prerequisites

(1) Led a minimum of three flights as a designated MV-22B Section Leader.

(2) Minimum of 600 total flight hours and 200 flight hours in MV-22B.

(3) Recommended by the squadron Standardization Board.

d. External Syllabus Support. DL-6232 requires a scenario administered by a TSI. Scenarios shall be designed to accommodate the dominant elements listed in the event descriptions but should be tailored to the units next deployment (i.e. shore based versus MEU(SOC)).

e. Crew Requirements. Lead: PUI/T2P, Wings: TAC/T2P.

SELF PACED READINGS	DATE COMP
MAWTS-1 ASSAULT SUPPORT PLANNING GUIDE	
NTTP 3-22.5 ASTACSOP Tactical Pocket Guide	
Local Range Regulations/Procedures	
ACPM-8640	
ACPM-8641	

LAB-6220 0.3 * T,CV CLSRM DIVLD

Division IFR Departure and Arrival Chalk Talk

Goal. The PUI will have an understanding of how to lead a division through an IFR Departure and Arrival.

Prerequisite. Recommended by the Squadron Standardization Board.

LAB-6221 0.3 * T,CV CLSRM DIVLD

Tactical Division Formations Chalk Talk

Goal. The PUI will have an understanding of how to lead each of the tactical division formations.

Prerequisite. Recommended by the Squadron Standardization Board.

DL-6230 0.0 * T,CV E 2 MV-22B A (NS) DIVLD

Goal. To be used as a tracking code for all “brief and lead” events prior to entry into the formal division leader syllabus.

SDL-6231 2.0 * CV E 3 FFS/FTD S TEN+ DIVLD

Goal. Demonstrate the ability to discuss, brief, and execute division responses for basic administrative division leader skills to include various off-normal and additive conditions in a training environment.

Requirement

(1) Discuss/Review

(a) Division IFR departure and VFR On Top Rendezvous.

(b) Division separation On Top and IFR Arrival.

(c) Deliberate enroute weather penetration.

(d) Inadvertent IMC.

(e) Tanker rendezvous and flow.

(f) Join up procedures (day and night).

(g) Division formation maneuvering.

(h) Downed aircraft/OSC duties with division.

(2) Review. Briefing of various administrative and emergency coordinating instructions.

Performance Standards

(1) Demonstrate awareness and understanding of procedures during the discussion portion of the brief.

(2) Brief procedures in accordance with applicable directives and local SOP.

(3) When confronted with various off-normal or additive conditions control the flight IAW the flight brief, applicable directives, and local SOP.

Prerequisite. Led a minimum of three flights as a designated MV-22B Section Leader. Minimum of 600 total flight hours and 200 flight hours in MV-22B. Recommended by the squadron Standardization Board.

SDL-6232 2.0 * T,CV E 3 FFS/FTD S TEN+ (NS) FLSE/FLTLD

Goal. Demonstrate the ability lead a division in a low to medium threat environment. At the discretion of the evaluator, the PUI may be assigned a deliberate assault, Raid, or QRF response mission during planning.

Requirement

(1) Discuss

(a) Mission Analysis.

(b) Supporting arms and communications requirements.

(c) Go, No-Go criteria.

(d) Implied mission support by section.

(e) Ground threat reaction.

(f) Weapons employment.

(g) Division weather penetration considerations.

(2) Review

(a) Flight preparation to include DTM loading, smart pack publication, and briefing materials.

(b) Flight brief.

(c) Turn-up, check-in, taxi procedures.

(d) Threat Update/DASC Coordination.

(e) Fence Checks.

(f) Fuel planning (route and timeline changes).

(g) Threat reaction.

(h) Reports.

(i) Contingencies.

Performance Standards

(1) Direct and supervise flight members during planning.

(2) Conduct coordination with supported and supporting agencies during planning.

(3) Properly assess the threat and identify counter tactics to defeat.

(4) Develop and brief a coherent, effective objective area plan with special emphasis on the use of onboard weapons.

(5) Demonstrate sound decision making in response to off-normal and additive conditions to ensure mission success.

(6) Successfully complete the assigned mission and implied mission while preserving assigned assets.

Prerequisite. DL-6231

DL-6233 2.0 * T,R,CV E 3 MV-22B A (NS)FLSE/FLTLD

Goal. Division leader certification flight. Demonstrate the ability lead a division in a low to medium threat environment.

Requirement. The PUI will be evaluated from mission receipt to mission completion. The PUI shall be prepared to conduct mission analysis, direct and complete planning tasks based on resources and time available, deliver the brief, and successfully lead the division to execute the assigned mission.

Performance Standards

(1) Direct and supervise flight members during planning.

(2) Conduct coordination with supported and supporting agencies during planning.

(3) Properly assess the threat and identify counter tactics to defeat.

(4) Develop and brief a coherent, effective objective area plan with special emphasis on the use of onboard weapons.

(5) Demonstrate sound decision making in response to off-normal and additive conditions to ensure mission success.

(6) Successfully complete the assigned mission while preserving assigned assets.

Prerequisite. DL-6232, DL academics complete.

6. Flight Leader

a. Purpose. To qualify a PUI's ability to plan, brief, and lead a multi-element tactical flight composed of one or more assault support divisions and/or utilizing strike or escort flight support.

b. General

(1) All pilots are required to complete the entire syllabus.

(2) Flight Leader re-designation is at the discretion of the commanding officer for previously designated MV-22B flight leaders that do not require Core Skill Introduction Refresher training. The minimum re-designation requirement for pilots that require Core Skill Introduction Refresher training is successful completion of the R-coded flight leader events.

(3) Flight scheduling shall provide for adequate planning time for the check pilot, the evaluator, the strike or escort flight lead, and all mission planners/participants.

(4) The FL-6330 shall be evaluated by a Flight Leader designated as an FLSE.

(5) Pilots who complete this event may be designated an MV-22B Flight Leader. A letter designating the pilot as a flight leader shall be placed in the NATOPS jacket and APR.

c. Prerequisites

(1) Have flown a minimum of three flights as a designated MV-22B Division Leader.

(2) Minimum of 750 total flight hours.

(3) Recommended by the squadron Standardization Board.

(4) If not flown in conjunction with MEU workups, WTI, or a MAGTF level exercise, this event requires a scenario monitored by an AMC and administered by a TSI utilizing human-in-the-loop escorts and GCE participants.

d. External Syllabus Support. Scenarios shall be designed to accommodate the dominant elements listed in the unit's current or planned deployment workup.

e. Crew Requirements. Lead: PUI/T2P, Wings: TAC/T2P

SELF PACED READINGS	DATE COMP
MAWTS-1/TTECG HOW TO PLAN A ROTORBORNE ASSAULT	
ACPM-8620	

FL-6330 3.0 * T,R,CV E 2+ MV-22B/5 Total A/C A (NS) FLSE

Goal. Demonstrate the ability lead a flight in support of multiple maneuver elements to include escort and ground units within a METL based tactical scenario. At the discretion of the evaluator, the FLUT may be assigned a deliberate assault, Raid, NEO, or QRF response mission during planning.

Requirement. The PUI will be evaluated from mission receipt to mission completion.

(1) Discuss

(a) Mission Analysis.

(b) Command and Control.

(c) Fire Support Coordination Measures.

(d) Go, No-Go criteria.

(e) Implied mission support by division or section.

(f) Actions in the objective area.

(g) Escort operations and de-confliction.

(h) Conventional helicopter integration and de-confliction with tilt-rotor.

(2) Review

(a) Flight preparation to include DTM loading, smart pack publication, and briefing materials.

(b) Flight brief.

(c) Turn-up, check-in, taxi, departure sequence.

(d) Threat Update/DASC Coordination.

(e) Escort Join-up/enroute escort operations.

(f) Conventional helicopter integration and de-confliction within the objective area.

(g) Fence Checks.

(h) On call missions/branch plans.

(i) Threat reaction.

Performance Standards

(1) Direct and supervise flight members during planning.

(2) Conduct coordination with supported and supporting agencies during planning.

(3) Properly assess the threat and identify escort support and counter tactics to defeat.

(4) Develop and brief a coherent, effective objective area plan with special emphasis on the use escorts and onboard weapons.

(5) Demonstrate sound decision making in response to mission deviations and on-call branch plans.

(6) Successfully complete the assigned mission and implied mission while preserving assigned assets.

Prerequisite. 3 flights as a designated MV-22B Division Leader, 750 total flight hours, FL academics complete.

7. Air Mission Commander

a. Purpose. To qualify a PUI's ability to plan, brief, and lead a multi-element tactical flight.

b. General

(1) All Basic pilots are required to complete the entire syllabus.

(2) Transition pilots who began the transition syllabus designated as an AMC in their legacy platform may be designated an AMC upon designation as a TAC in the MV-22B.

(3) Air Mission Commander re-designation is at the discretion of the commanding officer for previously designated MV-22B Air Mission Commanders that do not require Core Skill Introduction Refresher training. The minimum re-designation requirement for pilots that require Core Skill Introduction Refresher training is successful completion of the R-coded Air Mission Commander POI events.

(4) Flight scheduling shall provide for adequate planning time for the check pilot, the evaluator, the strike or escort flight lead, and all mission planners/participants.

(5) AMC-6430 shall be evaluated by an Air Mission Commander designated as an FLSE.

(6) Pilots who complete this event may be designated an MV-22B Air Mission Commander. A letter designating the pilot as an Air Mission Commander shall be placed in the NATOPS jacket and APR.

(7) The Air Mission Commander proficiency tracking code (AMC-6431) shall be logged in conjunction with the appropriate 2000-4000 level event training code(s) every time an aircrew flies an event as a designated Air Mission Commander.

c. Prerequisites

(1) Designated MV-22B Flight Leader.

(2) Recommended by the squadron Standardization Board.

(3) If not flown in conjunction with MEU workups, WTI, or a MAGTF level exercise, this event requires a scenario monitored by an AMC and administered by a TSI utilizing human-in-the-loop escorts and GCE participants.

d. External Syllabus Support. Scenarios shall be designed to accommodate the dominant elements listed in the unit's current or planned deployment workup.

e. Crew Requirements. Lead: PUI/T2P, Wings: TAC/T2P

AMC-6430	3.0	*	T,R,CV	E	3+ Elements A	(NS)	FLSE

Goal. Conduct an Air Mission Commander (AMC) check.

Requirement. AMC is a function of flight leadership, maturity, and experience. The AMC should be evaluated on ability to integrate the 6 Functions of Marine aviation. The AMC should lead the mission from a C&C platform if available.

Performance Standards

(1) Plan, brief, and lead a successful mission of multiple T/M/S aircraft in a low or medium threat scenario.

(2) Per the tactical scenario, demonstrate the ability to integrate all applicable functions of Marine Aviation in support of the MAGTF.

Prerequisite. Flight Leader.

8. Functional Check Pilot Qualification

a. Purpose. To track requirements as outlined in the OPNAVINST 4790.2.

b. General. This section allows squadrons to document and track initial functional check pilot training as well as functional check flight proficiency.

c. Crew Requirements. Events will be per all applicable directives and local maintenance SOPs. Events may be accomplished in the trainer or the aircraft.

ACAD-6510	1.0	*	T,R,CV			CLSRM		FCP

Functional Check Flight QA Lecture

Goal. The PUI will have an understanding of the procedures to conduct MV-22B functional check flights.

Required Reading. Per squadron directives.

Prerequisite. TAC

SFCF-6530	1.0	*	T,R,CV	E	1	FFS/FTD	S/A	FCP

Goal. Conduct an evaluation of Rotor Track and Balance (RT&B) procedures.

General. Squadrons shall evaluate pilots for designation at the discretion of the commanding officer per the criteria in the MV-22B NATOPS Flight Manual, OPNAVINST 3710.7, OPNAVINST 4790.2, and local SOPs. Prospective FCPs shall complete the ground-training syllabus per Squadron Order prior to commencing flight training. RQD-639 and RQD-640 represent the minimum requirements for designation.

Requirement

(1) Ground Training

(a) A pilot in the FCP syllabus will receive a brief from a Quality Assurance Representative (QAR) or from Maintenance Control personnel on the following:

1 QA and Maintenance Control procedures related to FCFs.

2 Use of IETMS and other publications.

3 Phase Inspections.

4 Discussion of logbooks, ADBs, Test Cards and general paperwork related to FCFs.

5 Use of VSLED for track and balance procedures.

6 Use of the AMEGS for maintenance data downloads, Maintenance Control debriefs and vibration trend analysis.

(2) FCP Required Reading

(a) OPNAV 4790.2G Volume I, Ch 12.1.4 Functional Check Flights.

(b) OPNAVINST 3710.7R Paragraph 3.8.

(c) A1-V22AB-NFM-000.

(d) IETM rotor track and balance procedures.

(e) V-22 Periodic Maintenance Information Cards.

(3) Discuss

(a) OPNAV 4790 and 3710 FCF requirements.

(b) Level 1 and Level 2 vibration criteria.

(c) Use of optical sensors.

(d) Flight regimes, airspeed and vertical speed constraints.

(e) IETMS RT&B requirements.

(f) CMS RT&B functions (moves made, perf cal and config edited).

(g) AMEGS review of RT&B and trend analysis data.

(4) Evaluate

(a) Data collection in all RT&B regimes.

(b) Post flight data processing using the CMS.

(c) Post flight data processing using the AMEGS. Squadrons shall base this evaluation on completion of a locally prepared syllabus.

Performance Standards. Perform RT&B IAW the MV-22B NATOPS.

Prerequisite. TAC, ACAD-6510, Recommended by Squadron Standardization Board.

SFCF-6531	1.5	*	T,R,CV	E	1	FFS/FTD	S/A	FCP

Goal. Conduct an evaluation of FCF procedures. After the completion of this flight the pilot will receive the FCP designation.

(1) Discuss

(a) OPNAV 4790 and 3710 FCF requirements.

(b) Systems checks.

(c) Engine performance checks, with and without VSLED.

(d) Flight control checks.

(2) Evaluate

(a) Systems checks.

(b) Engine performance checks.

(c) Flight control checks.

(d) Stall check.

(e) Fire toggle check.

Performance Standards. Perform a complete FCF IAW the MV-22B NATOPS.

Prerequisite. SFCF-6530

216. AVIATION CAREER PROGRESSION MODEL (ACPM)

1. Purpose. To establish provide specific academic requirements that supplement the 2000-6000 syllabus. These courses are designed to broaden the PUIs understanding of Marine Aviation.

2. General

a. The courses are not prerequisites for a specific flight event.

b. These courses must be complete to be considered complete in the corresponding phase or stage of training.

3. Core Skill ACPM Classes

ACAD-8200 0.5 * CLSRM

MACCS Agencies, Functions, and Control of Aircraft and Missiles

Goal. The PUI will have an understanding of the MACCS Agencies, Functions, and Control of Aircraft and Missiles.

Required Reading. MACCS Workbook (MAWTS-1 WTI Read Ahead), and Control of Aircraft and Missiles (MAWTS-1 WTI Read Ahead).

Prerequisite. T2P

ACAD-8201 0.5 * CLSRM

MWCS

Goal. The PUI will have an understanding of the MWCS.

Prerequisite. T2P

ACAD-8202 0.8 * CLSRM

ACA and Airspace

Goal. The PUI will have an understanding of ACAs and airspace.

Required Reading. Fire Support Coordination Measures (MAWTS-1 WTI Read Ahead).

Prerequisite. T2P

ACAD-8210 0.7 * CLSRM

Aviation Ground Support

Goal. The PUI will have an understanding of Aviation Ground Support.

Required Reading. Aviation Ground Support (MAWTS-1 WTI Read Ahead).
Prerequisite. T2P

ACAD-8230 0.5 * CLSRM

ACE Battle Staff

Goal. The PUI will have an understanding of the ACE Battle Staff.

Prerequisite. T2P

ACAD-8231 0.5 * CLSRM

Battle Command Display

Goal. The PUI will have an understanding of the Battle Command Display.

Prerequisite. T2P

ACAD-8240 1.7 * CLSRM

Six Functions of Marine Aviation

Goal. The PUI will have an understanding of the Six Functions of Marine Aviation.

Required Reading. Six Functions of Marine Aviation (MAWTS-1 WTI Read Ahead)

Prerequisite. T2P

ACAD-8241 1.3 * CLSRM

JTAR / ASR Introduction and Practical Application

Goal. The PUI will have an understanding of the JTAR and ASR process.

Prerequisite. T2P

ACAD-8242 0.5 * CLSRM

Site Command Primer

Goal. The PUI will have an understanding of Site Command.

Prerequisite. T2P

ACAD-8250 0.8 * CLSRM

Theater Air Ground System

Goal. The PUI will have an understanding of the Theater Air Ground System.

Prerequisite. T2P

4. Mission Skill ACPM Classes

ACAD-8300 0.8 * CLSRM

Air Defense

Goal. The PUI will have an understanding of Air Defense.

Prerequisite. T2P

ACAD-8310 0.8 * CLSRM

Forward Arming and Refueling Point (FARP) Operations

Goal. The PUI will have an understanding of the FARP operations.

Prerequisite. T2P

ACAD-8311 0.8 * CLSRM

Marine Corps Tactical Fuel Systems

Goal. The PUI will have an understanding of the Marine Corps Tactical Fuel Systems.

Prerequisite. T2P

ACAD-8320 1.0 * CLSRM

Joint Structure and Joint Air Operations

Goal. The PUI will have an understanding of the Joint Structure and Joint Air Operations.

Prerequisite. T2P

ACAD-8321 0.4 * CLSRM

Joint Air Tasking Cycle Phase 1: Strategy Development

Goal. The PUI will have an understanding of the Strategy Development portion of the Joint Air Tasking Cycle.

Prerequisite. T2P

ACAD-8322 0.4 * CLSRM

Joint Air Tasking Cycle Phase 2: Target Development

Goal. The PUI will have an understanding of the Target Development portion of the Joint Air Tasking Cycle.

Prerequisite. T2P

ACAD-8323 0.4 * CLSRM

Joint Air Tasking Cycle Phase 3: Weaponeering and Allocation

Goal. The PUI will have an understanding of the Weaponeering and Allocation portion of the Joint Air Tasking Cycle.

Prerequisite. T2P

ACAD-8324 0.4 * CLSRM

Joint Air Tasking Cycle Phase 4: Joint ATO Production

Goal. The PUI will have an understanding of the Joint ATO Production portion of the Joint Air Tasking Cycle.

Prerequisite. T2P

ACAD-8325 0.4 * CLSRM

Joint Air Tasking Cycle Phase 5: Force Execution

Goal. The PUI will have an understanding of the Force Execution portion of the Joint Air Tasking Cycle.

Prerequisite. T2P

ACAD-8326 0.4 * CLSRM

Joint Air Tasking Cycle Phase 6: Combat Assessment

Goal. The PUI will have an understanding of the Combat Assessment portion of the Joint Air Tasking Cycle.

Prerequisite. T2P

ACAD-8340 0.5 * CLSRM

Integrating Fires & Airspace within the MAGTF

Goal. The PUI will have an understanding of how to integrate fires and airspace within the MAGTF.

Prerequisite. T2P

ACAD-8350 0.8 * CLSRM

Phasing Control Ashore

Goal. The PUI will have an understanding of how to Phase Control Ashore.

Prerequisite. T2P

ACAD-8351 0.5 * CLSRM

TACRON Organization and Functions

Goal. The PUI will have an understanding of the organization of the TACRON and its Functions.

Prerequisite. T2P

5. Section Leader ACPM Classes

ACAD-8630 1.0 * CLSRM

Tactical Air Command Center

Goal. The PUI will have an understanding of the TACC.

Prerequisite. T2P

ACAD-8660 0.5 * CLSRM

Joint Operations Introduction

Goal. The PUI will have an understanding of Joint Operations.

Prerequisite. T2P

6. Division Leader ACPM Classes

ACAD-8640 0.8 * CLSRM

Joint Data Network

Goal. The PUI will have an understanding of the Joint Data Network.

Prerequisite. T2P

ACAD-8641 1.3 * CLSRM

Theater & National ISR Employment

Goal. The PUI will have an understanding of theater and national ISR employment.

Prerequisite. T2P

6. Flight Leader ACPM Classes

ACAD-8620 0.5 * CLSRM

ESG/CSG Integration

Goal. The PUI will have an understanding of the integration between the ESG and CSG.

Prerequisite. T2P

Goal. The PUI will have an understanding of the MACCS Agencies, Functions, and Control of Aircraft and Missiles.

Prerequisite. T2P.

217. T&R SYLLABUS MATRIX. The below matrix summarizes T&R syllabus event information.

MV-22B															
CORE SKILL INTRODUCTION FRS ACADEMIC PHASE															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	CONVERSION
GROUND SCHOOL															
ACAD	0100	1000 LVL INBRIEF		1.5			*	CLS	-	-	-	B,T,R,M,A,C			010
ADL	0001	COURSEWARE INTRO	1.5				*	CBT	-	-	-	B,T,R,M,A,C CV			011
ACAD	0101	CRM INITIAL		2.5			*	CLS	-	-	0100	B,T,R,M,A,C			012
ADL	0002	AIRFRAME BASICS	2.5				*	CBT	-	-	0001	B,T,R,M,A,C			020
ADL	0003	INTRO TO COCKPIT	2.5				*	CBT	-	-	0001	B,T,R,M,A,C			021
ADL	0004	ELECTRICAL SYSTEM	2.0				*	CBT	-	-	0003	B,T,R,M,A,C			022
ACAD	0102	ELECTRICAL SYSTEM		3.0			*	CLS	-	-	0004	B,T,R,M,A,C			023
ADL	0005	HYDRAULIC SYSTEM	2.0				*	CBT	-	-	0003	B,T,R,M,A,C			024
ACAD	0103	HYDRAULIC SYSTEM		3.0			*	CLS	-	-	0005	B,T,R,M,A,C			025
ADL	0006	VMS	3.5				*	CBT	-	-	0003	B,T,R,M,A,C			026
ACAD	0104	VMS		3.0			*	CLS	-	-	0006	B,T,R,M,A,C			027
ADL	0007	DRIVE SYSTEM	2.5				*	CBT	-	-	0003	B,T,R,M,A,C			028
ACAD	0105	DRIVE SYSTEM		3.0			*	CLS	-	-	0007	B,T,R,M,A,C			029
ADL	0008	POWERPLANT	2.5				*	CBT	-	-	0003	B,T,R,M,A,C			030
ACAD	0106	POWERPLANT		3.0			*	CLS	-	-	0008	B,T,R,M,A,C			031
ADL	0009	FUEL SYSTEM	2.0				*	CBT	-	-	0003	B,T,R,M,A,C			032
ACAD	0107	FUEL SYSTEM		2.0			*	CLS	-	-	0009	B,T,R,M,A,C			033
ADL	0010	ECS,OBOGS/ OBIGGS	2.0				*	CBT	-	-	0003	B,T,R,M,A,C			034
ACAD	0108	ECS,OBOGS/ OBIGGS		2.0			*	CLS	-	-	0010	B,T,R,M,A,C			035
ADL	0011	INTRO TO COMM,NAV,FD	2.5				*	CBT	-	-	0003	B,T,R,M,A,C			040
LAB	0200	CMS LAB- OVERVIEW BASICS	2.0				*	CMS	-	-	0011	B,T,R,M,A,C CV			041
ADL	0012	NORMAL PROCEDURE CHKLST	2.0				*	CBT	-	-	0200	B,T,R,M,A,C CV			042
ADL	0013	MAINT- VSLED,AMEGS,B FWS	1.5				*	CBT	-	-	0003	B,T,R,M,A,C			043
LAB	0201	CMS LAB	2.0				*	CMS	-	-	0012	B,T,R,M,A,C			044
ADL	0014	LOCAL COURSE RULES	1.0				*	CBT	-	-	-	B,T,R,M,A,C CV			050
ACAD	0109	COURSE RULES EXAM		3.0			*	CLS	-	-	0014	B,T,R,M,A,C CV			051
ADL	0015	PERF CHARTS, WT BAL(FORM F)	2.0				*	CBT	-	-	0106	B,T,R,M,A,C			060
ACAD	0110	PERF CHARTS,WT BAL, LD COMP		3.0			*	CLS	-	-	0015	B,T,R,M,A,C			061
ACAD	0111	AERODYNAMIC BASICS REVIEW		5.0			*	CLS	-	-	0002	B,T,R,M,A,C			062
ACAD	0112	TILTROTOR AERO		5.0			*	CLS	-	-	0111	B,T,R,M,A,C			063
			36.0	39.0	0.0	0.0									

MV-22B															
CORE SKILL INTRODUCTION PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
FAM															
ACAD	1010	FAM STAGE INBRIEF		2.0			*	CLS	-	-	0100-0110, 0001-0015, 0200, 0201	B,T,R,M A,C			700
CFAM	1030	CHECKLIST			2.0		*	C/S	-	-	0110, 1010	B,T,R,A C			701
CFAM	1031	CHECKLIST PRACTICE			2.0		*	C/S	-	-	1030	B,T,A,C			702
CFAM	1032	NORM PROC, BFWS,GND EP'S			2.0		*	C/S	-	-	1031	B,T,R,M A,C			100
SFAM	1033	CHKLST,NAC DRILLS,HVR WORK			2.0		*	S	1	-	1032 0112	B,T,A,C			101
SFAM	1034	CHKLST,NAC DRILLS,CONV PTRN			2.0		*	S	1	-	1033	B,T,R,A C			102
SFAM	1035	CHKLST,CONV PTRN,STEEP APPR			2.0		*	S	1	-	1034	B,T,A,C			103
SFAM	1036	CONV PTRN, TRNS/CONV			2.0		*	S	1	-	1035	B,T,A,C			104
SFAM	1037	STO,ROL,CONV PTRN,APLN PTRN			2.0		*	S	1	-	1036	B,T,R,M A,C			105
SFAM	1038	APLN PTRN,HIGH AOB,SLOW FLT			2.0		*	S	1	-	1037	B,T,A,C			106
SFAM	1039	APLN PTRN,STALLS,ELP			2.0		*	S	1	-	1038	B,T,R,M A,C			107
SFAM	1040	EMERG PROC			2.0		*	S	1	-	1039	B,T,R,M A,C			108
SFAM	1041	FLT CONT EPs, DEGRADED HAND			2.0		*	S	1	-	1040	B,T,R,M A,C			109
SFAM	1042	FAM STAGE REVIEW			2.0		*	S	1	-	1041	B,T,A,C			110
LAB	1020	A/C PREFLT, EGRESS, SQDN PROC / A/C SYS HARDWARE FAM	3.5				*	A	1	-	1042	B,T,R,M A,C,CV			703
FAM	1043	ENG START,NAC DRILL,CONV PAT				2.0	*	A	1	-	1020, 1042	B,T,A,C			111
FAM	1044	CONV PTRN,STP APP,MGW				1.5	*	A	1	-	1043	B,T,R,M A,C			112
FAM	1045	CONV PTRN, TRNS/CONV,LSC				1.5	*	A	1	-	1044	B,T,R,A C			113
FAM	1046	APLN PTRN				1.5	*	A	1	-	1045	B,T,A,C			114
FAM	1047	APLN PTRN,HIGH AOB,STALLS				1.5	*	A	1	-	1046	B,T,R,M A,C			115
FAM	1048	APLN PTRN,STALLS,ELP				1.5	*	A	1	-	1047	B,T,A,C			116
FAM	1049	FAM PROGRESS CHK				1.5	*	A	1	-	1048	B,T,R,M A,C			117
SFAM	1050	NIGHT FAM			2.0		*	S	1	N*	1046	B,T,R,M A,C			118
FAM	1051	NIGHT FAM				1.0	*	A	1	N*	1049, 1050	B,T,R,A C			119
			3.5	2.0	28.0	12.0									

MV-22B															
CORE SKILL INTRODUCTION PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
NAV															
ACAD	1110	NAV STAGE INBRIEF		1.5			*	CLS	-	-	1046	B,T,A, C			720
ADL	1101	DDMS,INAV FUNCTIONS	2.0				*	CBT	-	-	1046	B,T,R, M,A,C			721
LAB	1120	VMPS 1 BUILD WP,RTS,COM PLN	4.0				*	CLS	-	-	1110 1101	B,T,R, M,A,C			722
LAB	1121	DDMS,MSN, INAV,ENAV, WYPT, FLPN	2.0				*	CMS	-	-	1110 1101	B,T,R, M,A,C			723
CNAV	1130	DDMS,MSN, INAV,ENAV, WYPT, FLPN			2.0		*	C/S	-	-	1041 1120 1121	B,T,R, M,A,C			120
SNAV	1131	FLT PLNS, TOT,FUEL MAN,FD CORE			2.0		*	S	1	-	1130	B,T,A, C			121
SNAV	1132	FLT PLNS,TOT, FUEL,FD INAV			2.0		*	S	1	-	1131	B,T,R, A,C			122
			8.0	1.5	6.0	0.0									
INST															
ACAD	1210	INST STAGE INBRIEF		1.0			*	CLS	-	-	1131	B,T,A C			730
ACAD	6013	IGS		6.0			365	CLS	-	-	1210	B,T,R, M,A,C			
ACAD	6014	INSTRUMENT EXAM		2.0			365	CLS	-	-	6013	B,T,R, M,A,C	X		
LAB	1220	VMPS 2	4.0				*	CLS	-	-	1132 1210	B,T,R, M,A,C			732
SINST	1230	BASIC INST			2.0		*	S	1	(N*)	1132 1220	B,T,R, A,C			130
SINST	1231	NON-PRECISION APP, HIGH ALT			2.0		*	S	1	(N*)	1230	B,T,R, M,A,C			131
SINST	1232	PRECISION APP			2.0		*	S	1	(N*)	1231	B,T,R, M,A,C			132
SINST	1233	ENROUTE PROC, HIGH ALT			2.0		*	S	1	(N*)	1232	B,T,A, C			133
INST	1234	BI, NON-PRECISION APP				2.0	*	A	1	(N*)	1049 1233	B,T,R, M,A,C			134
INST	1235	ENROUTE, HIGH/LOW APP				2.0	*	A	1	(N*)	1234	B,T,R, M,A,C			135
INST	1236	LOW/HIGH APP				2.0	*	A	1	(N*)	1235	A,C			136
INST	1237	LOW/HIGH APP				2.0	*	A	1	(N*)	1236	A,C			137
SINST	1238	INST REV, EP			2.0		*	S	1	(N*)	1235	B,T,A, C			138
ACAD	6015	INSTRUMENT ORAL EXAM		1.0			365				6014	B,T,R, M,A,C	X		
RQD	6032	INST EVAL			2.0		*	S/A	1	(N*)	1238 6015	B,T,R, MR,A,C CV	X		139
			4.0	10.0	12.0	8.0									

MV-22B															
CORE SKILL INTRODUCTION PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
CAL															
ACAD	1310	CAL STAGE INBRIEF		2.0			*	CLS CMS	-	-	1235	B,T,A,C			740
SCAL	1330	CAL PRTN,TAC STRT-IN, LAND			2.0		*	S	1	-	1310	B,T,A,C			140
SCAL	1331	TAC STRT-IN,AUG CPL HVR,RVL			2.0		*	S	1	-	1330	B,T,R,M, A,C			141
CAL	1332	CAL PTRN,TAC STRT-IN,RVL				2.0	*	A	1	-	1331	B,T,A,C			142
CAL	1333	RVL PROFILE,COUPL E LANDINGS				1.5	*	A	1	-	1332	R,M,A,C			143
CAL	1334	RVL PROFILE,COUPL E LANDINGS				1.5	*	A	1	-	1333	A,C			144
			0.0	2.0	4.0	5.0									
FORM															
ACAD	1410	FORM STAGE INBRIEF		1.0			*	CLS	-	-	1331	B,T,C			770
SFORM	1430	FORM PRINCIPLES			2.0		*	S	2	-	1410	B,T,C			170
SFORM	1431	FORM SEQ			2.0		*	S	2	-	1430	B,T,R,C			171
FORM	1432	FORM SEQ				2.0	*	A	2	-	1332 1431	B,T,C			172
			0.0	1.0	4.0	2.0									
LAT															
ACAD	1510	LAT STAGE INBRIEF		2.5			*	CLS	-	-	1235	B,T,R,M, A,C			760
ACAD	1511	LAT I		0.5			*	CLS	-	-	1510	B,T,R,M, A,C			
ACAD	1512	LAT II		0.5			*	CLS	-	-	1511	B,T,R,M, A,C			
ACAD	1513	LAT III		0.5			*	CLS	-	-	1512	B,T,R,M, A,C			
LAB	1520	VMPS 3: MTRS,DRW FILES	4.0				*	CLS	-	-	1513	B,T,R,M, A,C			761
LAB	1521	MAP FUNC,LOS,HAT,	4.0				*	CMS	-	-	1520	B,T,R,M, A,C			762
SLAT	1530	LAT MANEUVERS,RTE			2.0		*	S	1	-	1521	B,T,R,M, A,C			160
LAB	1522	VMPS PROG CHK	4.0				*	CLS	-	-	1530	B,T,R,M, A,C			763
LAT	1531	LAT MANEUVERS				1.5	*	A	1	-	1522	B,T,R,A, C			161
LAT	1532	LOW LEVEL NAV, CMS PROG CHK				2.0	*	A	1	-	1531	B,T,R,M, A,C			162
			12.0	4.0	2.0	3.5									

MV-22B															
CORE SKILL INTRODUCTION PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
NS															
ADL	1601	NVD SYSTEMS	2.0				*	CBT	-	-	1233	B,T,R,M,A C			780
ACAD	1610	NS STAGE INBRIEF		0.5			*	CLS	-	-	1332 1601	B,T,R,M,A C			781
ACAD	1611	FLIR THEORY AND INTRODUCTION		0.5			*	CLS	-	-	1610	B,T,A,C			
ACAD	1612	FLIR SYSTEMS AND IMAGE OPTIMIZATION		0.5			*	CLS	-	-	1611	B,T,A,C			
ACAD	1613	FLIR OPERATIONAL CONSIDERATIONS		0.5			*	CLS	-	-	1612	B,T,A,C			
ACAD	1614	MV-22 FLIR		1.0			*	CLS	-	-	1613	B,T,R,A,C			
ACAD	1615	MV-22 HUD		1.0			*	CLS	-	-	1610	B,T,R,A,C			
SNS	1630	NVD FAM,FLIR USE			2.0		*	S	1	NS	1614 1615	B,T,R,M,A C			180
NS	1631	NVD FAM,FLIR USE				1.5	*	A	1	NS	1630	B,T,R,C			181
SNS	1632	NVD CAL,FLIR			2.0		*	S	1	NS	1631	B,T,R,M,A C			182
NS	1633	NVD CAL,FLIR				1.5	*	A	1	NS	1631 1632	B,T,R,M,C			183
SNS	1634	NVD FORM			2.0		*	S	2	NS	1431 1632	B,T,A,C			184
NS	1635	NVD FORM				1.5	*	A	2	NS	1432 1633 1634	B,T,C			185
			2.0	4.0	6.0	4.5									
CARGO															
ADL	1701	INT CARGO OPS	1.5				*	CBT	-	-	1334	B,T,C			-
ADL	1702	EXT CARGO OPS	1.5				*	CBT	-	-	1334	B,T,C			-
ACAD	1710	STAGE INBRIEF		1.0			*	CLS	-	-	1233 1701 1702	B,T,C			750
ACAD	1711	INT/EXT CARGO OPS		2.0			*	CLS	-	-	1710	B,T,C			-
CARGO	1730	INTERNAL CARGO OPS			1.0		*	S/A	1	-	1330 1711	B,T,C			-
CARGO	1731	SNGL/DUAL PT EXT CARGO OPS			1.0		*	S/A	1	-	1330 1711	B,T,C			150
			3.0	3.0	2.0	0.0									
REV															
ACAD	6010	NATOPS OPEN BOOK		3.0			365	CLS	-	-	-	B,T,R, M,A,C	X		-
ACAD	6011	NATOPS CLOSED BOOK		1.0			365	CLS	-	-	6010	B,T,R, M,A,C	X		-
SREV	1830	EP REV			2.0		*	S	1	-	6011 CS INTRO CMPLT	B,T,R, M,A,C			190
SREV	1831	REV ALL MANEUVERS			2.0		*	S	1	-	1830	B,T,R,A,C			191
REV	1832	REV ALL MANEUVERS				1.5	*	A	1	(N)	1831	B,T,A,C			192
ACAD	6012	NATOPS ORAL EXAM		1.0			365	CLS	-	-	1832 6011	B,T,R, M,A,C	X		
RQD	6030	T2P CHECK				1.5	365	A	1	-	6012	B,T,R, M,A,C	X		193
			0.0	5.0	4.0	3.0									
			32.5	**32.5**	**68.0**	**38.0**									

MV-22B															
CORE SKILL PHASE															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
FAM															
ACAD	2010	MV-22 SINCGARS / HAVEQUICK Class		1.0			*	CLS	-	-	6030	B,T			
ACAD	2011	MV-22 SATCOM		1.0			*	CLS	-	-	6030	B,T			
LAB	2020	ARC-210 REMOTE CONTROL HEAD	2.0				*	CLS	-	-	6030	B,T			
SFAM	2030	FAM			2.0		*	S/A	1	(N)	2010 2011 2020	B			200
SFAM	2031	INST			2.0		365	S/A	1	(N)	6030	B,T,R			201
			2.0	2.0	4.0	0.0									
CAL															
ACAD	2110	RVL PROCEDURES		0.5			*	CLS	-	-	6030	B,T,R			
SCAL	2130	RVL			1.0		*	S	1	-	2110	B,T,R		2131 2030	451
CAL	2131	RVL				1.5	180	A	1	-	2130	B,T,R		2130 2030	451
SCAL	2132	SINGLE CAL			2.0		*	S	1	-	2130	B,T		2030	210
CAL	2133	SINGLE CAL				2.0	365	A	1	-	2132	B,T		2030 2132	211
SCAL	2134	SECTION CAL			2.0		*	S	2	-	2132	B,T,R		2030 2132	210
CAL	2135	SECTION CAL				2.0	365	A	2	-	2133 2134	B,T		2030 2132 2133 2134	212
CAL	2136	DIVISION CAL				1.5	365	A	3	-	2135	B,T,R		2030 2132 2133 2134 2135	213
			0.0	0.5	5.0	7.0									
FORM															
ACAD	2160	TACFORM		1.0			*	CLS	-	-	6030	B,T			
ACAD	2161	IFR FORMATION FLIGHT		1.0			*	CLS	-	-	6030	B,T			
SFORM	2180	COMBAT SPREAD			1.0		*	S	2	-	2130 2160	B,T			220
SFORM	2181	IFR FORMATION			1.0		180	S	2	-	2031 2161	B,T,R		2031	
FORM	2182	SECTION COMBAT SPREAD				2.0	365	A	2	-	2180 2181	B,T,R		2180 2183	221
FORM	2183	DIVISION FORMATION MANEUVERING				1.5	365	A	3	-	2182	B,T		2180 2182	213
			0.0	2.0	2.0	3.5									

MV-22B															
CORE SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
LAT															
ACAD	2210	LAT IV		0.5			*	CLS	-	-	2160	B,T,R			
ACAD	2211	TACTICAL AIRCREW COORDINATION		0.5			*	CLS	-	-	2160	B,T,R			
ACAD	2212	ROUTE PLANNING CONSIDERATIONS		0.5			*	CLS	-	-	2135	B,T			
LAB	2220	LAT MANEUVER WALK-THROUGH	0.5				*	CLS	-	-	2210	B,T,R			
SLAT	2230	SINGLE LAT MANEUVER / ROUTE			2.0		*	S	1	-	2132 2220	B,T			230
LAT	2231	SINGLE LAT MANEUVER / ROUTE				2.0	365	A	1	-	2133 2211 2212 2230	B,T		2230	231
SLAT	2232	SECTION LAT MANEUVER / ROUTE			2.0		*	S	2	-	2180 2230	B,T		2180 2230	232
LAT	2233	SECTION LAT MANEUVER / ROUTE				2.0	365	A	2	-	2182 2231 2232	B,T,R		2180 2182 2183 2230 2231 2232	233
			0.5	1.5	4.0	4.0									

MV-22B															
CORE SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
NS HLL															
ACAD	2310	ROTARY WING MISHAP LESSONS LEARNED		0.5			*	CLS	-	-	6030	B,T			
ACAD	2311	FIXED WING MISHAP LESSONS LEARNED		0.5			*	CLS	-	-	6030	B,T			
ACAD	2312	INTRO TO LASER SYSTEMS		0.5			*	CLS	-	-	6030	B,T,R			
ACAD	2313	SENSOR INTEGRATION		0.5			*	CLS	-	-	2135	B,T			
ACAD	2314	TACTICS IN THE NIGHT ENVIRONMENT		0.5			*	CLS	-	-	2135	B,T			
SNS	2330	HLL SINGLE / SECTION CAL			2.0		*	S	2	NS	2132 2134 2310 2311 2312	B,T,R		2132 2134 2180	240
NS	2331	HLL SINGLE CAL				2.0	365	A	1	NS	2133 2330 2313	B,T		2133	241
NS	2332	HLL SECTION CAL				2.0	365	A	2	NS	2135 2182 2331	B,T,R		2132 2133 2134 2135 2180 2182 2183 2330 2331	242
SNS	2333	HLL SINGLE / SECTION LAT			2.0		*	S	2	NS	2232 2330 2314	B,T		2132 2134 2180 2230 2232	243
NS	2334	HLL SINGLE LAT				2.0	240	A	1	NS	2233 2331 2333	B,T		2230 2231	244
NS	2335	HLL SECTION LAT				2.5	240	A	2	NS	2332 2334	B,T,R		2132 2133 2134 2135 2180 2182 2183 2230 2231 2232 2233 2330 2331 2332 2333 2334	245
			0.0	2.5	4.0	8.5									

MV-22B															
CORE SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
NS LLL															
SNS	2380	LLL SINGLE / SECTION CAL			2.0		*	S	2	NS	2332	B,T,R		2132 2134 2180 2330	310
NS	2381	LLL SINGLE CAL				2.0	240	A	1	NS	2335 2380	B		2133 2331	311
NS	2382	LLL SECTION CAL				2.0	240	A	2	NS	2381	B,T,R		2132 2133 2134 2135 2180 2182 2183 2330 2331 2332 2380 2381	312
SNS	2383	LLL SINGLE / SECTION LAT			2.0		*	S	2	NS	2333 2380	B,T		2132 2134 2180 2230 2232 2330 2333 2380	313
NS	2384	LLL SECTION LAT				2.5	180	A	2	NS	2382 2383	B,T,R		2132 2133 2134 2135 2180 2182 2183 2230 2231 2232 2233 2330 2331 2332 2333 2334 2335 2380 2381 2382 2383	314
NS	2385	LLL DIVISION FORMATION / CAL				2.5	240	A	3	NS	2382	B,T,R		2132 2133 2134 2135 2136 2180 2182 2183 2330 2331 2332 2380 2381 2382	315
			0.0	0.0	4.0	9.0									

MV-22B															
CORE SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
AAR															
ACAD	2410	MV-22 AIR TO AIR REFUELING		0.5			*	CLS	-	-	2160	B,T R			
SAAR	2430	DAY AAR			1.0		*	S	1		2180 2410	B,T			250
AAR	2431	DAY AAR				1.5	365	A	1		2182 2430	B,T R		2430	251
SAAR	2432	NIGHT AAR			1.0		*	S	1	NS	2330 2430	B,T		2430	252
AAR	2433	NIGHT AAR				1.5	365	A	1	NS	2431 2432 NSQ FOR LL	B,T R		2430 2431 2432	253
			0.0	0.5	2.0	3.0									
TG															
ACAD	2510	M240D FAM		0.5			*	CLS	-	-	6030	B,T			
ACAD	2511	GAU-16 FAM		0.5			*	CLS	-	-	6030	B,T			
TG	2532	DAY SECTION TG				1.5	365	A	2	-	2135 2510 2511	B,T		2180 2182 2183	261
TG	2535	NIGHT SECTION TG				1.5	365	A	2	NS	2312 2382 (IF LLL) 2532	B,T R		2180 2182 2183 2532	262
			0.0	1.0	0.0	3.0									
EXT															
SEXT	2630	SINGLE / DUAL PT NIGHT EXT			1.0		*	S	1	NS	2330	B,T			321
EXT	2632	DAY SINGLE OR DUAL PT EXT				1.5	365	A	1	-	2133	B,T R		2133	322
EXT	2634	NIGHT SINGLE OR DUAL PT EXT				1.5	240	A	1	NS	2331 2381 (IF LLL) 2630 2632	B,T R		2133 2331 2630 2632	323
			0.0	0.0	1.0	3.0									
MAT															
ACAD	2710	HIGH ALTITUDE OPERATIOINS		0.5			*	CLS	-	-	2135	B,T			
SMAT	2730	DAY MAT SIM			1.0		365	S	1	-	2135 2710	B,T R		2132	360
SMAT	2731	NT MAT SIM			1.0		365	S	1	NS	2330 2730	B,T R		2132 2330 2730	361
			0.0	0.5	2.0	0.0									

MV-22B															
CORE SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
GTR															
ACAD	2810	MV-22 ALE-47		1.0			*	CLS	-	-	6030	B,T			
ACAD	2811	MV-22 APR-39		1.0			*	CLS	-	-	6030	B,T			
ACAD	2812	MV-22 AAR-47		1.0			*	CLS	-	-	6030	B,T			
ACAD	2813	AAA THREAT TO ASSAULT SUPPORT		1.0			*	CLS	-	-	6030	B,T			
ACAD	2814	IR SAM THREAT TO ASSAULT SUPPORT		1.0			*	CLS	-	-	6030	B,T			
ACAD	2815	RADAR SAM THREAT TO ASSAULT SUPPORT		1.0			*	CLS	-	-	6030	B,T			
ACAD	2816	PsE/M		0.5			*	CLS	-	-	2233	B,T			
ACAD	2817	GROUND THREAT REACTION		1.0			*	CLS	-	-	2233	B,T R			
LAB	2820	GTR WALK-THROUGH	0.5				*	CLS	-	-	2817	B,T R			
SGTR	2830	SINGLE THREAT REACTION			2.0		*	S	1	(NS)	2233 2820	B,T			270
SGTR	2831	SECTION THREAT REACTION			2.0		365	S	2	(NS)	2830	B,T R		2180 2230 2232 2830 2832	330
GTR	2832	SECTION THREAT REACTION				1.5	365	A	2	(NS)	2831	B,T R		2180 2182 2183 2230 2231 2232 2233 2830 2831	331
			0.5	7.5	4.0	1.5									

MV-22B															
CORE SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
CQ															
ACAD	2910	MV-22 SHIP OPS		0.5			*	CLS	-	-	6030	B,T			
SCQ	2930	DAY SIM			1.0		365	S	1	-	2132	B,T R		2931	300
CQ	2931	DAY FCLP				1.5	365	A	1	-	2133 2930	B,T R		2133 2930	302
CQ	2932	DAY CQ				1.5	365	A	1	-	2931	B,T R		2133 2930 2931	304
SCQ	2933	NIGHT SIM			1.0		365	S	1	NS	2330 2930	B,T R		2930 2934	301
CQ	2934	NIGHT FCLP				1.5	365	A	1	NS	2331 2931 2933	B,T R		2133 2331 2930 2931 2933	303
CQ	2935	NIGHT CQ				1.5	365	A	1	NS	2335 2932 2934	B,T R		2133 2331 2930 2931 2932 2933 2934	305
			0.0	0.5	2.0	6.0									
			3.0	**18.5**	**34.0**	**48.5**									

MV-22B															
MISSION SKILL PHASE															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
SEA															
ACAD	3010	ASSAULT SUPPORT KEY PLAYERS		1.0			*	CLS	-	-	6030	B,T			
SSEA	3030	MEDIUM THREAT NIGHT SECTION			2.0		240	S	2	NS	2384 2385 2935 2413 2531 2832	B,T R		2132 2134 2180 2330 2930 2933	342
			0.0	1.0	2.0	0.0									
SHORE															
ACAD	3110	ASSAULT SUPPORT MISSION PLANNING		1.0			*	CLS	-	-	6030	B,T			
ACAD	3111	OBJECTIVE AREA PLANNING		1.0			*	CLS	-	-	6030	B,T			
ACAD	3112	ACEOI		0.5			*	CLS	-	-	6030	B,T			
SHORE	3130	LOW THREAT DAY DIVISION			2.0		365	S/A	3	(NS)	2384 2385 2531 2731 2831	B,T		2132 2134 2180	280
SHORE	3131	MEDIUM THREAT NIGHT SECTION				3.0	240	A	2	NS	2384 2385 2533 2731 2832	B,T R		2132 2133 2134 2135 2180 2182 2183 2330 2331 2332	343
			0.0	2.5	2.0	3.0									

MV-22B															
MISSION SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
AS															
ACAD	3210	GCE RAID PLANNING		1.0			*	CLS	-	-	6030	B,T			
ACAD	3211	EXECUTION CHECKLIST		0.5			*	CLS	-	-	6030	B,T			
ACAD	3212	RAPID RESPONSE PLANNING		1.0			*	CLS	-	-	6030	B,T			
SAS	3230	LOW THREAT DAY SECTION			2.0		365	S/A	2	(NS)	2384 2385 2531 2731 2831	B,T		2132 2134 2180	280
AS	3231	MEDIUM THREAT NIGHT DIVISION				3.0	240	A	3	NS	2834 2385 2533 2731 2382	B,T R		2132 2133 2134 2135 2136 2180 2182 2183 2330 2331 2332	343
			0.0	2.5	2.0	3.0									
AD															
SAD	3330	MEDIUM THREAT NIGHT SECTION			2.0		240	S	2	NS	2384 2385 2533 2632 2731 2832	B,T R		2132 2134 2180 2330 2630	342
			0.0	0.0	2.0	0.0									
TRAP															
ACAD	3410	PERSONNEL RECOVERY		1.0			*	CLS	-	-	6030	B,T			
ACAD	3411	TILTROTOR ESCORT TACTICS		1.0			*	CLS	-	-	6030	B,T			
TRAP	3430	MEDIUM THREAT NIGHT SECTION				3.0	240	A	2	(NS)	2384 2385 2533 2731 2832	B,T R		2132 2133 2134 2135 2180 2182 2183 2330 2331 2332	343
			0.0	2.0	0.0	3.0									

MV-22B															
MISSION SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
AE															
ACAD	3510	NEO EXECUTION		1.0			*	CLS	-	-	6030	B,T			
ACAD	3511	MOUT		1.0			*	CLS	-	-	6030	B,T			
ACAD	3512	CASEVAC		1.0			*	CLS	-	-	6030	B,T			
AE	3530	MEDIUM THREAT NIGHT SECTION				3.0	240	A	2	(NS)	2384 2385 2531 2731 2832	B,T R		2132 2133 2134 2135 2180 2182 2183 2330 2331 2332	343
			0.0	3.0	0.0	3.0									
			0.0	**11.0**	**8.0**	**12.0**									

MV-22B															
CORE PLUS SKILL PHASE															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
DCM															
ACAD	4010	ATTACK HELO THREAT		1.0			*	CLS	-	-	2233	B,T			
ACAD	4011	F/W THREAT		1.0			*	CLS	-	-	2233	B,T			
ACAD	4012	DCM		1.0			*	CLS	-	-	2832	B,T R			
LAB	4020	DCM WALK-THROUGH	0.5				*	CLS	-	-	4012	B,T R			
SDCM	4030	FW DCM			2.0		365	S	2	-	2233 2832 4020	B,T R		2180 2230 2232	401
DCM	4031	FW DCM				2.0	365	A	2	-	4030	B,T R		2180 2182 2183 2230 2231 2232 2233 4030	403
			0.5	3.0	2.0	2.0									
CBRN															
LAB	4120	EQUIPMENT FAM	0.5				*	CLS	-	-	6030	B,T			
S CBRN	4130	DAY CBRN			1.0		365	S	1	-	2132 4120	B,T		2132	410
S CBRN	4131	NIGHT CBRN			1.0		365	S	1	NS	2330 4130	B,T R		2132 2330 4130	411
			0.5	0.0	2.0	0.0									
AIE															
ACAD	4210	AERIAL DELIVERY / PARAOPS		0.5			*	CLS	-	-	6030	B,T			
ACAD	4211	FASTROPE / RAPPEL / SPIE / HOISTING		0.5			*	CLS	-	-	6030	B,T			
ACAD	4212	HELOCAST OPS		0.5			*	CLS	-	-	6030	B,T			
AIE	4230	AERIAL DELIVERY				1.5	365	A	1	(NS)	2133 4210	B,T R		2133	420
AIE	4231	PARAOPS				1.5	365	A	1	(NS)	2133 4210	B,T R		2133	420
AIE	4232	SPIE				1.5	365	A	1	(NS)	2632 2634 (IF NT) 4211	B,T R		2133 2632	422
AIE	4233	FASTROPE/ RAPPEL				1.5	365	A	1	(NS)	2632 2634 (IF NT) 4211	B,T R		2133 2632	423
AIE	4234	HELOCAST OPS				1.5	365	A	1		2133 2632 4212	B,T R		2133 2632	421
			0.0	1.5	0.0	7.5									

MV-22B															
CORE PLUS SKILL PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
TAC															
STAC	4330	HIGH THREAT DAY SECTION			2.0		365	S	2	-	3230 3231	B,T, R		2132 2134 2180	430
STAC	4331	HIGH THREAT NIGHT DIVISION			2.0		365	S	3	NS	3230 3231	B,T, R		2132 2134 2180 2330 4330	431
			0.0	0.0	4.0	0.0									
CQ															
SCQ	4430	NIGHT UNAIDED SIM			1.0		365	S	1	N*	2930	B,T, R		2930 2931 4431	440
CQ	4431	NIGHT UNAIDED FCLP				1.0	365	A	1	N*	2931 4430	B,T, R		2131 2933 4430	441
CQ	4432	NIGHT UNAIDED CQ				1.5	365	A	1	N*	2932 4431	B,T, R		2131 2931 2932 4430 4431	442
			0.0	0.0	1.0	2.5									
MAT															
MAT	4530	DAY MAT				1.5	365	A	1	-	2133 2730	B,T, R		2133 2730	362
MAT	4531	NIGHT MAT				1.5	365	A	1	NS	2731 4530 NSQ FOR LL	B,T, R		2133 2331 2730 2731 4530	363
			0.0	0.0	0.0	3.0									
RGR															
ACAD	4610	RGR CLASS		1.0			*	CLS	-	-	6030	B,T, R			
LAB	4620	RGR LAB	2.0				*	A	1	-	4610	B,T			
RGR	4630	FARP SET-UP				0.5	365	A	1	(NS)	2133 2331 2381 (IF LLL) 4620	B,T, R		2133	
			2.0	1.0	0.0	0.5									
RIE															
RIE	4730	AIE MISSION				2.5	365	A	1	(NS)	APPRO-PRIATE AIE SKILL	B,T, R			
			0.0	0.0	0.0	2.5									
			3.0	**5.5**	**9.0**	**18.0**									

MV-22B															
INSTRUCTOR TRAINING PHASE															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
BIP															
ACAD	5010	BITC		4.0			*	CLS	-	-	RECOMMEND	B,T,R			
SBIP	5030	FAM / CAL / FORM			2.0		*	S	-	-	FAM/CAL/ FORM COMPLETE, 5010	B,T,R	X		
SBIP	5031	EXT / MAT / CQ			2.0		*	S	-	-	EXT/MAT/ CQ COMPLETE, 5010	B,T,R	X		
			0.0	4.0	4.0	0.0									
FIT															
ACAD	5110	STAGE INBRIEF		1.0			*	CLS	-	-	-	CV			
SFIT	5130	DAY/NIGHT FAM MANEUVER REVIEW			2.0		*	S	1	N*	0001 0200 0012 0014 0109 1020 5110	CV			
SFIT	5131	DDMS,MSN,INAV,ENAV,WYPT, FLPN,TOT, FUEL			2.0		*	S	1	-	5130	CV			
SFIT	5132	CAL PRTN,TAC APPR, RVL, FLIR			2.0		*	S	1	-	5131	CV			
SFIT	5133	ENROUTE PROC,PREC/NONPREC APPR,FDP			2.0		*	S	1	(N)	5131	CV			
FIT	5134	REVIEW FAM MANEUVERS/CAL/RVL/TAC APPR				3.0	*	A	1	-	5130 5132	CV			
SFIT	5135	REVIEW FORM FLT/SEC LDGS/IIMC PROC			2.0		*	S	2	-	5132	CV			
FIT	5136	REVIEW FORM FLT/SEC LDGS/IIMC PROC				2.0	*	A	2	-	5134, 5135	CV			
ACAD	5111	BITC		16.0			*	CLS	-	-	-	B,T,R,C,CV			
FIT	5140	FAM				2.0	*	A/S	1	-	6134	B,T,R,C,CV	X		500
FIT	5141	NIGHT FAM				1.0	*	A/S	1	N*	5140	B,T,R,C,CV	X		501
SFIT	5142	INSTRUMENT			2.0		*	S/A	1	(N)	6134	B,T,R,C,CV	X		502
FIT	5143	CAL				1.5	*	A/S	1	-	6134	B,T,R,C,CV	X		503
SFIT	5144	NAVIGATION			1.5		*	S/A	1	-	6134	B,T,R,C,CV	X		504
FIT	5145	FORMATION				1.5	*	A/S	2	-	6134	B,T,R,C,CV	X		505
SFIT	5146	LAT			2.0		*	S	1	-	6134,5144	C	X		506
SFIT	5147	EXTERNALS			2.0		*	S/A	1	-	6134,5143	B,T,R,C,CV	X		507
FIT	5148	STANDARDIZATION CHECK				2.0	*	A	1	(N)	6134,5140, 5141,5142, 5143,5144, 5145,5147	B,T,R,C,CV	X		508
			0.0	17.0	17.5	13.0									

MV-22B															
INSTRUCTOR TRAINING PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
FLSE															
ACAD	5210	FLSE STAN COURSE		1.0			*	CLS	-	-	STAN BOARD	B,T,R	X		
			0.0	1.0	0.0	0.0									
AARI															
ACAD	5310	MV-22 AAR LECTURE		1.0			*	CLS	-	-	STAN BOARD	B,T			
SAAR	5330	DAT / NT AAR SIM			2.0		*	S	1	(NS)	6035 2433 5310	B,T			530
AAR	5331	NIGHT AAR CERT				2.0	*	A	1	NS	5330	B,T,R	X		531
			0.0	1.0	2.0	2.0									
TSI															
ACAD	5510	TEN FUNCTIONS AND OPERATIONS		1.0			*	CLS	-	-	STAN BOARD	B,T,R			
ACAD	5511	TRAINER IOS FUNCTIONS AND OPERATIONS		1.0			*	CLS	-	-	STAN BOARD	B,T			
ACAD	5512	TACTICAL SCENARIO DEVELOPMENT		1.0			*	CLS	-	-	STAN BOARD	B,T			
LAB	5520	TSI ASSIST			2.0		*	CP	-	-	COURSE CATALOG	B,T			
LAB	5521	TSI CERT			2.0		*	CP	-	-	COURSE CATALOG	B,T,R	X		
			0.0	4.0	4.0	0.0									
LATI															
ACAD	5610	INSTRUCT LATI COURSE		1.0			*	CLS	-	-	STAN BOARD	B,T			
SLAT	5630	LAT INSTRUCTIONAL TECHNIQUES			2.0		*	S	1	-	COURSE CATALOG	B,T	X		520
LAT	5631	LAT INSTRUCTIONAL TECHNIQUES				2.0	*	A	2	-	COURSE CATALOG	B,T	X		521
LAT	5632	LATI CERTIFICATION				2.0	*	A	2	-	COURSE CATALOG	B,T,R	X		522
SLAT	5633	LAT STANI CERTIFICATION			2.0		*	S	1	-	COURSE CATALOG	B,T,R	X		523
			0.0	1.0	4.0	4.0									
NSFI															
ACAD	5710	INSTRUCT NS COURSE		1.0			*	CLS	-	-	STAN BOARD	B,T			
SNS	5730	NSFI SIM INSTRUCTIONAL TECHNIQUES			2.0		*	S/A	-	NS	COURSE CATALOG	B,T	X		570
NS	5731	NSFI AIRCRAFT INSTRUCTIONAL TECHNIQUES				2.0	*	A	1	NS	COURSE CATALOG	B,T	X		571
NS	5732	NSFI CERT				2.0	*	A	2	NS	COURSE CATALOG	B,T,R	X		572
			0.0	1.0	2.0	4.0									

MV-22B															
INSTRUCTOR TRAINING PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
DCMI															
ACAD	5810	INSTRUCT DCM COURSE		1.0			*	CLS	-	-	STAN BOARD	B,T			
SDCM	5830	DCMI SIM INSTRUCTIONAL TECHNIQUES			2.0		*	S	2	-	COURSE CATALOG	B,T	X		
DCM	5831	DCMI AIRCRAFT INSTRUCTIONAL TECHNIQUES				2.0	*	A	2	-	COURSE CATALOG	B,T	X		
DCM	5832	DCMI CERT				2.0	*	A	2	-	COURSE CATALOG	B,T,R	X		
			0.0	1.0	2.0	4.0									
NSI															
ACAD	5910	INSTRUCT NS COURSE		1.0			*	CLS	-	-	STAN BOARD	B,T			
SNS	5930	NSI SINGLE SIM INSTRUCTIONAL TECHNIQUES			2.0		*	S	1	NS	COURSE CATALOG	B,T	X		590
NS	5931	NSI SINGLE AIRCRAFT INSTRUCTIONAL TECHNIQUES				2.0	*	A	1	NS	COURSE CATALOG	B,T	X		591
SNS	5932	NSI SECTION SIM INSTRUCTIONAL TECHNIQUES			2.0		*	S	2	NS	COURSE CATALOG	B,T	X		592
NS	5933	NSI SECTION AIRCRAFT INSTRUCTIONAL TECHNIQUES				2.0	*	A	2	NS	COURSE CATALOG	B,T	X		593
NS	5934	NSI SINGLE CERT				2.0	*	A	1	NS	COURSE CATALOG	B,T,R	X		594
NS	5935	NSI SECTION CERTIFICATION				2.0	*	A	2	NS	COURSE CATALOG	B,T,R	X		595
			0.0	1.0	4.0	8.0									
WTI															
WTI	5950	MAWTS-1 WTI Course					*				WTI COURSE CATALOG	B,T	X		
			0.0	0.0	0.0	0.0									
			0.0	**31.0**	**41.5**	**33.0**									

MV-22B															
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS PHASE															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
REQ															
ACAD	6010	NATOPS OPEN BOOK		3.0			365	CLS	-	-	-	B,T,R,C CV	X		
ACAD	6011	NATOPS CLOSED BOOK		1.0			365	CLS	-	-	6010	B,T,R,C CV	X		
ACAD	6012	NATOPS ORAL EXAM		1.0			365	CLS	-	-	6011	B,T,R,C CV	X		
ACAD	6013	IGS		6.0			365	CLS	-	-	-	B,T,R,C CV	X		
ACAD	6014	INSTRUMENT EXAM		2.0			365	CLS	-	-	6013	B,T,R,C CV	X		
ACAD	6015	INSTRUMENT ORAL EXAM		1.0			365	CLS	-	-	6014	B,T,R,C CV	X		
ACAD	6016	CRM REFRESHER		1.0			365	CLS	-	-	-	B,T,R,C CV	X		
RQD	6030	NATOPS EVAL			1.5		365	S/A	1	(N)	6012	B,T,R,C CV	X		600
RQD	6031	CRM EVAL			1.5		365	S/A	1	(N)	6016	B,T,R,C CV	X		629
RQD	6032	INST EVAL			2.0		365	S/A	1	(N)	6015	B,T,R,C CV	X		601
RQD	6033	TAC DAY REVIEW			2.0		*	S/A	1	-	STAN BOARD	B,T	X		607
RQD	6034	TAC NIGHT REVIEW			2.0		*	S/A	1	N	STAN BOARD	B,T	X		608
RQD	6035	TAC CHECK				2.0	*	A	1	(N)	2384 2385 2634 2731 2935 5030 5031 6033 6034	B,T,R	X		609
RQD	6036	EP REVIEW			2.0		90	S/A	1	(N)	6030	B,T,R,C V	X		202
			0.0	15.0	11.0	2.0									
SL															
ACAD	6110	MISSION ANALYSIS		1.0			*	CLS	-	-	6030	B,T			
ACAD	6111	AFL BRIEFING		1.0			*	CLS	-	-	6030	B,T			
LAB	6120	SECTION IFR CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T,CV			
LAB	6121	IIMC CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T,CV			
LAB	6122	SECTION HATA CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T,CV			
LAB	6123	LAT FORM CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T,CV			
LAB	6124	SECTION AAR CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T,CV			
SL	6130	SL BUILD-UP					*	A/S	2	(NS)	-	B,T,CV			
SSL	6131	ADMIN SL REVIEW			2.0		*	S	2	-	3000 LVL COMP, 50 TAC HRS	B,T,CV	X		611
SSL	6132	NS LAT SL REVIEW			2.0		*	S	2	NS	6131	B,CV	X		612
SL	6133	TACTICAL SL REVIEW				2.0	*	A	2	(NS)	6132	B,T,CV	X		613
SL	6134	SL CERT				2.0	*	A	2	(NS)	6133, SL ACADEMICS	B,T,R,C V	X		614
			1.5	2.0	4.0	4.0									

MV-22B															
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS PHASE (CONT)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
DL															
LAB	6220	DIVISION IFR CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T CV			
LAB	6221	DIVISION FORMATION CHALK TALK	0.3				*	CLS	-	-	STAN BOARD	B,T CV			
DL	6230	DL BUILD-UP					*	A	3	(NS)	-	B,T CV			
SDL	6231	ADMIN DL REVIEW			2.0		*	S	3	-	3 FLTS AS SL, 600 HRS, 200 MV-22 HRS	B, CV	X		616
SDL	6232	TACTICAL DL REVIEW			2.0		*	S	3	(NS)	6231	B,T CV			617
DL	6233	DL CERT				2.0	*	A	3	(NS)	6232, DL ACADEMICS	B,T R, CV	X		618
			0.6	0.0	4.0	2.0									
FL															
FL	6330	FL CERT				3.0	*	A	2xMV / 5+ A/C	(NS)	3 FLTS AS DL, 750 HOURS, FL ACADEMICS	B,T R, CV	X		620
			0.0	0.0	0.0	3.0									
AMC															
AMC	6430	AMC CERT				3.0	*	A	3+ ELEM	(NS)	STAN BOARD, FL	B,T R, CV	X		622
			0.0	0.0	0.0	3.0									
FCP															
ACAD	6510	QA LECTURE		1.0			*	CLS	-	-	6035	B,T R, CV			
SFCF	6530	RTB			1.0		*	S/A	1	-	6035 6510 STAN BOARD	B,T R, CV			639
SFCF	6531	FCF CERT			1.5		*	S/A	1	-	6530	B,T R, CV	X		640
			0.0	1.0	2.5	0.0									
			2.1	**18.0**	**21.5**	**14.0**									

MV-22B															
AVIATION CAREER PROGRESSION MODEL (ACPM)															
STAGE	CODE	EVENT DESCRIPTION	LAB/ADL HOURS	ACAD HOURS	SIM HOURS	FLT HOURS	REFLY INTERVAL	DEVICE	# OF AIRCRAFT	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVAL	CHAINING FLIGHT TRNG CODES	EVENT CONVERSION
ACPM															
ACPM	8200	MACCS AGENCIES AND FUNCTIONS		0.5			*	CLS	-	-	-	B			
ACPM	8201	MWCS		0.5			*	CLS	-	-	-	B			
ACPM	8202	ACA AND AIRSPACE		0.8			*	CLS	-	-	-	B			
ACPM	8210	AVIATION GROUND SUPPORT		0.7			*	CLS	-	-	-	B			
ACPM	8230	ACE BATTLE STAFF		0.5			*	CLS	-	-	-	B			
ACPM	8231	BATTLE COMMAND DISPLAY		0.5			*	CLS	-	-	-	B			
ACPM	8240	SIX FUNCTIONS OF MARINE AVIATION		1.7			*	CLS	-	-	-	B			
ACPM	8241	JTAR / ASR INTRO AND PRAC APP		1.3			*	CLS	-	-	-	B			
ACPM	8242	SITE COMMAND PRIMER		0.5			*	CLS	-	-	-	B			
ACPM	8250	THEATER AIR GROUND SYSTEM		0.8			*	CLS	-	-	-	B			
ACPM	8300	AIR DEFENSE		0.8			*	CLS	-	-	-	B			
ACPM	8310	FARP		0.8			*	CLS	-	-	-	B			
ACPM	8311	USMC TACTICAL FUEL SYSTEMS		0.8			*	CLS	-	-	-	B			
ACPM	8320	JOINT STRUCTURE AND JOINT AIR OPS		1.0			*	CLS	-	-	-	B			
ACPM	8321	JOINT AIR TASKING CYCLE, PHASE 1		0.4			*	CLS	-	-	-	B			
ACPM	8322	JOINT AIR TASKING CYCLE, PHASE 2		0.4			*	CLS	-	-	-	B			
ACPM	8323	JOINT AIR TASKING CYCLE, PHASE 3		0.4			*	CLS	-	-	-	B			
ACPM	8324	JOINT AIR TASKING CYCLE, PHASE 4		0.4			*	CLS	-	-	-	B			
ACPM	8325	JOINT AIR TASKING CYCLE, PHASE 5		0.4			*	CLS	-	-	-	B			
ACPM	8326	JOINT AIR TASKING CYCLE, PHASE 6		0.4			*	CLS	-	-	-	B			
ACPM	8340	INTEGRATING FIRES AND AIRSPACE		0.5			*	CLS	-	-	-	B			
ACPM	8350	PHASING CONTROL ASHORE		0.8			*	CLS	-	-	-	B			
ACPM	8351	TACRON ORGANIZATIONS AND FUNCTIONS		1.0			*	CLS	-	-	-	B			
ACPM	8630	TACC		1.0			*	CLS	-	-	-	B			
ACPM	8660	JOINT OPS INTRO		0.5			*	CLS	-	-	-	B			
ACPM	8640	JOINT DATA NETWORK		0.8			*	CLS	-	-	-	B			
ACPM	8641	THEATER AND NATIONAL ISR		1.3			*	CLS	-	-	-	B			
ACPM	8620	ESG/CSG INTEGRATION		0.5			*	CLS	-	-	-	B			
			0.0	20.0	0.0	0.0									

218. SYLLABUS EVALUATION FORMS. Contact the Fleet Projects Office at VMMT-204 to receive access to the integrated ATF for your unit.

219. SIMULATOR TRAINING

1. Events designated by a “C” or an “S” in the event header shall be executed in a training device equipped to meet the objectives listed in the event description; each event requires specific cockpit trainer “C” or simulator “S” capabilities. For each individual event, a cockpit trainer or flight simulator is categorized as Full Mission Capable (FMC), Partial Mission Capable (PMC), or Non-Mission Capable (NMC) based on the status of mission essential simulator subsystems. The following definitions apply:

a. FMC. All subsystems required to meet the training objectives for the event are installed and operating properly.

b. PMC. A subsystem or capability considered highly desirable, but not essential, to meet the training objectives is not installed or is not operating properly. While the event can still be completed, the quality of training is degraded.

c. NMC. The device lacks the capability to complete the event due to a critical subsystem or capability being inoperative or not installed. A simulator will be considered NMC if its configuration is greater than 3 months out of date as compared with the current aircraft configuration.

2. Completion of an event in a PMC simulator shall be noted on the ATF with a description of the impact to training. Commanding Officers shall be notified of all scheduled events in NMC simulators. Each commanding officer should notify DC/Aviation APW-71/APC [Info appropriate MCI/MARCORBASE, CG TECOM ATB and PMA- 205(MARFED)] by DMS message (via the applicable chain of command) when NMC simulators due to aircraft configuration changes occur for greater than six months or when in the commanding officer’s judgment the NMC rate has had an adverse effect on the squadron’s ability to train.

3. Simulator Mission Essential Subsystems Matrix (MESM) Application. Figure 2-2 illustrates how the absence of a particular subsystem or capability effects MC status for each training event in this Manual. All events will be completed in a FMC or PMC device as determined by the MESM. Completion of an event in a PMC device shall be noted on the ATF with a description of the impact to training. Under no circumstances will an event be completed in a device determined to be NMC for that event without the approval of the commanding officer.

4. Simulator event briefs shall be identical, both procedurally and in content, to aircraft event briefs. The length of the brief should be based upon the mission to be flown and content to be covered, and should not be forced to fit into the standard simulator briefing period.

5. If the flight simulator is not available, simulator periods may be flown in the aircraft.

6. Scheduling. The time between a simulator event and the corresponding aircraft event should be minimized to the maximum extent possible.

7. Motion. Motion systems significantly enhance training quality and are always preferred if available. Allocation of full motion simulators shall favor the Core Skill Introduction phase due to the fundamental nature of this training.

8. Tactical Environment. Events designated as “S-TEN” require an approved tactical environment simulation capable of introducing both semi-autonomous threats and moving models controllable from the tactical operator station.

9. Networked Simulation. Events designated as “S-TEN+” require an approved tactical environment simulation and at least one additional, networked, man-in-the-loop MV-22B simulator to meet the training objectives. A moving model controlled from the operator station does not satisfy the man-in-the-loop requirement.

10. Database Selection. Gaming areas should be selected based on their ability to best meet the training objectives for the event.

Table 2-11.--Simulator Mission Essential Subsystems Matrix (MESM)

Failed Sub-system	NMC for:	PMC for:
Any VMS component	Any event	
Motion		Any 1000-level event, SFORM, SAAR, SCQ, SEXT, SGTR, SDCM
Aural	Any SGTR, any Mission Skill event, SDCM	Any other event
Visual	Any event other than SINST, CFAM, or CNAV	
NVG Visual	Any event that requires NS environmental conditions	
DIGMAP	SNAV, SCAL, SLAT, SNS LAT, any Mission Skill event	Any other event
FLIR	Any event that requires N or NS environmental conditions	
NVG HUD	Any event that requires NS environmental conditions	
Flight Director	Any 1000-phase SINST, SNAV, SCAL 1331	Any SFAM
Basic ENAV functions	Any SINST	SFAM 2030, Any SCQ
Basic INAV functions	CNAV 1130, Any SNAV, SCAL, SLAT, SNS LAT, any Mission Skill event	Any other event
Basic Moving Models	SFORM, SEXT, SCQ, SAAR	
Tactical Environment	Any event designated TEN	
Networked Players	Any event designated TEN+	
Lead-ship/Demo Record/Playback		Any 1000 level event, SFORM
EW Suite	SGTR, SDCM, Mission Skill event	
Gun	TBD	TBD
RADALT	Any SFAM, SCAL, SLAT, SNS	Any other event
Debrief Station		Any event
Left Pilot MFDs	Any event	
Left Pilot RFIS		Any event
Right Pilot MFDs	Any event	
Right Pilot RFIS		Any event
MDL	CNAV 1130, SNAV, SLAT, SNS LAT, and Mission Skill event	Any other event
Standby Instruments	SINST 1230, REQ 6032	Any other event

CHAPTER 3

MV-22B CREW CHIEF/6176

MV-22B AERIAL OBSERVER/6199

INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

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CHAPTER 3

MV-22B CREW CHIEF/6176

MV-22B AERIAL OBSERVER/6199

INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

300. MV-22B CREW CHIEF/6176 AND AERIAL OBSERVER/6199 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. 6176/6199 TRAINING PROGRESSION MODEL. This model represents the recommended training progression for the average MV-22B Crew Chief/Aerial Observer. Units should use the model as a point of departure to generate individual training plans.

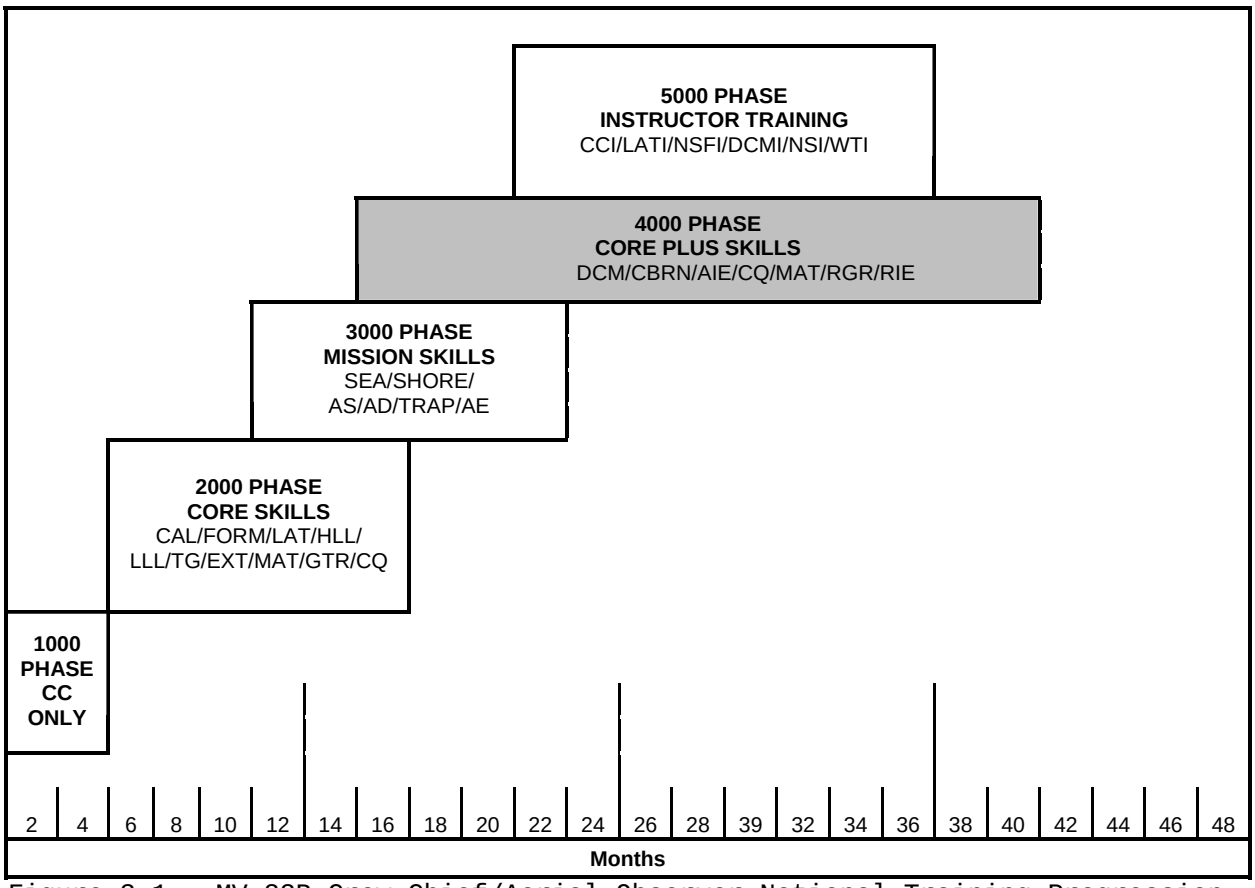

Figure 3-1.--MV-22B Crew Chief/Aerial Observer Notional Training Progression Model.

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 paragraphs.

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.

Table 3-1.--Core Skill Proficiency Attain Table

INDIVIDUAL CORE SKILL PROFICIENCY ATTAIN TABLE (Crew Chief / Aerial Observer)											
T&R events required to Attain Core Skill Proficiency (2000 Phase)											
FAM	CAL	FORM	LAT	NS HLL	NS LLL	AAR	TG	EXT	MAT	GTR	CQ
	2131R	2182R	2231	2331	2381		2530	2631R		2832R	2931R
	2133	2183	2233R	2332R	2382R		2532R	2632R			2932R
	2135			2334	2384R		2533	2633R			2934R
	2136R			2335R	2385R		2535R	2634R			2935R
Gray highlight & an R suffix on the event code = Refresher POI											
An S prefix on the event code = Event conducted in a 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:

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

Table 3-2.--Core Skill Proficiency Maintain Table

INDIVIDUAL CORE SKILL PROFICIENCY MAINTAIN TABLE (Crew Chief / Aerial Observer)											
T&R events required to Maintain Core Skill Proficiency (2000 Phase)											
FAM	CAL	FORM	LAT	NS HLL	NS LLL	AAR	TG	EXT	MAT	GTR	CQ
	2131R	2182R	2233R	2332R	2384R		2532R	2633R		2832R	2935R
	2136R			2335R	2385R		2535R	2634R			
Gray highlight & an R suffix on the event code = Refresher POI											
An S prefix on the event code = Event conducted in a simulator											

303. INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS. An 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 in the below paragraphs.

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:

Table 3-3.--Mission Skill Proficiency Attain Table

INDIVIDUAL MISSION SKILL PROFICIENCY ATTAIN TABLE (Crew Chief / Aerial Observer)					
T&R events required to Attain Mission Skill Proficiency (3000 Phase)					
SEA	**SHORE**	**AS**	**AD**	**TRAP**	**AE**
3030R	3131R	3231R	3330R	3430R	3530R
Gray highlight & an R suffix on the event code = Refresher POI					
An S prefix on the event code = Event conducted in a 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:

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

Table 3-4.--Mission Skill Proficiency Maintain Table

INDIVIDUAL MISSION SKILL PROFICIENCY MAINTAIN TABLE (Crew Chief / Aerial Observer)					
T&R events required to Maintain Mission Skill Proficiency (3000 Phase)					
SEA	**SHORE**	**AS**	**AD**	**TRAP**	**AE**
3030R	3131R	3231R	3330R	3430R	3530R
Gray highlight & an R suffix on the event code = Refresher POI					
An S prefix on the event code = Event conducted in a simulator					

304. INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS. Proficiency in Core Plus Skills is not required to obtain unit CSP. Training to Core Plus Skills is at the discretion of the unit commanding officer. To be considered proficient in a Core Plus Skill, an individual must attain and maintain proficiency in Core Plus Skill events as delineated in the below paragraphs.

1. Events Required to Attain Individual Proficiency in Core Plus Skills. 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:

Table 3-5.--Core Plus Skill Proficiency Attain Table

INDIVIDUAL CORE PLUS PROFICIENCY ATTAIN TABLE (Crew Chief / Aerial Observer)							
T&R events required to Attain Core Plus Proficiency (4000 Phase)							
DCM	**CBRN**	**AI/E**	**TAC**	**CQ**	**MAT**	**RGR**	**RI/E**
4031R	S4130	4230R		4431R	4530R	4620R	4730R
	S4131R	4231R		4432R	4531R	4630R	
		4232R					
		4233R					
		4234R					
Gray highlight & an R suffix on the event code = Refresher POI							
An S prefix on the event code = Event conducted in a 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:

Table 3-6.--Core Plus Skill Proficiency Maintain Table

INDIVIDUAL CORE PLUS PROFICIENCY MAINTAIN TABLE (Crew Chief / Aerial Observer)							
T&R events required to Maintain Core Plus Proficiency (4000 Phase)							
DCM	**CBRN**	**AI/E**	**TAC**	**CQ**	**MAT**	**RGR**	**RI/E**
4031R	S4131R	4230R		4431R	4530R	4620R	4730R
		4231R		4432R	4531R	4630R	
		4232R					
		4233R					
		4234R					
Gray highlight & an R suffix on the event code = Refresher POI							
An S prefix on the event code = Event conducted in a simulator							

305. QUALIFICATION AND DESIGNATION TABLES. The tables below delineate T&R events required to be completed to achieve initial qualifications and designations. In addition to event requirements, all required stage lectures, briefs, squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in Individual Performance Records (IPR). Loss of proficiency in all qualification events causes the associated qualification to be lost. Regaining a qualification requires completing all R-coded syllabus events associated with that qualification.

Table 3-7.--Individual Qualification Requirements

INDIVIDUAL QUALIFICATION REQUIREMENTS	
Qualification	Event Requirements
NATOPS	6010R, 6011R, 6012R, 6030R
LATQ	2231, 2233R
NSQ HLL	2331, 2332R, 2334, 2335R
NSQ	2381, 2382R, 2384R, 2385R
TGQ	2530, 2532R, 2533, 2535R
CQ	2931R, 2932R, 2934R, 2935R
DCMQ	4031R
R = Refresher POI events required for re-qualification	

Table 3-8.--Individual Designation Requirements

INDIVIDUAL DESIGNATION REQUIREMENTS	
Designation	Event Requirements
CC INITIAL	Successful completion of the Core Skill Introduction phase. 6030 also serves as the initial NATOPS Evaluation
AERIAL OBSERVER	NSQ, TGQ, 6030
FRS CCI	5030, 5031, 5032, 5033
CCLATI	5630, 5631R
TGI	5430, 5431, 5432R
CCNSFI	5731, 5732R
CCDCMI	5830, 5831R
CCNSI	5931, 5933, 5934R, 5935R
CCWTI	Completion of the MAWTS-1 WTI course
R = Refresher POI events required for re-qualification	

306. PROGRAMS OF INSTRUCTION (POI)

1. Basic Crew Chief POI. The entire syllabus shall be flown for personnel assigned to this category.

WEEKS	COURSE/PHASE	ACTIVITY
1-10	MV-22 Tiltrotor Mechanics Course	MTU
11-18	MV-22 Crew Chief Ground School	Training Squadron
19-28	Core Skill Introduction Phase	Training Squadron
29-40	Core Skill Phase	Tactical Squadron
41-50	Mission Skill Phase	Tactical Squadron
51-52	Core Plus Phase	Tactical Squadron

2. Transition Crew Chief POI (Rotary). Previously qualified crew chiefs from rotary wing platforms shall be placed in the Transition POI and shall complete all events designated by a ‘T’ for the 1000-6000 phase. This assumes that the transition crew chief has had previous proficiency in that stage of training. If the transition crew chief has no previous proficiency in a stage or particular event, then the transition crew chief should fly the entire stage or all events not previously flown. Crew Chief Instructors who were previously designated in another Type/Model/Series aircraft must complete the applicable instructor syllabus in it’s entirety in order to regain that designation in accordance with the MAWTS-1 Course catalog. Event proficiency updating for aircrew assigned to the Transition syllabus is per

Chapter 2 of the Aviation T&R Program Manual. When all T events in a stage are successfully completed, all remaining events in that stage are updated. Upon completion of the Transition POI, aircrew shall be assigned to the Refresher POI and follow Refresher POI proficiency updating procedures.

WEEKS	COURSE/PHASE	ACTIVITY
1-5	MV-22 Tiltrotor Mechanics Course	MTU
6-13	MV-22 Crew Chief Ground School	Training Squadron
14-21	Core Skill Introduction Phase	Training Squadron
22-32	Core Skill Phase	Tactical Squadron
33-42	Mission Skill Phase	Tactical Squadron
43-44	Core Plus Phase	Tactical Squadron

3. Basic Aerial Observer POI. The entire syllabus will be flown for personnel assigned to this category.

WEEKS	COURSE/PHASE	ACTIVITY
1-11	Core Skill Phase	Tactical Squadron
12-20	Mission Skill Phase	Tactical Squadron
21-22	Core Plus Phase	Tactical Squadron

(a) Designation as Aerial Gunner/Observer. After being qualified NSQ LLL, TGQ, and completion of RQD-6030 an AGOUI may be designated a Naval Aircrewman and an Aerial Gunner/Observer by the Commanding Officer. A designation letter, signed by the commanding officer is required.

(b) The original shall be placed in the AGO’s NATOPS jacket, and a copy in his APR with a corresponding logbook entry. An appropriate entry should be made in MCTFS granting the AGO the additional MOS 6199.

4. Refresher Crew Chief/Aerial Observer POI. Previously designated MV-22B crew chief/aerial observers who have been out of the MV-22B for more than 730 days shall be placed in the Refresher POI and complete the FRS Refresher syllabus designated by an ‘R’ in the 1000 phase. Upon completion of FRS Refresher training, crew chief/aerial observers are assigned to the Refresher syllabus at the tactical squadron. Refresher training at the tactical squadron is predicated on the experience of the crew chief/aerial observer. A Refresher crew chief/aerial observer need not fly every event within a stage of training to regain proficiency in that stage. The unit commanding officer may tailor the Refresher syllabus to fit the experience of the Refresher crew chief/aerial observer per the T&R Program Manual. Any modification to the Refresher syllabus by the unit commanding officer shall be documented in Section 3 of the crew chief/aerial observer's APR prior to commencement of training. When all R-coded events in a stage are successfully completed, all remaining events in that stage that are proficient or delinquent are updated. NBA and Incomplete events are not updated and must be completed in addition to R-coded events. If the Refresher crew chief/aerial observer has no previous proficiency in a stage or particular event, then the Refresher should fly the entire stage or all events not previously flown.

(a) A modified refresher syllabus for personnel out of the aircraft for 486-730 days can be individually tailored as specified by the commanding officer of the tactical squadron. The tactical squadron will establish the modified refresher’s syllabus. It will be based upon the refresher syllabus but may be modified by the squadron commanding officer.

(b) The refresher syllabus applies only up to the STAGE achieved during the prior tour. After that, the crew chief/aerial observer will complete the entire remaining syllabus.

WEEKS	COURSE/PHASE	ACTIVITY
1-2	MV-22 Familiarization	Training/Tactical Squadron
3-4	Ground Schools / OJT	Training/Tactical Squadron
5-7	Core Skill Introduction Phase	Tactical Squadron
8-10	Core Skill Phase	Tactical Squadron
11-12	Mission Skill Phase	Tactical Squadron
13-14	Core Plus Phase	Tactical Squadron

307. ACADEMIC TRAINING

1. Academic training shall be conducted for each phase/stage of the syllabus. Academic Training consists of Advanced Distributed Learning (ADL), Academic Lectures (ACAD), and Chalk Talks / Laboratory events (LAB). ADLs are self-paced computer based modules on particular subjects. Lectures are stand up instruction given to an entire class by a qualified instructor. Chalk Talks and Laboratory events are instructor guided, free-play, and interactive events given to an individual or entire class by a qualified instructor. Responsibilities for development and delivery of these courses are as follows:

a. Core Skill Introduction. The Training Squadron is responsible for the requirements, content, and execution of all ground training events for the Core Skill Introduction phase to include Ground School except for those contained within the LAT and NS syllabi. MAWTS-1 is responsible for the development of the academic lectures that support LAT and NS; the Training Squadron is responsible for the delivery of these lectures.

b. Core Skill/Mission Skill/Core Plus Skill/Mission Plus Skills. MAWTS-1 is responsible for the development of the academic lectures that support these phases of training. These lectures will be available through the MAWTS-1 Academic Support Package. The individual Tactical Squadrons are responsible for the delivery of these academic training events for the Core Skill, Mission Skill, Core Plus Skill, and Mission Plus Skills phases.

c. Aircrew Training References. Aircrews shall use the following references to ensure safe and standardized training and maintenance procedures, grading criteria, and aircraft operation:

OPNAVINST 3710.7_	NATOPS Gen Flt & Operating Inst
OPNAVINST 4790.2_	Naval Aviation Maintenance Program
NAVAIR 00-80T-106	LHA/LHD/MCS NATOPS Manual
NWP-42	Shipboard Helicopter Ops Manual
ANTTP 3-22.1-MV-22	MV-22B ANTTP Manual (Classified)
ANTTP 3-22.3-MV-22	MV-22B ANTTP Manual (Unclassified)
A1-V22AB-NFM-000	MV-22B NATOPS Flight Manual
NAVMC 3500.14	T&R Program Manual
MCO P4790.12	Individual Training Standards Systems (MATMEP)
MCO 3500.27/OPNAV 3500.39	Operational Risk Management (ORM)
MCO P3500.12	Weapons and Tactics Training Program (WTTP)
MAWTS-1 NVD Manual	MAWTS-1 NVD Manual
MAWTS-1 AG Manual	MAWTS-1 Aerial Gunnery Manual

308. SYLLABUS NOTES

1. Event Training Nomenclature. The following nomenclature is used to differentiate aircraft, simulator, cockpit trainer, cockpit management system part task trainer, computer based trainer, and classroom events. The aircraft is used for those events designated with an A, the flight simulator is used for those events designated with an S, the cockpit trainer is used for those events designated with a C, the cabin part task trainer is used for those events designated with a CPTT, the computer based trainer is used for those events designated with a CBT, and a classroom is used for those events designated with a CLSRM in the event header. To give commanding officers the maximum amount of flexibility for training, some events allow for the optional use of simulators or aircraft and cockpit trainer or simulator. Those types of events will use the designator A/S for aircraft preferred, simulator optional and S/A for simulator preferred, aircraft optional and C/S for cockpit trainer preferred, simulator optional.

2. Simulator Training. While it is recognized that the simulator does not specifically train to the crew chief or aerial observer positions, the Flight Training Device (FTD), Full Flight Simulator (FFS), Interactive Cockpit Learning Environment (ICLE) and Cabin Parts Task Trainer (CPTT) have been incorporated into the Core Skill Introduction and the Core Skill Basic phases of the syllabus to integrate the crew chief into cockpit procedures prior to entering the aircraft. To further clarify the use of the simulator, an event marked as ESFAM designates that the enlisted aircrewman is the priority for that particular simulator event and a dedicated Contract Instructor or Pilot is required. Any other simulator event in the crew chief syllabus can be conducted in conjunction with pilot training vice having a dedicated pilot for crew chief-only training.

3. Environmental Conditions. Aircrews shall fly events annotated with an N or NS at least 30 minutes after official sunset. Events shall be flown in accordance with environmental conditions listed in the matrix below:

Table 3-9.--Environmental Conditions

ENVIRONMENTAL CONDITIONS	
Code	Meaning
	Shall be flown during hours of daylight: (by exception - there is no use of a symbol)
N	Shall be flown during hours of darkness, may be aided or unaided
N*	Shall be flown during hours of darkness must be flown unaided
NS	Shall be flown during hours of darkness – Mandatory use of Night Vision Devices
(N*)	May be flown during hours of darkness – If flown during hours of darkness must be flown unaided
(N)	May be flown during darkness – If flown during hours of darkness may be flown aided or unaided
(NS)	May be flown during darkness – If flown during hours of darkness must be flown with Night Vision Devices
Note – If the event is to be flown in the simulator the Simulator Instructor shall set the desired environmental conditions for the event.	

4. Training Event Performance Requirements

a. Purpose. To familiarize the CCUI/AOUI with general syllabus expectations, definitions, and the observation scale found on the Integrated Aircrew Training Forms (IATF).

b. General

(1) This Manual generalizes mission guidance to allow for local conditions and to allow this Manual to remain unclassified. HQMC (DC AVN) and CG MCCDC encourage squadrons to use the full range of tactics contained in the tactical manuals and adopt the latest developed and proven tactics.

(2) The 1000 phase syllabus includes all emergencies that are indicated with warnings, all emergency procedures with critical memory items, those with associated warnings, land immediately or land as soon as possible emergencies, and those that refer to any of the above. CCUI/AOUI's will be expected to memorize critical memory items and warnings associated with emergency procedures. They will be familiar with and be able to quickly look up other (non-memory) emergency procedures and their notes and cautions. To reinforce the latter, during flight briefs, CCUI/AOUIs will open PCLs to the appropriate page to review notes, cautions, and other non-memory items.

(3) CCUI/AOUI's shall be familiar with, but will not be required to memorize numerical system limitations for those systems whose indications are displayed with a green, yellow or red scale on either the EICAS or MFD's.

(4) All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance and procedures or systems discussed. Instructors should use all available debriefing techniques.

c. Definitions

(1) Discuss

(a) The CCI shall discuss a system, procedure, or maneuver during the brief, in flight, or debrief.

(b) The CCUI/AOUI shall demonstrate an understanding of all discussed items listed in the event description.

(c) All Demonstrate/Introduce flight events shall be discussed during the brief. The CCUI/AOUI shall perform the maneuver with coaching as necessary and is responsible for knowledge of the procedures prior to the flight.

(2) Demonstrate

(a) The CCI performs the maneuver with accompanying description.

(b) The CCUI/AOUI observes the maneuver and is responsible for knowledge of the procedures during the brief.

(3) Introduce. At his option, the CCI may perform the maneuver with an accompanying description, or he may coach the CCUI/AOUI through the maneuver without demonstration.

(4) Review

(a) The CCI observes and grades the maneuver without coaching the CCUI/AOUI. An airborne critique of the CCUI/AOUI's performance is at the option of the instructor.

(b) The CCUI/AOUI is expected to perform the maneuver without coaching and is devoid of procedural error at a level acceptable to warrant progress into the next stage of training.

(5) Evaluate

(a) The CCI observes and grades the maneuver without coaching the CCUI/AOUI. An airborne critique of the CCUI/AOUI’s performance is at the option of the instructor.

(b) The CCUI/AOUI is expected to perform the maneuver without coaching, with minor or no procedural errors, and at a level acceptable to warrant progress in the syllabus. The expectation is that the CCUI/AOUI will consistently apply timely corrections with very few and quickly corrected excursions outside performance standards.

(6) Expose

(a) The CCI shall expose the CCUI/AOUI to the procedure or consideration during the brief, in flight or debrief.

(b) The CCUI/AOUI is not responsible for the knowledge of the procedure or consideration prior to the flight.

d. Observation Scale. The following table describes the numerical observations assigned for graded events. The comments that relate to each score are designed to assist instructors in assigning the correct observation based upon a student's demonstrated performance.

Table 3-10.--Observation Scale

Observation Scale				
Observation	Level of Learning	General	Training as an Individual	Scenario Training as a Crew Member*
5	Correlation	Proactive. Ahead of the situation. Reacts correctly with changing conditions. And/or changing mission.	Performance is correct, efficient, and skillful. Deviations are very minor. The student initiates corrections, if required, and they are appropriate, smooth, and rapid.	Proactive management of resources in dynamic environment. Mission effectiveness and safety enhanced by planning and coordination. ABCD.
4	Application	Self / crew recognition of errors. Correct application of resources.	Self-Assess and correct errors in time. Deviations are brief and minor. Corrections are appropriate and timely.	Active Management. Recognize and Correct Errors. Maintain redundancy to improve mission effectiveness and reduce risk.
3	Understanding	Minor errors not detected. Crew Redundancy diminished.	Errors not detected and/or corrected in a timely manner. Corrections noticeably lag deviations.	Minor errors not detected and/or corrected. Risk unchanged.
2	Rote	Task accomplished mechanically and/or with limited situational awareness. Crew Redundancy Lost. Risk Increased.	Errors not recognized and/or corrected.	Errors not recognized and/or corrected.
1	Unfamiliar	Unable.	Skills not up to task.	Skills not up to task.
*There is a slight shift in thinking as you move to SBT and actual mission scenarios: based on their current performance, how well could they handle an unexpected increase in task loading, additive conditions, or crew factors?				

5. Integrated Aircrew Training Forms (IATFs)

a. Also known as syllabus evaluation forms, IATFs are required for any initial event completed by crew chiefs in one of the formal POIs or as recommended by the Squadron Standardization Board.

b. If the commanding officer has waived a syllabus event, the squadron training officer shall place a waiver letter in section 3 of the APR.

6. Aircrew Evaluation Flights. All enlisted aircrew shall have an appropriate NATOPS evaluation form completed annually upon completion of the NATOPS Check (RQD-6030). A designated NATOPS Evaluator, NATOPS Instructor/Assistant NATOPS Instructor shall evaluate RQD-6030.

7. Instructor Requirements

a. For all simulator and flight events the instructor requirement is noted at the right margin of each event. If the event header does not contain an instructor requirement then the minimum requirement is a qualified crew chief who is proficient in the given event.

b. For Core Skill Introduction flight events, the minimum instructor requirement is an FRS CCI. An FRS CCI, once designated by the FRS Commanding Officer, may instruct Core Skill Introduction flight events as qualified by stage of flight as described below. Additional instructor designation requirements are specified in the right margin of the event header.

c. For Core Skill Introduction simulator events, the minimum instructor requirement is an FRS Instructor qualified to operate the device.

d. The minimum qualification for instructing AO core skill events shall be a crew chief who is core skill proficient in the AO syllabus code to be instructed.

8. Crew Requirements/Position Designations. Crew requirements are listed for each stage of training. This manual requires the use of an aerial observer for all external flights, NVD flights, Ground Threat Reaction (GTR), and all DCM flights. However, the squadron commanding officer may, at his discretion, employ an aerial observer on any flight event. The requirement for an aerial observer is intended to provide a second crewmember in the aircraft cabin section. A designated aerial observer or crew chief may fill this requirement. On NVD training flights a crew chief or aerial observer under instruction (CCUI/AOUI) may fill this requirement when flying with a Crew Chief Night Systems Instructor (CCNSI).

9. Event Completion. Event completion is predicated upon demonstrated proficiency. When an individual successfully accomplishes the requirements of an event per the performance standards, the individual should log completion of the event (enter the appropriate T&R code) in M-SHARP. When the event is entered into M-SHARP, the individual's proficiency date for that event is automatically updated to reflect the date the event was completed. When supervising individual events, unit instructors/leaders shall ensure that trainees demonstrate proficiency per T&R standards prior to logging successful event completion. Evaluating individual proficiency in an event normally requires both objective and subjective assessment. If, in the instructor's opinion, the CCUI/AOUI does not adequately perform a required event, then all or parts of the sortie shall be repeated until adequate performance is demonstrated. If an individual fails to accomplish the requirements of an event per the performance standards, the individual should

not log that event and the proficiency status for that event remains unchanged. Times indicated for each event are for planning purposes only.

10. Sequence. Training should be accomplished by flying events within a stage in sequence and stages in sequence when practical.

11. Crew Resource Management (CRM). Aircrew shall brief techniques of CRM for all flights and/or events. The crew chief will act as an observer, always being alert for other aircraft or obstacles to flight. He will supervise internal cargo loading, verbally direct the pilot during external hookups and releases, and supervise the embarkation and debarkation of passengers. The crew chief may detect system failures before the pilot and must inform him of potential malfunctions. He can affect minor airborne repairs and supervise any additional crewmembers that the mission may require.

12. Operational Risk Management (ORM). Aircrews shall brief those factors that affect risk mitigation decisions for every flight or mission.

13. Rules of Conduct for Defensive Combat Maneuvers (DCM)

a. Purpose. To standardize the training rules for tiltrotor aircraft conducting DCM training. These training rules apply to all DCM sorties. Subject matter experts review training requirements and qualification criteria for crewmembers and the inherent responsibilities of commanders and supervisory personnel to ensure crewmembers achieve training toward combat readiness by the safest and most realistic means available. The DCM training rules set forth herein and in the MV-22B ANTTP Manual are minimum requirements. Squadron commanders should promulgate supplementary directives to delineate syllabus contents, proficiency levels, communications procedures, safety precautions, and other applicable areas of concern. Responsibility for the safe and efficient implementation of realistic combat training rests with all levels of command.

b. Scope. DCM training is designed to develop the high level of skill required to defend against the current and future threat. The T&R Program Manual, OPNAVINST 3710.7, the MV-22B ANTTP Manual, and this Manual contain the overall policies, responsibilities, training syllabi, and flight objectives for DCM training. DCM consists of 2 tiltrotor vs F/W.

c. Authority. CG MCCDC tasks the Commanding Officer, MAWTS-1 with developing training courses (both ground and flight), establishing standards and presenting said courses in support of operating units. Appropriate T&R syllabi and the MAWTS-1 Course Catalog contain MAWTS-1 course topics, USMC standards of performance, and criterion for instructor certification. Authority and responsibility for overall supervision of DCM flight rests with operational commanders.

d. Safety. DCM will be conducted within the guidelines of this Chapter, the T&R Program Manual, and the MV-22B ANTTP Manual. Squadron commanders shall ensure that crewmembers conducting DCM training are properly qualified and appropriate flight leadership is represented within the flight.

(1) Squadrons shall conduct training flights pursuant to the applicable T&R syllabus under direct supervision of experienced flight leaders. Moreover, the DCM lead shall thoroughly brief/debrief all participants in the conduct of the flight.

(2) Unscheduled DCM is strictly prohibited.

e. DCM Training Areas

(1) Training shall only be conducted in designated warning areas, restricted areas, Military Operating Areas (MOAs), appropriate blocks of controlled airspace as assigned by Air Traffic Control (ATC), or in other designated areas where safe separation from non-participants can be maintained.

(2) At a minimum, designated DCM training areas shall be clear of Federal airways, control zones, and other areas of air traffic congestion, unless established pursuant to a letter of agreement with the Federal Aviation Administration (FAA) or host nation agreement.

f. DCM Flight Requirements. Crewmembers participating in DCM will conform to the following flight guidelines:

(1) When all crewmembers of a flight are DCM qualified, the flight does not require a Defensive Combat Maneuvering Instructor (DCMI).

(2) Minimum crew requirements shall be per the applicable T&R syllabus.

(3) A non-DCM qualified pilot may participate in DCM training, provided the Tiltrotor Aircraft Commander is a designated DCMI. Non-DCM qualified aircrew serving in the cabin section may participate in DCM training, provided the other aircrew serving in the cabin section is a designated DCMI.

(4) DCM must be conducted in day VMC conditions.

(5) Minimum tiltrotor altitude is 200 feet AGL.

(6) The tactical wingman is always responsible for separation during the engagement.

(7) Minimum weather for DCM shall be 3000/5 with a definable horizon and shall not be conducted through an under/overcast.

(8) Pilots of F/W aircraft participating in DCM shall be LAT qualified and proficient.

(9) Minimum F/W altitude is 500 feet AGL.

(10) No slow speed, high AOA maneuvering below 10,000 ft by F/W.

(11) No supersonic flight is authorized.

g. DCM Syllabus. Squadrons shall conduct DCM training per the appropriate syllabus contained in the T&R Manual, the MAWTS-1 course catalog, and the MV-22B ANTTP Manual.

h. DCM Flight Briefs

(1) Crewmembers shall brief DCM training rules per the MV-22B ANTTP Manual, the T&R Program Manual, and OPNAVINST 3710.7 prior to DCM training.

(2) DCM participants shall conduct face-to-face briefs. Operational commanders may waive DCM face-to-face brief requirements as outlined below.

(a) At a minimum, 1 individual from each participating unit shall attend a face-to-face brief.

(b) For units not co-located, a telephone brief may satisfy the face-to-face briefing requirement. The following guidelines for telephone briefs and debriefs apply:

1 The flight leaders shall conduct the telephone brief.

2 All applicable training rules shall be covered during the telephone brief.

3 The flight leaders receiving the telephone brief will brief all other participating crewmembers prior to their flights.

309. CORE SKILL INTRODUCTION FRS ACADEMIC PHASE

1. Ground School

a. Purpose. Prepare the student for the flight portion of the core skill introduction phase. Emphasis is placed on major aircraft systems, Cockpit Management System (CMS), Plane Captain duties, and specific mission roles.

b. General

(1) Ground school is setup into nine major blocks of instruction. The blocks of instruction build progressively on the preceding blocks. Each major block of instruction consists of ADL lessons guided by a crew chief certified to give academic instruction. Each block of instruction has accompanying lab sessions interspaced within in order to amplify and apply the ADL and classroom instruction.

(2) The blocks of academic instruction may be followed by practical application for plane captain daily and turnaround responsibilities. This training will be documented in individual MATMEP records in accordance with the current edition of OPNAV 4790.

(3) Specific lessons as well as Terminal (TLOs) and enabling learning objectives (ELOs) for periods of instruction are defined in the Training Course Control Document (TCCD) for MV-22B Enlisted Aircrew Training.

(4) Instructor certification for academic instruction shall be conducted per_the USN Journeyman Instructor Training Course (CIN A-012-0077) or equivalent instructor training program.

(5) The Commanding Officer of the resident FRS has the responsibility to define the required content, conduct reviews, forward required changes and approve the content for all ground school events.

(6) The CO of the FRS has waiver authority over any event within Ground School.

ACAD-0100 1.0 * T CLSRM

Ground School Intro In-Brief

Goal. The CCUI understands the expectations during Ground School and has the requisite knowledge of the course and where all the necessary references can be accessed to complete the Core Skill Introduction Phase.

(1) Discuss

(a) Overall Course Design for Ground School and the Core Skill Introduction Phase.

(b) Student Guide material.

1 Class Schedule.

2 Systems reference material.

3 ACAD handouts.

4 Simulator and Flight Events Student Guides.

(c) List, Location, and access to all appropriate references that will be required through the Core Skill Introduction Phase.

(d) Expectations of CCUI during Ground School to include work schedule, ACAD preparation, and event prerequisites.

(e) Squadron and MATSS processes, particularly scheduling.

(2) Demonstrate

(a) Computer based training access. All students will log-on to the network and access the first ADL.

(b) Basic operation of the ADL.

Prerequisite. Squadron operations department check-in.

ACAD-0101 11.5 * T CBT

Academic Block One

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) V-22 familiarization and aircraft missions.

(2) Manuals and publications.

(3) Safety and ORM.

(4) Aerodynamics.

(5) Airframe.

(6) Introduction to ingress/egress systems.

Prerequisite. ACAD-0100

LAB-0200 1.0 * T 1 MV-22B A

Flightline Fire Extinguisher Lab

Goal. Familiarize CCUI with operation and inspection of flightline fire bottles.

Requirement

(1) Discuss

(a) Preflight procedures and operation.

(2) Introduce

(a) Hand and arm signals for aircraft fire.

(b) Preflight, positioning, and operation of levers and pins.

(c) Hazardous materials, e.g. HALON.

Performance Standards

(1) Be able to demonstrate fire bottle preflight inspection and operating procedures.

Prerequisite. ACAD-0100

LAB-0201 1.0 * T CPTT C/A

Ingress/Egress Lab

Goal. Familiarize CCUI with squadron procedures for flight. Complete required V-22 Egress.

Requirement

(1) Discuss

(a) Flight equipment checkout.

(2) Introduce

(a) V-22 Egress.

Performance Standards

(1) Be able to execute the V-22 egress procedures without reference or coaching.

Prerequisite. ACAD-0100

LAB-0202	5.0	*	T	1	FFS/FTD	S

Intro to APU and CMS Start-up Lab

Goal. Demonstrate operation of the APU and CMS start-up procedures.

Prerequisite. ACAD-0100

ACAD-0102	15.0	*	T	CBT

Academic Block Two

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) Electrical systems.

(2) Lighting systems.

(3) Avionics systems.

(4) Environmental control system.

(5) Cockpit management system.

Prerequisite. ACAD-0101

LAB-0203	5.0	*	T	1	FFS/FTD	S

APU and CMS Start-up Lab

Goal. Introduce CCUI to APU and CMS start-up procedures.

Prerequisite. ACAD-0101

ACAD-0103	13.5	*	T	CBT

Academic Block Three

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) Control and display, Advance Mission Computers.

(2) ICS and communication systems.

(3) GPS, INS, and DIGIMAP systems.

Prerequisite. ACAD-0102

LAB-0204	5.0	*	T	1	FFS/FTD	S	

Control and Display Lab

Goal. Introduce CCUI to use of controls, displays, and CMS.

Prerequisite. ACAD-0102

LAB-0205	5.0	*	T	1	FFS/FTD	S	

Communication and Navigation Lab

Goal. Demonstrate to CCUI to use of communications, INS, and GPS.

Prerequisite. ACAD-0102

ACAD-0104	9.0	*	T		CBT		

Academic Block Four

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) RADALT, TACAN.

(2) Radio navigation equipment.

(3) VOR/ILS, FLIR.

(4) Integrated Electronic Warfare Suite.

Prerequisite. ACAD-0103

LAB-0206	4.0	*	T	1	FFS/FTD	S/A	

Navigation and IEWS Lab

Goal. Introduce CCUI to use of radio navigation equipment and Integrated Electronic Warfare Suite (IEWS).

Prerequisite. ACAD-0103

ACAD-0105 16.0 * T CBT

Academic Block Five

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) O2/N2 system.

(2) IPS.

(3) Engine.

(4) APU.

(5) Fire detection and suppression systems.

(6) Hoist and winch systems.

(7) Weight and Balance.

Prerequisite. ACAD-0104

LAB-0207 5.0 * T 1 MV-22B A

Engine Familiarization Lab

Goal. Familiarize the CCUI with V-22 engine systems.

Prerequisite. ACAD-0104

LAB-0208 2.0 * T 1 MV-22B A

APU and Fire Protection System Lab

Goal. Familiarize the CCUI with the APU and fire protection systems.

Prerequisite. ACAD-0104

LAB-0209 4.0 * T 1 FFS/FTD S

Weight and Balance Lab

Goal. Introduce aircraft weight and balance calculations.

Prerequisite. ACAD-0104

LAB-0210 3.0 * T CPTT C/A

Cargo Loading Lab

Goal. Introduce cargo loading procedures.

Prerequisite. ACAD-0104

ACAD-0106 12.0 * T CBT

Academic Block Six

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) Drive system.

(2) VSLED and engine monitoring system.

(3) Flight control system.

(4) Hydraulic systems.

(5) Utility systems.

Prerequisite. ACAD-0105

LAB-0211 3.0 * T 1 MV-22B A

Proprotor System Lab

Goal. Familiarize the CCUI with V-22 proprotor system.

Prerequisite. ACAD-0105

LAB-0212 6.0 * T 1 FFS/FTD S

Hydraulics, engine start, and EAPS Lab

Goal. Introduce use of hydraulic systems and engine start procedures.

Prerequisite. ACAD-0105

ACAD-0107 12.5 * T CBT

Academic Block Seven

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) Landing gear system.

(2) Fuel system.

(3) Aircraft servicing.

(4) Rotor brake system.

(5) BFWS system.

Prerequisite. ACAD-0106

LAB-0213	2.0	*	T	1	MV-22B	A

Landing gear lab

Goal. Familiarize CCUI with components and operation of the landing gear.

Prerequisite. ACAD-0106

LAB-0214	2.0	*	T	1	MV-22B	A

Servicing Lab

Goal. Familiarize CCUI with aircraft servicing procedures.

Prerequisite. ACAD-0106

LAB-0215	11.0	*	T	1	FFS/FTD	S

INTRO to BFWS Lab

Goal. Familiarize CCUI with operation of the APU and BFWS systems.

Prerequisite. ACAD-0106

LAB-0216	6.0	*	T	1	MV-22B	A/S

BFWS Lab

Goal. Familiarize CCUI with components and operation of the APU and BFWS system.

Prerequisite. ACAD-0106

ACAD-0108	22.0	*	T		CBT

Academic Block Eight

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) Plane captain responsibilities.

(2) Performance of daily and turnaround inspections.

(3) Fuel sampling.

Prerequisite. ACAD-0107

LAB-0217 40.0 * T 1 MV-22B A

Introduction to Plane Captain responsibilities

Goal. Familiarize CCUI with procedures for daily and turnaround inspections and with responsibilities associated with the designation of Plane Captain.

Prerequisite. ACAD-0107

ACAD-0109 17.0 * T CBT

Academic Block Nine

Goal. The CCUI demonstrates understanding of the listed modules of instruction by successful completion of a computer-based test on the following modules.

Modules

(1) Crew Chief ground procedures.

(2) Crew Chief emergency procedures.

(3) ALSS equipment.

(4) Crew Chief in-flight duties.

Prerequisite. ACAD-0108

LAB-0218 5.0 * T 1 MV-22B A

Start-up/taxi/shut-down Lab

Goal. Familiarize CCUI with flightline procedures for aircraft start-up, shut-down, and taxi.

Prerequisite. ACAD-0108

LAB-0219 2.0 * T 1 MV-22B A

Mooring Lab

Goal. Familiarize CCUI with aircraft tiedown and securing procedures.

Prerequisite. ACAD-0108

LAB-0220 4.0 * T CLSRM

ALSS equipment Lab

Goal. Familiarize CCUI with ALSS equipment.

Prerequisite. ACAD-0108

LAB-0221	4.0	*	T		CPTT	C/A	

Emergency procedures Lab

Goal. Familiarize CCUI with aircraft emergency equipment and its use.

Prerequisite. ACAD-0108

LAB-0222	2.0	*	T	1	MV-22B	A	

Mission preparation/Briefing Lab

Goal. Familiarize CCUI with procedures for flight preparation.

Prerequisite. ACAD-0108

ACAD-0110	4.0	*	T		CLSRM		CRMI

Crew Resource Management (CRM) Initial

Goal. The CCUI understands the Risk and Resource Management (RRM) model and how the icons, processes, and seven principles apply to Crew Resource Management.

(1) Discuss

(a) Seven principles.

(b) RRM model.

1 Icons and processes.

2 Available resources.

3 Decision model.

ACAD-0111	8.0	*			CLSRM		

Night Imaging and Threat Evaluation (NITE) Lab

Goal. The CCUI is introduced to the night environment, utilization of NVD’s, and light discipline.

310. CORE SKILL INTRODUCTION PHASE

1. Purpose. To develop a Core Skill Introduction phase complete crew chief. At the completion of this phase the CCUI will be a NATOPS qualified crew chief and rate the 6176 MOS as specified in RQD-6030. All cockpit trainer, simulator, and flight events require an ATF.

2. General

a. Stages. The following stages are included in the Core Skill Introduction Phase of training.

(1) FAM

(2) INST

(3) CAL

(4) FORM

(5) LAT

(6) NS

(7) CARGO

(8) RQD

b. ROC will be per the T&R Program Manual.

3. Familiarization (FAM)

a. Purpose. To introduce the crew chief to the initial flight stage of training and the requirements associated with it. Focus of Effort (FOE): aircraft preparation, aircrew callouts, and NATOPS Chapters: 2, 4, 7, 11, & 12.

b. General. Aircrew may fly these events in conjunction with the pilot syllabus. Aircrew shall complete all day FAM stage flights prior to flying any subsequent flights.

c. Crew requirements. P/P/CC or CCI/CCUI. A CCI shall instruct the CCUI during all simulator flights.

d. Prerequisite. Aircrew must complete their physical, Naval Aviation Water Survival Training Program (NAWSTP), and Naval Aviation Physiology Training Program (NAPTP) prior to beginning flight training.

ACAD-1010	1.0	*	T	CLSRM

Goal. The CCUI should have an introductory knowledge of the training syllabus for the familiarization stage and gain familiarity with the expectations and performance standards.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose/FOE of the syllabus.

2 Syllabus outline and flow.

3 Applicable publications.

4 CCUI performance expectations.

(b) Squadron scheduling.

1 Squadron distribution of flight schedule.

Prerequisite. Completion of MV-22B crew chief ground school.

ESFAM-1032	2.0	*	T	1	FFS/FTD	S		FRSCCI

Goal. Introduce the crew chief to pre-start checks utilizing CMS to include weight and balance computations, frequency changes, and dropping waypoints.

Requirement.

(1) Discuss

(a) CMS weight and balance operations.

(2) Introduce

(a) Pre-engine start checks using CMS.

(b) Weight and balance scenarios.

(3) Review

(a) Frequency changes on CMS.

(b) Drop Waypoints on CMS.

Performance Standards

(1) Use the CMS to successfully complete 5 weight and balance scenarios, 2 zone and 3 station.

(2) Use NATOPS PCL to conduct pre-start checks in CMS.

(3) Input 2 frequency changes using the CMS.

(4) Drop 2 waypoints in CMS.

Prerequisite. ACAD-1010.

ESFAM-1033	2.0	*		1	FFS/FTD	S		FRSCCI

Goal. Introduce crew chief responsibilities and call outs during simulated aircraft start-up and FAM maneuvers in a day environment.

Requirement

(1) Discuss

(a) Standard operating procedure for airfield facilities, pattern description and radio/ICS calls.

(b) Crew chief call outs.

(2) Introduce

(a) Crew chief calls and positions during:

1 A/C start-up.

2 Taxi.

3 Low work.

a Hover work.

b Pattern work.

c Vertical take-offs/landings.

(b) Approaches.

(c) STO.

(c) RTO.

(e) Frequency changes on CMS.

(f) Drop Waypoints on CMS.

Performance Standards

(1) Respond to ICS command prompts in a timely manner.

(2) Verbally recite all crew chief emergency procedures verbatim.

Prerequisite. ESFAM-1032

FAM-1043	2.0	*	T	1	MV-22B	A		FRSCCI

Goal. Introduce crew chief responsibilities and call outs during aircraft start-up and FAM maneuvers in a day environment.

Requirement

(1) Discuss

(a) Fire fighting equipment operation.

(b) Hand and arm signals for Turn-up & Taxi, aircraft fires, and hot brakes.

(c) Aircraft fires on the ground, abnormal starts, and emergency shutdown procedures.

(d) Cabin configuration.

(e) Standard traffic calls (clock code, high, level, low, factor or no-factor).

(2) Demonstrate

(a) Proper pre-start, start, taxi, pre takeoff, after takeoff, landing, and shutdown procedures IAW NATOPS Pocket Check List (PCL).

(3) Introduce

(a) Systems troubleshooting through use of the Cockpit Management System (CMS).

(b) Aircraft start-up and shutdown.

(c) Taxi procedures.

(d) Lookout doctrine and areas of responsibility

(e) Hover work.

(f) Air taxi.

(g) Vertical landing from the hover.

(h) Normal landing pattern and approach.

(i) Standard traffic calls.

(4) Review

(a) Crew chief calls and positions introduced in ESFAM-1033.

(5) Emergencies

(a) Electrical system failure(s).

(b) Ground emergencies.

Performance Standards

(1) Perform crew chief duties and required calls during pre-start, start, taxi, pre takeoff, after takeoff, landing, and shutdown IAW applicable publications.

(2) Be able to state indications, execute/recite memorized items and exercise proper crew coordination during simulated emergency procedures.

Prerequisite. SFAM-1033

FAM-1044	1.5	*	T	1	MV-22B	A		FRSCCI

Goal. Review crew chief duties during FAM maneuvers in a day environment. Introduce transition to airplane mode and conversion mode maneuvers.

Requirement

(1) Discuss

(a) Time management as it applies to aircraft preparation and crew chief readiness for pilot flight brief.

(b) Aircraft limitations pertaining to STOs and ROLs.

(c) Cabin preparation for airplane mode.

(d) Safety precautions and procedures for servicing and troubleshooting while rotors are turning.

(e) Ramp operations and limitations during ground and flight operations.

(2) Introduce

(a) Max gross takeoff and landings.

(b) Steep approach.

(c) No hover landing.

(3) Review

(a) Preflight and post flight inspections.

(b) Startup/shutdown procedures.

(c) Taxi directions.

(d) Lookout doctrine and areas of responsibilities.

(e) Standard traffic calls.

(4) Emergencies

(a) Hydraulic System failures.

Performance Standards

(1) Perform crew chief duties and required calls during pre-start, start, taxi, pre takeoff, after takeoff, landing, and shutdown IAW applicable publications.

(2) Be able to state indications, execute/recite memorized items and exercise proper crew coordination during simulated emergency procedures.

(3) Conduct aircraft preflight or post-flight inspection.

(4) Operate ramp and ramp door from all control stations.

(5) Proper management and manipulation of upper crew door.

Prerequisite. FAM-1043.

FAM-1045	1.5	*	T	1	MV-22B	A		FRSCCI

Goal. Introduce airplane mode maneuvers.

Requirement

(1) Discuss

(a) Cabin preparation for airplane mode.

(b) Lookout doctrine during APLN mode.

(c) Airsickness.

(2) Introduce

(a) Cabin preparation for airplane mode.

(b) Transition/conversion.

(c) Standard rate turns in APLN mode.

(d) Use of oxygen mask.

(3) Review

(a) Preflight inspection requirements.

(b) Startup/shutdown procedures.

(c) Ground/taxi operations directions.

(d) Lookout doctrine.

(e) Post-flight inspection requirements.

(4) Emergencies

(a) VMS failures.

Performance Standards

(1) Perform crew chief duties and required calls during pre-start, start, taxi, pre takeoff, after takeoff, landing, and shutdown IAW applicable publications.

(2) Be able to state indications, execute/recite memorized items and exercise proper crew coordination during simulated emergency procedures.

(3) Conduct a timely and thorough preflight inspection and ensures proper cabin configuration prior to flight.

(4) Position fire bottle and self to conduct an aircraft start-up.

(5) Provide pilots with clear and concise traffic/clearance calls using proper ICS terminology.

(6) Perform crew duties in APLN mode with use of oxygen mask.

(7) Successfully complete radio frequency changes via the CDU.

Prerequisite. FAM-1044

FAM-1046	1.5	*	1	MV-22B	A	FRSCCI

Goal. Introduce airplane mode maneuvers (continued from FAM-1045).

Requirement

(1) Discuss

(a) Safety regulations and required flight/safety equipment for passengers, combat troops, and litter patients over land and water.

(b) Passenger briefing.

(c) Location and purpose of AOA and FFR indicators on MFD.

(2) Introduce

(a) APLN pattern.

(b) STO.

(c) RTO.

(d) ROL.

(3) Review

(a) Weight and balance entries utilizing CMS.

(4) Emergencies

(a) Drive System malfunctions.

(b) Gearbox failure (Warning).

(c) ICDS failure (Warning).

(d) Feathering/Flapping High Hot.

(e) Rotor Load High.

Performance Standards

(1) Perform crew chief duties and required calls during pre-start, start, taxi, pre takeoff, after takeoff, landing, and shutdown IAW applicable publications.

(2) Be able to state indications, execute/recite memorized items and exercise proper crew coordination during simulated emergency procedures.

(3) Perform a passenger brief with CCI.

(4) Perform proper weight and balance entries via CMS.

Prerequisite. FAM-1045

FAM-1047	1.5	*	T	1	MV-22B	A		FRSCCI

Goal. Introduce slow flight airplane mode maneuvers, high AOB turns, and power on/off stalls.

Requirement. CCUI to act in the capacity of the crew chief.

(1) Discuss

(a) Lookout responsibilities.

(b) Crew resource management.

(c) Aircraft stall characteristics, practice stall limitations, and crew chief positions during practice stalls.

(d) Single Engine Profile.

(2) Introduce

(a) Slow flight in airplane mode.

(b) High AOB turns in airplane mode (>45 degrees AOB).

(c) Practice power on/off stalls.

(3) Review

(a) APLN pattern.

(b) STO.

(c) RTO.

(d) ROL.

(4) Emergencies

(a) Single Engine Failure in Hover.

(b) Single Engine Failure in Flight.

(c) Avionics cautions.

(d) Rotor Brake on Caution.

Performance Standard

(1) Perform crew chief duties and required calls during pre-start, start, taxi, pre takeoff, after takeoff, landing, and shutdown IAW applicable publications.

(2) Be able to state indications, execute/recite memorized items and exercise proper crew coordination during simulated emergency procedures.

Prerequisite. FAM-1046

FAM-1048	1.5	*	1	MV-22B	A	FRSCCI

Goal. Review previously introduced FAM procedures and flight control emergency procedures.

Requirement. Review FAM procedures/crew chief emergency procedures.

(1) Introduce

(a) ELP.

(2) Review

(a) Transition to forward flight.

(b) Normal landing pattern and approach.

(c) STO and RTO.

(d) APLN pattern.

(e) ROL.

(f) Steep approach.

(g) Nose low steep approach.

(h) MGW takeoffs and landings.

(2) Emergencies

(a) Dual Engine failure.

(b) Fuel System Cautions.

Performance Standards. All previously listed performance standards from FAM-1043 through FAM-1047.

Prerequisite. FAM-1047.

FAM-1049	1.5	*	T	1	MV-22B	A		FRSCCI

Goal. FAM stage progress check.

Requirement. Review all normal and emergency procedures in stage. Demonstrate knowledge of aircraft systems.

Evaluate

(1) Transition to forward flight.

(2) Normal landing pattern and approach.

(3) STO and RTO.

(4) APLN pattern.

(5) ROL.

(6) Steep approach.

(7) Nose low steep approach.

(8) MGW takeoffs and landings.

(9) Lookout doctrine

Emergencies

(1) Any major system EP.

Performance Standards

(1) Perform all crew chief duties from engine start-up to shutdown in accordance with FTM and NATOPS.

(2) Complete a verbal or written systems knowledge exam.

Prerequisite. FAM-1048

FAM-1051	1.0	*		1	MV-22B	A	N*	FRSCCI

Goal. Introduce night unaided FAM maneuvers. May be flown in conjunction with pilot Instrument flight.

Requirement

(1) Discuss

(a) Crew day/crew rest.

(b) MV-22B lighting systems (internal and external).

(c) Night flight crew preparation.

(d) Airfield lighting.

(e) CRM as it applies to situational awareness during night operations.

(2) Demonstrate

(a) Use of cabin lighting, ICS control panel lighting, and Emergency Egress Lighting System (EELS).

(3) Introduce

(a) Preflight.

(b) Starting.

(c) Taxi.

(d) FLIR operation.

(e) Fueling.

(f) Shutdown.

(g) Postflight procedures.

(4) Review

(a) Normal landing pattern and normal approach.

(b) Running landing.

(c) Transition to airplane mode from takeoff.

(d) Landing pattern entry in airplane mode.

(e) Capability and use of the FLIR.

(f) Blindfold cabin check.

(5) Emergencies

(a) Cabin Fire in Flight.

(b) Smoke and Fume Elimination.

Performance Standards

(1) Maintain a high level of situational awareness.

(2) Use cabin lighting or calls for external lighting to aid in specific tasks.

(3) Provide accurate and timely distance estimation calls during landing.

Prerequisite. FAM-1049

4. Instrument Flight (INST)

a. Purpose. To expose the CCUI to the instrument environment, increase their overall knowledge of the CMS and reinforce the importance of CRM. FOE: use of CMS and aircrew coordination.

b. General. Initial Instrument flights will be flown with a CCI. INST-1234 may be flown in conjunction with any pilot instrument flight. If flown in the simulator at least one pilot or CSI is required. All manipulation of the CMS will be done by, or performed under the direction of, the pilot or CSI.

c. Crew Requirement. P/P/CC or CCI/CCUI

ACAD-1210	1.0	*	T	CLSRM

Goal. To introduce the CCUI to the training syllabus for the Instrument phase.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of the syllabus.

2 Syllabus events.

3 Applicable publications.

4 CCUI performance expectations.

(b) Aircraft navigation equipment and systems

1 Navigation equipment.

a VOR.

b TACAN.

c ENAV.

d INAV - GPS/INS.

2 Minimum aircraft equipment requirements.

(c) Crew integration during instrument and navigation flight.

1 In-flight publications.

2 Use of FDP.

3 Fuel management.

Prerequisite. FAM-1049

INST-1234	2.0	*	T	1	MV-22B	A/S	(N*)	FRSCCI

Goal. Introduce crew chief duties during instrument flight. All manipulation of the CMS will be done by, or performed under the direction of, the pilot or CSI.

Requirement

(1) Discuss

(a) Navigation systems to include INAV, ENAV, TACAN, and the flight director panel.

(b) CMS/DMS features and navigation information.

(c) Lookout doctrine, monitoring radios.

(d) Spatial disorientation/vertigo.

(e) CRM as it pertains to crew chief CMS inputs.

(2) Demonstrate

(a) Flight director panel inputs.

(b) IFF transponder code changes.

(c) TACAN frequency changes.

(d) Use of publications to include approach plates and IFR sectionals.

Performance Standards

(1) CCUI maintains situational awareness on radio traffic and ATC compliance.

(2) CCUI assists pilots with lookout doctrine.

(3) CCUI familiar with CMS/moving map features.

Prerequisites. FAM-1051(if flown at night), ACAD-1210.

5. Confined Area Landings

a. Purpose. To develop proficiency in performing single aircraft takeoffs and landings in confined areas in day VMC. FOE: CAL patterns, unimproved surface landings, scan, and aircrew callouts.

b. Crew Requirement. P/P/CC or CCI/CCUI.

ACAD-1310	1.0	*	T	CLSRM

Goal. Be able to comprehend and understand the concepts of CALS and tactical approaches to an unimproved surface. Be

able to understand the relationship of the CMS and aircraft unique systems and setup interrelated to the CAL environment.

Requirement

(1) Discuss

(a) Introduction.

1 Syllabus description.

2 Performance standards, CAL pattern CONV/APLN.

a Tactical Approaches.

b Hover/No-Hover Landings.

c CAL Departures.

d LZ Selection.

e Use of Interim Power.

f Use of FLIR.

g INS/GPS.

h CRM (Terminology during CAL).

i Augmented Hover CPLD.

j Reduced Visibility Landings (RVLs).

Prerequisite. FAM-1049

CAL-1332	2.0	*	T	1	MV-22B	A		FRSCCI

Goal. Introduce CALs at various sites.

Requirement

(1) Discuss

(a) Standard terminology and Crew positions and responsibilities during CALs.

(b) Lookout doctrine.

(c) Proprotor, Nacelle, and lower fuselage to obstacle clearance.

(d) Uneven/sloped terrain.

(e) LZ suitability.

(f) Normal vs. Steep glide slopes.

(g) Brown out/White out procedures.

(h) Interim Power.

(2) Introduce

(a) INAV functions (WYPT steer).

(b) LZ selection and evaluation.

(c) CONV Landing pattern.

(d) Approach.

(e) Vertical and no hover landings.

(f) Takeoff.

(g) Wave-off.

(h) Tactical straight-in approach.

(i) Remote Hover.

(3) Emergencies

(a) PRGB/TAGB/MWGB HOT.

Performance Standards

(1) Establish suitability of LZ through communication with pilots.

(2) Recognize and communicate any excessive closure rates and lateral or rearward drift during landings. Communicate obstacles and hazards in LZ.

Prerequisite. ACAD-1310.

6. Formation (FORM)

a. Purpose. To develop proficiency in cruise formation, rendezvous procedures and execution of formation maneuvers. FOE: V-22 formation fundamentals in CONV and APLN flight.

b. General. CCUI observes and assists the CCI for the initial 0.5 hour of the flight, then for the remainder of the flight acts in the capacity of crew chief under the supervision of a designated CCI.

c. Crew Requirements. P/P/CC/AO OR CCI/CCUI.

ACAD-1410	1.0	*	T	CLSRM

Goal. To introduce the CCUI to the training syllabus for the Formation phase. The following will be discussed: FORM syllabus, performance standards, CONV and APLN Cruise positions and conduct of FORM flights.

Requirement

(1) Discuss

(a) Introduction.

1 Purpose of Formation.

2 Syllabus description.

3 Required readings.

4 Performance standards.

(b) Cruise Formation.

(c) AFCS saturation due to wake interference.

(d) Sequence of Flight.

(e) Aircrew Responsibilities and Callouts.

Prerequisite. FAM-1049

FORM-1432	2.0	*	T	2	MV-22B	A		FRSCCI

Goal. Introduce cruise formation in the aircraft.

Requirement

(1) Discuss

(a) Cruise positions.

(b) Closure rate and crew comfort levels.

(c) Standard calls.

(d) Aircrew responsibilities during formation flights.

(2) Introduce

(a) Formation lookout doctrine.

(b) Crew responsibilities and positions.

(c) Section STO.

(d) Running/carrier rendezvous.

(e) Cruise/position.

(f) Over-run/under-run.

(g) Breakup and rendezvous.

(h) Transition/conversion.

(i) Lead changes.

(j) Formation landings.

Performance Standards

(1) Provide pilot with accurate and timely information on the position of wingman.

(2) Call wingman's position using standard terminology.

(3) Recognize and communicate any excessive closure rates and lateral or rearward drift during landing evolutions.

Prerequisites. CAL-1332, ACAD-1410.

7. Low Altitude Tactics (LAT)

a. Purpose. To develop proficiency in LAT maneuvers with emphasis on the importance of crew coordination, comfort level, and common terminology. FOE: LAT maneuvers, lookout doctrine, and crew comfort level.

b. General

(1) Maneuver descriptions may be found in the MV-22B Air Naval Tactics, Techniques, and Procedures (ANTTP) manual and the MV-22B Flight training Manual.

(2) Currency and altitudes are established and listed in the T&R Program Manual.

(3) The entire flight crew shall brief together for each flight.

c. Crew Requirement. P/P/CC/AO or CCLATI/CCUI.

ACAD-1510	1.0	*	T	CLSRM	CCLATI

Goal. To prepare the CCUI for the LAT stage of the curriculum.

Requirement

(1) Discuss

(a) Purpose of LAT.

(b) Syllabus description.

1 CCUI expectations.

(c) Required readings.

(d) Performance standards.

(2) Introduce

(a) LAT Philosophy, definitions, and Rules of Conduct.

(b) LAT Training Considerations.

(c) LAT Techniques and procedures.

Prerequisite. FAM-1049

LAT-1531	1.5	*	1	MV-22B	A	CCLATI

Goal. Introduce LAT maneuvers and crew chief duties in the LAT environment.

Requirement

(1) Discuss

(a) Standard terminology.

(b) LAT rules of conduct.

(c) Physiological considerations.

1 Airsickness

2 Crew comfort level.

(d) CRM.

(e) Lookout doctrine and obstacle clearance.

(f) Hazards (birds, wires, etc.).

(g) Cockpit scan.

(h) Required Equipment.

(2) Introduce

(a) Low level and contour flight profiles.

1 Speed rush baseline.

(b) APLN Mode Turn Maneuvers.

(c) Converting Turn Maneuver.

(d) Bunt Maneuver.

(e) Roll Maneuver.

(f) Level Quick Stop.

(g) Zoom Climb Maneuver.

(h) Inertia Maneuver.

(i) Max angle of Climb Maneuver.

(j) Climb to Dive Maneuver.

(k) LAT dive recovery.

Performance Standards

(1) Use of standard terminology.

(2) Maintain good lookout doctrine and clear aircraft of obstacles during all maneuvers.

(3) Demonstrate good situational awareness during all phases of flight.

Prerequisite. CAL-1332, ACAD-1510

LAT-1532	2.0	*	T	1	MV-22B	A		CCLATI

Goal. Introduce navigation in the LAT environment (airplane mode).

Requirement

(1) Discuss

(a) LAT Rules of Conduct.

(b) Aircrew duties during LAT navigation.

(c) Lookout doctrine.

(d) FLIR, DIGMAP, and INAV operations.

(e) Fuel management considerations.

(f) Navigation system failures.

(g) Bird strikes.

(h) Terrain identification during LAT.

(2) Introduce

(a) Conduct of a LAT route.

(b) Assist pilots with TOT and Fuel management.

(3) Review

(a) Navigation techniques.

(b) Standard terminology.

(c) Maneuvers from LAT-1531 as required.

Performance Standards

(1) CCUI assists the CCI for the initial 0.5 hour of the flight, then for the remainder of the flight acts in the capacity of crew chief under the supervision of a designated CCI.

(2) Maintain geographical orientation throughout the navigation route.

(3) Demonstrate understanding of information provided by the CMS.

Prerequisite. LAT 1531

8. Night Systems (NS) High Light Level (HLL)

a. Purpose. To provide initial exposure to operations while using night vision goggles under light levels greater than .0022 lux (HLL) as predicted by the Solar/Lunar Almanac Program (SLAP) module. FOE: NVGs and NVG scan/distance estimation.

b. General. All aircraft events require a Crew Chief Night Systems Instructor or Night Systems Familiarization Instructor (CCNSI or CCNSFI) for initial sign-off of student.

c. Crew Requirement. P/P/CC/AO, CCNSI/CCUI, or CCNSFI/CCUI.

ACAD-1610	1.0	*	T	CLSRM	NSI/NSFI

Goal. To prepare the CCUI for the NS stage of the curriculum.

Requirement

(1) Discuss

(a) Purpose of NS.

(b) Syllabus description.

1 CCUI expectations.

(c) Required readings.

(d) Performance standards.

(2) Introduce

(a) NVG Composition.

(b) NVG Setup and Focusing procedures.

(c) Light level calendar/SLAP data.

Prerequisite. FAM-1049

NS-1631	1.5	*	1	MV-22B	A	NS NSI/NSFI

Goal. Introduce HLL NVD FAM maneuvers.

Requirements

(1) Discuss

(a) NVG Briefing Guide.

(b) NVG adjustment procedures.

(c) Aircraft lighting for NVG flight.

(d) Misperceptions and Illusions.

(e) Sensor Integration (FLIR/ NVG).

(f) NVG field of view (FOV) vs. normal FOV.

(2) Introduce

(a) NVG adjustment.

(b) Use of NVDs at varying locations under HLL conditions.

(c) Ground taxi.

(d) Low work.

(e) Transition to forward flight.

(f) Normal landing pattern.

(g) Normal approach to a hover.

(h) STO.

(i) Running landing.

(j) Steep approach.

(k) No hover landing.

(l) Transition to airplane mode from takeoff.

(3) Review

(a) Preflight.

(b) Starting.

(c) Taxiing.

(d) Lookout.

(e) Shutdown.

(f) Postflight procedures.

Performance Standards

(1) Demonstrate the proper procedures for NVG adjustment and preflight.

(2) Demonstrate effective NVD scan and callouts.

Prerequisite. FAM 1051, ACAD-1610, NITE LAB.

NS-1633	1.5	*	T	1	MV-22B	A	NS	NSI/NSFI

Goal. Introduce night CALs at various CAL sites utilizing NVDs (HLL).

Requirements

(1) Discuss

(a) NVD briefing guide.

(b) Light level calendar/SLAP data.

(c) Use of external lights during CALs.

(d) Visual illusions during CALs.

(e) Closure rate during landings.

(f) Standard calls.

(2) Introduce

(a) Take off and landings into tactical landing zones.

(b) CAL site evaluation.

(c) Normal CAL Pattern.

(d) Steep Approach.

(e) Vertical and no hover landings.

(f) Waveoff.

(3) Review. CAL procedures.

Performance Standards

(1) Recognize and communicate any excessive closure rates and lateral or rearward drift during landings. Communicate obstacles and hazards in CAL sites.

(2) Demonstrate proficiency in NVD CALs.

Prerequisites. CAL-1332, NS-1631.

NS-1635	1.5	*	T	2	MV-22B	A	NS	NSI/NSFI

Goal. Introduce night formation utilizing NVDs (HLL).

Requirement

(1) Discuss

(a) NVD briefing guide.

(b) Aircraft lighting.

(c) Standard calls.

(d) Night scan/fixation tendencies.

(e) Depth perception/relative motion at night.

(f) Night formation hazards.

(g) Moon position in reference to lead aircraft.

(h) CRM.

(2) Review

(a) Formation procedures and section landings.

Performance Standards

(1) Use of standard calls during formation flight and landings.

(2) Conduct formation landings informing pilots of position of wingman prior to landing.

(3) Communicate excessive closure rates or any drift prior to landing.

Prerequisites. FORM-1432, NS-1633

9. Cargo Operations

a. Purpose. To develop proficiency with cargo operations. FOE: Aircraft setup for different missions, use of aircraft cargo handling equipment, and aircrew coordination during internal and external cargo operations.

b. General. The cargo operations phase will consist of academic instruction, labs conducted in the Cabin Parts Task Trainer (CPTT), and simulator events.

c. Crew Requirement. P/P/CCI/CCUI. CCI must be EXT-2632 complete in order to conduct SEXT-1731.

ACAD-1710 1.0 * T CLSRM

Goal. To prepare the CCUI for the Cargo Operations stage of the curriculum.

Requirement

(1) Discuss

(a) Introduction.

1 Cargo handling operations.

2 Syllabus description.

3 Required readings.

4 Performance standards.

(b) Aircraft cargo handling systems.

(c) Cargo Loading Manual, weight and balance, and restraint.

(d) Equipment preflight and operational checks.

(e) Aircrew/ground crew communications/coordination during cargo operations.

Prerequisite. FAM-1049

LAB-1720 2.0 * T CPTT C/A_____ FRSCCI

Internal Cargo Operations

Goal. To prepare the CCUI for operation of cargo systems used in internal cargo operations.

Requirement

(1) Demonstrate

(a) Use of cargo loading systems.

(b) Use of Cargo Loading Manual and restraint procedures.

Prerequisite. ACAD-1710

LAB-1721 2.0 * T CPTT C/A_____ FRSCCI

External Cargo Operations

Goal. To prepare the CCUI for operation of aircraft systems and procedures used in external operations.

Requirement

(1) Demonstrate

(a) Proper use of aircraft cargo hook system, hook preflight, and operational checks.

(b) Hook-up and delivery procedures and terminology.

Prerequisite. ACAD-1710

LAB-1722 2.0 * T CPTT C/A___ FRSCCI

Mission Configurations

Goal. To prepare the CCUI for various mission requirements and aircraft change of role.

Requirement

(1) Introduce

(a) Alternate aircraft configurations for roles required in METL.

(b) Mission equipment for AIE, Airdrop, RGR/MATs, and MEDEVAC.

Prerequisite. ACAD-1710

SCARGO-1730 1.5 * T CPTT C/A FRSCCI

Goal. Introduce internal cargo loading mission requirements and procedures.

Requirement

(1) Discuss

(a) Cargo Loading Manual.

(b) Cabin set-up for different mission profiles.

(c) Cargo roller rails, guide rails, rail extenders.

(d) Cargo winch and pulley operations.

(e) Tie down fittings and Restraint.

(f) Shoring and floor limitations.

(g) Approach with load and fuselage clearance procedures.

(h) Hand and arm signals.

(i) HWOG operations.

(j) Cargo jettison procedures, emergency procedures.

(2) Demonstrate/Introduce

(a) Proper load planning.

(b) Loading/unloading procedures.

(c) Proper restraint procedures.

(d) Weight and Balance computations.

Performance Standards

(1) Demonstrate knowledge of basic internal cargo procedures.

(2) Successfully load and restrain simulated loads.

Prerequisite. LAB-1720

SCARGO-1731	1.5	*	T	1	FFS/FTD	S/A		FRSCCI

Goal. Introduce day single point external load hook-up and delivery procedures.

Requirement

(1) Discuss

(a) Cabin set-up for single point externals.

(b) Pattern work, load swing, and CMS monitoring during flight.

(c) Approach with load and cargo release procedures.

(d) Waveoff.

(e) Cargo jettison procedures.

(f) Aircraft emergencies.

(g) HST considerations/briefing.

(h) Standard terminology.

(i) Hook system checks.

(j) HWOG operations.

(k) Load rigging for single-point hook-up.

(l) Airspeed limitations with cargo hook external doors open.

(2) Demonstrate/Introduce

(a) External load hook-ups and drops to a confined area.

(b) Standard terminology.

(c) Single-point external operations.

(d) Lost communication procedures.

Performance Standards

(1) Demonstrate knowledge of proper single point external procedures IAW the MV-22B NATOPS and the MV-22B ANTTP Manual.

(2) Successfully conduct 4 single-point hookups.

Prerequisite. LAB-1721

10. Core Skill Introduction Check (REV & RQD)

a. Purpose. To review all areas of instruction and demonstrate proficiency and knowledge of all maneuvers to certify the CCUI as a Core Skill Introduction complete crew chief. FOE: CC check flight.

b. General

(1) A qualified crew chief NATOPS Evaluator / Instructor (CCNE/CCNI/CCANI) shall evaluate the REQ-6030.

(2) The CCUI will demonstrate proficiency in all events within the Core Skill Introduction phase. Upon completion of REQ-6030, the CCUI will be designated a crew chief. REQ-6030 meets the requirements for the 6176 MOS and will serve as the initial NATOPS evaluation.

c. Crew Requirement. P/P/CC or CCI/CCUI or CCNE,CCNI,CCANI/CCUI.

ACAD-6010 3.0 365 T,R E CCNE/CCNI/CCANI

Open Book NATOPS Examination

Goal. The Open Book Examination shall consist of, but not be limited to the question bank. The purpose of the open book examination portion of the written examination is to evaluate the airman’s knowledge of the appropriate publications and the aircraft.

Performance Standard. Achieve a minimum grade of qualified on the Open Book examination.

ACAD-6011 1.0 365 T,R E CCNE/CCNI/CCANI

Closed Book NATOPS Examination

Goal. The Closed Book Examination shall be limited to the question bank. The purpose of the closed book examination portion of the written examination is to evaluate the airman's knowledge of the concerning normal/emergency procedures and aircraft limitations.

Performance Standard. Achieve a minimum grade of qualified on the Closed Book examination.

Prerequisite. ACAD-6010.

ESREV-1830	1.0	*	1	FFS/FTD	S/A	FRSCCI

Goal. Review emergency procedures, CMS functions, systems knowledge and limitations.

Requirement. Respond to emergencies given to CCUI during period of instruction.

Performance Standards

(1) CCUI must verbally respond to simulated emergencies and use systems knowledge to effectively troubleshoot warnings, cautions, and advisories.

(2) Proper use of NATOPS pocket checklist.

Prerequisites. Core Skill Intro Complete.

ESREV-1831	2.0	*	1	FFS/FTD	S/A	FRSCCI

Goal. Review previous flight maneuvers, day and night.

Requirement

(1) Review. The CCUI will be prepared to describe and identify maneuvers from the following stages of training.

(a) Familiarization.

(b) Instruments.

(c) Confined Area Landings.

(d) Low Altitude Tactics.

(e) Formation.

(f) Night Systems.

Performance Standards. Demonstrate proper procedures and execution of all previously introduced maneuvers.

Prerequisites. ESREV-1830.

REV-1832	1.5	*	T		1	MV-22B	A	FRSCCI

Goal. Review Core Skill Introduction phase maneuvers.

Requirement. Demonstrate systems knowledge of the MV-22B.

Performance Standards. Act in the capacity of crew chief to be evaluated by a CCI on any maneuver, procedure, or terminology previously introduced during Core Skill Introduction phase of training.

Prerequisite. ESREV-1831.

ACAD-6012	3.0	365	T,R	E	CLSRM	CCNE/CCNI/CCANI

Oral NATOPS Examination

Goal. The Oral shall consist of, but not be limited to the question bank. The evaluator may draw upon their experience to propose questions of a direct and positive manner and in no way be opinionated to evaluate the airman's knowledge of the concerning normal/emergency procedures, aircraft limitations, and performance.

Performance Standard. Achieve a minimum grade of qualified on the Oral examination.

Prerequisite. ACAD-6011.

RQD-6030	1.5	*	T,R	E	1	MV-22B	A	CCNE/CCNI/CCANI

Goal. To certify the CCUI as a tiltrotor crew chief.

Requirement. Demonstrate systems knowledge of the MV-22B, comply with all NATOPS and maintenance SOP's, and respond to any emergencies given by the CCI.

Performance Standards

(1) Brief and demonstrate proficiency of aircraft emergency procedures per the MV-22B NATOPS Flight Manual.

(2) Act in the capacity of the crew chief to be evaluated by a CCNE/CCNI/CCANI on any maneuver, procedure, or terminology previously introduced during Core Skill Introduction phase of training.

Prerequisite. REV-1832, ACAD-6012.

311. CORE SKILL PHASE

1. General

a. Stages. The following stages are included in the Core Skill Phase of training.

(1) FAM

(2) CAL

(3) FORM

(4) LAT

(5) NS HLL

(6) NS LLL

(7) TG

(8) GTR

(9) EXT

(10) CQ

b. ROC will be per the T&R Program Manual.

2. Familiarization (FAM)

a. Purpose

(1) To prepare the aerial observer student for the flight portion of the core skill phase. Emphasis is placed on flight line safety equipment, aircraft emergency equipment, and flight line procedures.

(2) Additionally, this stage introduces internal fuel tank installation and mission utilization to both the crew chief and aerial observer. The only events in this stage that apply to crew chiefs are the ACAD-2012 and LAB-2020. All other events are for AOs only.

b. General. The CCUI must be NATOPS qualified as a crew chief prior to beginning this stage of training.

ACAD-2010	4.0	*	A	CLSRM	CRMI/F

Crew Resource Management (CRM) Initial

Goal. The AOUI understands the Risk and Resource Management (RRM) model and how the icons, processes, and seven principles apply to Crew Resource Management.

(1) Discuss

(a) Seven principles.

(b) RRM model.

1 Icons and processes.

2 Available resources.

3 Decision model.

ACAD-2011 8.0 * A CLSRM

Night Imaging and Threat Evaluation (NITE) Lab

Goal. The AOUI is introduced to the night environment, utilization of NVD's, and light discipline.

ACAD-2012 1.0 * T,A CLSRM

MV-22B Aerial Refueling for Enlisted Aircrew

Goal. The CCUI/AOUI has a familiarity with aerial refueling procedures in the MV-22B.

Required Reading. NATOPS Ch 4, 12, MAWTS-1 NVD Manual Ch 18.

LAB-2020 2.0 * T,A,R 1 MV-22B

Internal Fuel Tank Lab

Goal. The CCUI/AOUI has an introductory knowledge of the installation and set-up of the MV-22B MATS tanks.

Required Reading. ANTTP Ch 6, 9.

LAB-2021 1.0 * A 1 MV-22B A

Flightline Fire Extinguisher Lab

Goal. Familiarize AOUI with operation and inspection of flightline fire bottles.

Requirement

(1) Discuss

(a) Preflight procedures and operation.

(2) Introduce

(a) Hand and arm signals for aircraft fire.

(b) Preflight, positioning, and operation of levers and pins.

(c) Hazardous materials, i.e. HALON.

Performance Standards

(1) Be able to demonstrate fire bottle preflight inspection and operating procedures.

LAB-2022	1.0	*	A	1	MV-22B	A

Ingress/Egress Lab

Goal. Familiarize AOUI with squadron procedures for flight. Complete required V-22 Egress.

Requirement

(1) Discuss

(a) Flight equipment checkout.

(2) Introduce

(a) V-22 Egress.

Performance Standards

(1) Be able to execute the V-22 egress procedures without reference or coaching.

LAB-2023	1.0	*	A	1	MV-22B	A

Start-up/taxi/shut-down Lab

Goal. Familiarize AOUI with flightline procedures for aircraft start-up, shut-down, and taxi.

LAB-2024	2.0	*	A	1	MV-22B	A

Mooring Lab

Goal. Familiarize AOUI with aircraft tiedown and securing procedures.

LAB-2025	2.0	*	A		CLSRM	

ALSS equipment Lab

Goal. Familiarize AOUI with ALSS equipment.

LAB-2026	2.0	*	A	1	MV-22B	A

Emergency procedures Lab

Goal. Familiarize AOUI with aircraft emergency equipment and its use.

Required Reading. NATOPS Ch 4, 12.

3. Confined Area Landings (CAL)

a. Purpose. To develop proficiency in single aircraft and section takeoffs and landings and tactical approaches to confined or unprepared areas.

b. General. All maneuver descriptions are in the MV-22B ANTTP Manual.

c. Crew Requirements. P/P/CC, (P/P/CC/AO for CAL-2131).

CAL-2131 1.5 180 T,A,R 1 MV-22B A

Goal. Introduce day RVL procedures.

Requirement

(1) Discuss

(a) Landing zone evaluation and selection.

1 Soil composition.

2 Elevation and density altitude.

3 Micro terrain, obstacles, and aircraft clearances.

4 Wind effects.

(b) Standard approach procedures to RVLs.

(c) RVL procedures.

(d) Cabin set-up and crew resource management during RVLs.

(e) Wave-off procedures for RVLs.

(f) Takeoff procedures.

(2) Introduce

(a) RVLs procedures (minimum of 5 for initial sorties).

(b) RVLs with various levels of obscuration.

(c) Takeoffs with various levels of obscuration.

Performance Standards

(1) Demonstrate the proper procedures for RVLs IAW the MV-22B ANTTP Manual.

Prerequisite. RQD-6030 (crew chief only).

Required Reading. NATOPS Ch 7.28.7, 7.29, ANTTP Ch 3

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

CAL-2133 2.0 365 T,A 1 MV-22B A

Goal. Introduce high and low altitude tactical approaches, landings, and departures to a confined area.

Requirement

(1) Discuss

(a) Aircrew coordination.

(b) Obstacle clearances.

(c) CRM.

(2) Review

(a) Cargo and vehicle loading.

(b) Proper tie down procedures.

(c) Aircraft weight and balance.

(d) CG limitations.

(e) Procedures and safety precautions for transporting passengers, internal cargo, and/or tactical vehicles.

(f) Landing with reduced visibility.

(g) Emergency procedures.

(3) Introduce

(a) Tactical approaches, landings and departures to a confined area (minimum 5 for initial sorties).

Performance Standards

(1) Emphasize obstacle clearance during approach, landing, and takeoff.

(2) Establish suitability of LZ terrain and communicate with pilots.

(3) Perform drift correction, accurate and timely distance estimation calls to the pilot prior to aircraft touchdown.

Prerequisite. CAL-2131.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

CAL-2135 2.0 365 T,A 2 MV-22B A

Goal. Introduce section high and low altitude tactical approaches, landings, and departures to a confined area.

Requirement

(1) Discuss

(a) Crew chief responsibilities during sections CALs.

(b) Lookout doctrine.

(c) Distance Estimation.

(d) Closure rates.

(e) Comfort levels.

(f) Waveoffs.

(g) Aircraft emergencies/systems failures.

(h) CRM.

(i) Wingman considerations.

(2) Introduce

(a) Section tactical approaches, takeoffs and landings (minimum 3 as lead for initial sorties).

(3) Review

(a) CAL-2133.

Performance Standards

(1) Provide pilots with accurate and timely information on the position of wingman.

(2) Distance estimation calls to wingman are performed to a reasonable margin of error in terms of DME.

(3) Emphasize obstacle clearance for the section during approach, landing, and takeoff.

(4) Inform pilots of wingman’s position prior to landing to ensure both aircraft have adequate clearance to land.

Prerequisite. CAL-2133.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 15,000' AGL.

CAL-2136 1.5 365 T,A,R 3 MV-22B A

Goal. Introduce division low and high altitude tactical approaches, landings, and departures to a confined area.

Requirement

(1) Discuss

(a) CRM.

(b) Crew comfort level.

(c) Standard terminology.

(2) Introduce

(a) Division tactical approaches, landings, and takeoffs from a confined area (minimum 3 as lead for initial sorties).

(b) Division terminal area procedures.

Performance Standards

(1) Provide timely and accurate information to pilots with regard to wingmen positions in flight, prior to, and after landing. Distance estimation calls to wingman are performed to a reasonable margin of error in terms of DME.

(2) Ensure obstacle clearance during approach, landing, and takeoff.

(3) Establish suitability of LZ terrain and communicate with pilots.

(4) Perform drift correction, accurate and timely distance estimation calls to the pilot prior to aircraft touchdown.

Prerequisite. CAL-2135.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

4. Formation (FORM)

a. Purpose. To introduce tactical formations, lost contact procedures, tactical maneuvering, and formation instrument procedures.

b. General. The CCUI/AOUI must be CAL-2133 complete prior to beginning this stage of training. All maneuver descriptions are in the MV-22B ANTTP Manual. It is expected that FORM 2183 will be flown in conjunction with CAL-2136.

c. Crew Requirements. P/P/CC/AO.

ACAD-2160 1.0 * T,A CLSRM

TACFORM for Enlisted Aircrew

Goal. The CCUI/AOUI is introduced to basic Tactical Formation maneuvers.

Required Reading. NATOPS Ch 9.1-9.1.14, ANTTP Ch 4.

Prerequisite. CAL-2133

FORM-2182 2.0 365 T,A,R 2 MV-22B A

Goal. Introduce tactical formations, lost contact procedures, and tactical maneuvering.

Requirement

(1) Discuss

(a) CRM.

(b) Crew comfort level.

(c) Common terminology.

(d) Lookout doctrine.

(e) Inter/intra-plane coordination.

(f) Lead/wingman responsibilities.

(g) Split section operations.

(2) Introduce

(a) All tactical formation maneuvers in the ANTTP (each in lead and wing).

(b) Combat spread and combat cruise.

(c) Tactical lead changes.

(d) IIMC break up and rendezvous.

(e) Simulated lost contact with wingman with subsequent rejoin enroute and at a point.

(3) Review

(a) Cruise formation and principles.

Performance Standards

(1) Demonstrate proper procedural knowledge of tactical formation maneuvers IAW MV-22B ANTTP Manual.

(2) Recognize proper tactical formations IAW MV-22B ANTTP Manual.

(3) Distance estimation calls to wingman are performed to a reasonable margin of error in terms of DME.

Prerequisites. CAL-2133, ACAD-2160.

FORM-2183 1.0 365 T,A 3 MV-22B A

Goal. Introduce division formations.

Requirement

(1) Discuss

(a) CRM as it pertains to communication.

(b) Crew comfort level.

(c) Common terminology (visual, blind, tally, no-joy).

(d) Tactical formation maneuvering.

(e) Inadvertent IMC.

(2) Introduce

(a) Division formations found in the MV-22B ANTTP manual.

(b) Division formation maneuvers along a route using one of the division formations found in the MV-22B ANTTP manual.

Performance Standards

(1) Maintain proper lookout doctrine during division formation maneuvers.

(2) Provide pilots with accurate and timely information on wingman's position. Distance estimation calls to wingman are performed to a reasonable margin of error in terms of DME.

(3) Demonstrate situational awareness during division formation maneuvers.

Prerequisite. FORM-2182, CAL-2135.

5. Low Altitude Tactics (LAT)

a. Purpose. To develop proficiency in day LAT operations.

b. General

(1) The CCUI/AOUI must be FORM-2182 complete prior to beginning this stage of training.

(2) All maneuver descriptions are in the MV-22B ANTTP Manual.

(3) Non-proficient aircrew requires the supervision of a LAT Instructor.

(4) The CCUI/AOUI is considered to be LAT qualified upon completion of this stage and written designation by the unit commanding officer.

(5) LAT altitude restrictions and currency requirements are IAW the T&R Program Manual.

(6) Events should be flown in areas with significant vertical relief.

c. Crew Requirements. P/P/CC/AO.

ACAD-2210	1.0	*	T,A,R	CLSRM	LATI

LAT For Enlisted Aircrew

Goal. The CCUI/AOUI has an introductory knowledge of LAT terms and definitions.

Required Reading. ANTTP Ch 4, 5, NAVMC 3500.14 para 301, 305.

Prerequisite. RQD-6030 (crew chief only)

ACAD-2211	1.0	*	T,A,R		CLSRM		WTI

Tactical Aircrew Considerations and Responsibilities

Goal. The CCUI/AOUI has a familiarity with responsibilities specific to a tactical environment.

Prerequisite. RQD-6030 (crew chief only)

LAB-2220	0.5	*	T,A,R		CLSRM		LATI

LAT Maneuver Walk Through

Goal. The CCUI/AOUI is able to walk through all LAT maneuvers prior to executing them in the aircraft.

Required Reading. ANTTP Chapter 5.

Prerequisite. ACAD-2210, ACAD-2211.

LAT-2231	1.5	365	T,A	1	MV-22B	A	LATI

Goal. Review LAT maneuvers and aircraft/obstacle clearance and introduce low level and contour flight while flying a LAT navigation route.

Requirement

(1) Discuss

(a) Rules of Conduct. (ROC)

(b) Aircraft clearance.

(c) CRM.

(d) Crew comfort levels.

(e) Lookout Doctrine.

(f) Terminology.

(g) ICS procedures.

(2) Introduce

(a) Low level and contour flight.

(b) LAT maneuvers.

(c) Low altitude emergencies.

Performance Standards

(1) Display situational awareness of each maneuver and the aircraft orientation to the terrain.

(2) Provide immediate feedback to the pilots for terrain avoidance, obstacle clearance, and wingman position.

(3) Execute all LAT maneuvers IAW the MV-22B ANTTP Manual.

(4) Demonstrate proper CRM principles in the LAT regime.

(5) Comply with ROC IAW T&R Program Manual and other governing directives.

Prerequisite. CAL-2133, FORM-2182, LAB-2220.

External Syllabus Support. Approved route/range space with vertical relief.

LAT-2233	2.0	180	T,A,R	2	MV-22B	A	LATI

Goal. Introduce section LAT flight.

Requirement

(1) Discuss

(a) Crew comfort levels.

(b) CRM.

(c) ROC.

(d) Lookout Doctrine.

(e) Terminology.

(f) ICS procedures.

(g) Wingman considerations.

(2) Review. LAT-2231.

Performance Standards

(1) Provide pilots with timely and accurate information concerning terrain clearance for the section.

(2) Demonstrate awareness of and comply with all LAT ROC and SOPs.

(3) Maintain geographical orientation throughout the navigation route.

(4) Maintain proper situational and terrain awareness.

(5) Demonstrate proper CRM principles in the LAT regime.

Prerequisites. FORM-2182, LAT-2231

External Syllabus Support. Approved route/range space with vertical relief.

6. Night Systems (NS) High Light Level (HLL)

a. Purpose. To develop proficiency while using night vision goggles under light levels greater than or equal to .0022 lux as predicted by the SLAP module. Certify the CCUI/AOUI Night Systems Qualified NSQ HLL.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) An NSI is required for all unqualified aircrew, and when a qualified aircrew loses proficiency in a NS LAT syllabus flight IAW the T&R Program Manual.

(3) Successful completion of this stage constitutes NSQ HLL. A qualification letter signed by the commanding officer stating the crew chief/aerial observer is NSQ HLL is to be placed in the crew chief/aerial observer's NATOPS jacket prior to carrying troops using NVDs.

c. Crew Requirements. P/P/CC/AO.

ACAD-2310	2.0	*	T,A		CLSRM				NSI

Night Vision Training

Goal. The CCUI/AOUI has an introductory knowledge of the Night Vision Goggles, Night Environment, Human factors, NVG Weapons employment procedures.

Required reading. MAWTS-1 NVD Manual.

Prerequisites. ACAD-2210

ACAD-2311	1.0	*	T,A		CLSRM				NSI

MV-22B FLIR for Enlisted Aircrew

Goal. The CCUI/AOUI/AOUI has an introductory knowledge of the MV-22B FLIR.

Required reading. MV-22B NATOPS Chapter 16.9.

Prerequisites. ACAD-2310

NS-2331	2.0	365	T,A	1	MV-22B	A		NS	NSI

Goal. Review FAM maneuvers and single aircraft NVD CALs in HLL. Introduce tactical approaches using NVDs in HLL.

Requirement

(1) Discuss

(a) Aircrew duties during NVD CAL operations.

(b) Crew comfort level during NVD CAL operations.

(c) Depth perception.

(d) Drift correction.

(e) NVG failure.

(f) Obstacle clearance.

(g) Brown out/White out.

(h) CRM.

(2) Introduce

(a) NVD tactical approaches, landings, and departures to a confined area in HLL (minimum of 5 for initial sorties).

Performance Standards

(1) Execute proper procedures for NVD CALs IAW the MV-22B ANTTP Manual and the MAWTS-1 NVD Manual.

(2) Demonstrate proper NVD scanning techniques IAW the MAWTS-1 NVD manual.

(3) Provide timely and accurate information to the pilots with regard to terrain clearance, LZ topography, and aircraft drift.

Prerequisites. CAL-2133, ACAD-2310

Required Reading. NATOPS Ch 2.3.9, 2.12.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

NS-2332	2.0	365	T,A,R	2	MV-22B	A	NS	NSI

Goal. Introduce formation flight, section CALs, and tactical approaches using NVDs in HLL.

Requirement

(1) Discuss

(a) Aircraft lighting during NVD formation.

(b) CRM.

(c) Loss of visual contact with wingman.

(d) FLIR functions.

(e) Closure rates.

(2) Introduce

(a) NVD formation.

(b) NVD section CALs in HLL (minimum 3 as lead for initial sorties).

(c) NVD section tactical approaches, departures, takeoffs and landings in HLL.

(d) NVD emergencies.

Performance Standards

(1) Maintain an aggressive NVD scan and provide the pilots with timely information on LZ topography and aircraft drift.

(2) Maintain flight integrity during NVD section CALs.

(3) Maintain awareness of wingman’s position and provide timely and accurate information to the pilots.

Prerequisites. CAL-2135, FORM-2182, NS-2331.

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

NS-2334	1.5	240	T,A	1	MV-22B	A		NS	NSI

Goal. Introduce aircraft maneuver performance, characteristics, and navigation in the LAT environment using NVDs.

Requirement

(1) Discuss

(a) NVD briefing guide.

(b) Crew chief duties in the LAT environment.

(d) Common terminology utilized in the LAT environment.

(e) Altitude awareness.

(f) Wingman position.

(g) Obstacle/hazard avoidance.

(h) Crew comfort level during NVD LAT.

(2) Introduce. Tactical formations in the LAT profile while flying a LAT route.

(3) Review

(a) LAT-2233.

Performance Standards

(1) Maintain geographical awareness along the LAT route.

(2) Provide pilots with accurate and timely information on obstacle avoidance and terrain clearance.

(3) Demonstrate proper CRM principles in the LAT regime.

Prerequisites. LAT-2233, NS-2331.

External Syllabus Support. Approved route/range space with vertical relief.

NS-2335	2.5	240	T,A,R	2	MV-22B	A		NS	NSI

Goal. Introduce section NVD LAT navigation flight and review section CALs using NVDs under HLL conditions.

Requirement

(1) Discuss

(a) Review crew chief/observer duties in the LAT environment.

(b) Review common terminology used during formation flight in the LAT environment.

(c) Altitude awareness.

(d) Review section considerations and wingman awareness.

(2) Introduce. Tactical formations in the LAT profile while flying a LAT route.

(3) Review. NS-2334

Performance Standards

(1) Provide pilots with timely and accurate information on wingman position, terrain clearance, and obstacle avoidance.

(2) Maintain geographical awareness along the route.

(3) Demonstrate proper CRM principles in the LAT regime.

Prerequisites. NS-2332, NS-2334.

External Syllabus Support. Approved route/range space with vertical relief.

7. Night Systems (NS) Low Light Level (LLL)

a. Purpose. To develop proficiency while using night vision goggles under light levels less than .0022 lux LLL as predicted by the SLAP module. Certify the CCUI/AOUI Night Systems Qualified [NSQ LLL].

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) An NSI is required for all unqualified aircrew, and when a qualified aircrew loses proficiency in a NS LAT syllabus flight IAW the T&R Program Manual.

(3) Successful completion of this stage constitutes NSQ LLL. A qualification letter signed by the commanding officer stating the crew chief/aerial observer is NSQ LLL is to be placed in the crew chief/aerial observer's NATOPS jacket prior to carrying troops using NVDs in LLL conditions.

c. Crew Requirements. P/P/CC/AO.

NS-2381	2.0	240	A	1	MV-22B	A	NS	NSI

Goal. Introduce FAM maneuvers, single aircraft CALs, and tactical approaches using NVDs in LLL.

Requirement

(1) Discuss

(a) CRM.

(b) Distance estimation and depth perception.

(c) Reduced visibility landings.

(d) Aircraft clearance and obstacle avoidance.

(e) LLL CAL considerations.

(f) Cultural lighting considerations.

(2) Introduce

(a) NVD tactical approaches, landings, and departures to a confined area in LLL (minimum 5 for initial sorties).

(3) Review. NS-2331.

Performance Standards

(1) Execute proper procedures for NVD LLL CALs IAW the MV-22B ANTTP Manual and the MAWTS-1 NVD Manual.

(2) Demonstrate proper NVD scanning techniques IAW the MAWTS-1 NVD Manual.

(3) Provide pilots with timely and accurate information with regard to obstacle clearance and aircraft drift.

Prerequisites. NS-2335

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

NS-2382	2.0	240	T,A,R	2	MV-22B	A	NS	NSI

Goal. Introduce night tactical formation maneuvering and section CALs using NVDs in LLL.

Requirement

(1) Discuss

(a) Crew duties during NVD formation operations.

(b) Aircraft lighting during NVD formation in LLL.

(c) Night tactical formation maneuvering.

(2) Introduce

(a) NVD LLL section tactical approaches, departures, takeoffs, and landings (minimum 3 as lead for initial sorties).

(3) Review. NS-2332.

Performance Standards

(1) Maintain an aggressive NVD scan and provide the pilots with timely information on LZ topography and aircraft drift.

(2) Ensure obstacle clearance during ingress and egress to confined areas.

(3) Maintain awareness of wingman position and provide adequate information to pilots.

Prerequisite. NS-2381 (B,A), NS-2335 (R,T)

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

NS-2384	2.5	180	T,A,R	2	MV-22B	A	NS	NSI

Goal. Introduce NVD section LAT navigation flight and review section CALs using NVDs under LLL conditions.

Requirement

(1) Discuss

(a) Review crew chief/observer duties in the LAT environment.

(b) Review common terminology used during formation flight in the LAT environment.

(c) Altitude awareness.

(d) Review section considerations and wingman awareness.

(2) Introduce. Tactical formations in the LAT profile while flying a LAT route under LLL conditions.

(3) Review. NS-2335

Performance Standards

(1) Provide pilots with timely and accurate information on wingman position, terrain clearance, and obstacle avoidance.

(2) Maintain geographical awareness along the route.

(3) Demonstrate proper CRM principles in the LAT regime.

Prerequisites. NS-2382

External Syllabus Support. Approved route/range space with vertical relief.

NS-2385	2.5	240	T,A,R	3	MV-22B	A	NS	NSI

Goal. Introduce division formations and division CALs using NVDs under LLL conditions.

Requirement

(1) Discuss

(a) CRM.

(b) Crew comfort levels.

(c) Moon illumination/shadow effects on terrain.

(d) Obstacle clearance.

(e) Inadvertent IMC.

(f) Distance estimation and depth perception.

(g) Wave offs.

(2) Introduce

(a) NVD LLL division tactical approaches, departures, takeoffs, and landings (minimum of 3 as lead for initial sorties).

(b) Division Box.

(c) Division Fluid Four.

Performance Standards

(1) Provide constant feedback to pilots about the integrity of the flight.

(2) Maintain awareness of both wingmen and provide adequate landing area information to the pilots during NVD LLL CALs.

(3) Provide pilots with accurate and timely information with regard to aircraft drift and LZ topography.

Prerequisites. NS-2382

External Syllabus Support. Suitable landing site with 7nm radius of protected airspace to 1000' AGL.

8. Tail Gunnery (TG)

a. Purpose. To develop the ability to control the employment of the MV-22B Ramp Mounted Weapon System (RMWS), deliver accurate air-to-ground fire employing the crew served weapons and provide defensive fire on targets of opportunity.

b. General

(1) The aircraft weapons system lectures must be conducted by a designated MAWTS-1 crew chief instructor, squadron WTI, or TGI.

(2) A TGI is required for non-proficient aircrew. A TGI complete with TG-5433 and TG-5434 is required for all GAU-16 lectures/labs/flights.

(3) At the completion of this stage, the aircrew will demonstrate knowledge of weapons systems and ordnance delivery with the RMWS.

(4) These sorties are ordnance driven. Ordnance expenditure requirements shall be adhered to in order for the CCUI/AOUI to obtain a TG qualification. Flights should be scheduled to maximize range time so that ordnance expenditure requirements can be met.

(5) Successful completion of ACAD-2510/11,13,14, LAB-2520, and TG-2530,32,33,35 constitutes TGQ. A qualification letter signed by the commanding officer stating the crew chief/aerial observer is TGQ is to be placed in the crew chief/aerial observer's NATOPS jacket prior to conducting any tail gunnery flight without a designated TGI.

(6) For all MV-22B crew chiefs/aerial observers who currently have a TG qualification, only the ACAD-2512, LAB-2521, TG-2531 and TG-2534 must be flown to complete training for the GAU-16/A. The requirement to complete the GAU-16/A training does not preclude currently TG qualified aircrew from conducting any M240D TG Training.

c. Crew Requirements. P/P/CC/AO.

ACAD-2510	1.0	*	T,A	CLSRM	TGI

Fundamentals of Aerial Gunnery

Goal. The CCUI/AOUI has a familiarity with the basic fundamentals of aerial gunnery.

Required reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 6.

Prerequisites. ACAD-2210

ACAD-2511	0.5	*	T,A	CLSRM	TGI

M240 Machine Gun

Goal. The CCUI/AOUI has a familiarity with the components, characteristics, and operation of the M240 machine gun.

Required reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 3.

Prerequisites. ACAD-2510

ACAD-2512 0.5 * T,A CLSRM TGI

GAU-16/A

Goal. The CCUI/AOUI will be familiar with the components, characteristics, and operation of the GAU-16/A machine gun.

Required reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 3.

Prerequisites. ACAD-2510

ACAD-2513 0.5 * T,A CLSRM TGI

Laser Aiming Devices

Goal. The CCUI/AOUI has a familiarity with laser aiming devices and their utilization.

Required reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 4.

Prerequisites. ACAD-2511

ACAD-2514 0.5 * T,A CLSRM TGI

Laser Boresighting

Goal. The CCUI/AOUI has a familiarity with laser boresighting procedures.

Required reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 4.

Prerequisites. ACAD-2513

LAB-2520 0.5 * T,A,R CLSRM TGI

M240D Breakdown and Cleaning Procedures

Goal. The CCUI/AOUI will be familiar with the breakdown, inspection, function check, and cleaning procedures of the M240D machine gun.

Required Reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 3.

Prerequisite. ACAD-2511

LAB-2521	0.5	*	T,A,R		CLSRM		TGI

GAU-16/A Breakdown and Cleaning Procedures

Goal. The CCUI/AOUI will be familiar with the breakdown, inspection, function check, and cleaning procedures of the GAU-16/A machine gun.

Required Reading. MAWTS-1 Assault Support Aerial Gunnery Manual chapter 3.

Prerequisite. ACAD-2512

TG-2530	1.5	365	T,A	1	MV-22B	A	TGI

Goal. To introduce Ramp mounted weapons system employment with a M240D in a day single aircraft environment.

Requirement

(1) Discuss

(a) CRM.

(b) ICS procedures.

(c) Safety.

(d) Weapons conditions.

(e) Weapons commands.

(f) Weapons malfunctions/stoppages/emergencies.

(g) Crew served weapons checklist.

(h) Aiming techniques.

(i) Muzzle awareness.

(j) Weapons preparation/nomenclature.

(k) Target identification

(2) Introduce

(a) Preparation of weapons and aircraft.

(b) Practice firing on pre-briefed targets with crew served weapons.

(c) Weapons parameters.

Performance Standards

(1) Demonstrate knowledge of the three weapons control procedures.

(2) Demonstrate the ability to conduct day tail gunnery in a single aircraft environment.

(3) Demonstrate verbally and practically all fire control voice and hand signals.

(4) Demonstrate appropriate emergency weapons procedures.

(5) Verbally demonstrate knowledge of weapons parameters.

(6) Demonstrate use of the crew served weapons checklist.

Prerequisites. LAT-2233, LAB-2520

Required Reading. ANTTP Ch 7, Classified ANTTP Ch 3, NATOPS Ch 18.2, 18.3

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate TG range, moving land target (MLT) if available.

TG-2531	1.5	365	T,A	1	MV-22B	A		TGI

Goal. To introduce Ramp mounted weapons system employment with a GAU-16/A in a day single aircraft environment.

Requirement

(1) Discuss

(a) CRM.

(b) ICS procedures.

(c) Safety.

(d) Weapons conditions.

(e) Weapons commands.

(f) Weapons malfunctions/stoppages/emergencies.

(g) Crew served weapons checklist.

(h) Aiming techniques.

(i) Muzzle awareness.

(j) Weapons preparation/nomenclature.

(k) Target identification

(2) Introduce

(a) Preparation of weapons and aircraft.

(b) Practice firing on pre-briefed targets with crew served weapons.

(c) Weapons parameters.

Performance Standards

(1) Demonstrate knowledge of the three weapons control procedures.

(2) Demonstrate the ability to conduct day tail gunnery in a single aircraft environment.

(3) Demonstrate verbally and practically all fire control voice and hand signals.

(4) Demonstrate appropriate emergency weapons procedures.

(5) Verbally demonstrate knowledge of weapons parameters.

(6) Demonstrate use of the crew served weapons checklist.

Prerequisites. LAT-2233, LAB-2521

Required Reading. MAWTS-1 Aerial Gunnery Manual Chapter 3.

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate TG range, moving land target (MLT) if available.

TG-2532	1.5	240	T,A,R	2	MV-22B	A	TGI

Goal. To introduce Ramp Mounted Weapons System employment with a M240D or GAU-16/A in a day multi-aircraft environment.

Requirement

(1) Discuss

(a) CRM.

(b) ICS procedures.

(c) Safety.

(d) Weapons malfunctions/stoppages/emergencies.

(e) Muzzle awareness in a multi-aircraft environment.

(f) Weapons preparation/nomenclature.

(g) Weapons effects on targets

(2) Introduce

(a) Firing techniques in a multi-aircraft environment.

(b) Fields of fire/Sectors of fire.

(c) Target acquisition.

(d) Section tail gunnery operations.

(3) Review. TG-2530, TG-2531 if flown with the GAU-16.

Performance Standards

(1) Perform TG procedures IAW MAWTS-1 Aerial Gunnery manual.

(2) Demonstrate use of fire control procedures to suppress targets.

(3) Demonstrate verbally and practically all fire control voice and hand signals.

(4) Maintain positive control and muzzle awareness at all times during live fire evolutions.

Prerequisites. TG-2530, TG-2531 if flown with the GAU-16.

Required Reading. NAVAIR 11-95-13, NAVAIR 11-95-M240D-1-1.

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate TG range, moving land target (MLT) if available.

TG-2533	1.5	240	T,A	1	MV-22B	A		NS	TGI

Goal. To introduce single aircraft Ramp Mounted Weapons System employment with a M240D at night utilizing a laser aiming device if available under HLL or LLL conditions.

Requirement

(1) Discuss

(a) CRM.

(b) ICS procedures.

(c) Safety.

(d) Weapons malfunctions/stoppages/emergencies.

(e) Muzzle awareness.

(f) Weapons preparation/nomenclature.

(g) Weapons effects on NVDs.

(h) Laser aiming devices/procedures.

(2) Introduce

(a) Firing techniques utilizing NVDs.

(b) Laser utilization.

(c) Target acquisition utilizing NVDs.

(d) Single aircraft aerial gunnery operations at night.

(3) Review. TG-2530

Performance Standards

(1) Perform NVD TG procedures IAW MAWTS-1 Aerial Gunnery manual.

(2) Demonstrate use of fire control procedures to suppress targets while utilizing NVDs.

(3) Demonstrate verbally and practically all fire control voice and hand signals.

(4) Demonstrate use of Laser aiming devices for target acquisition and engagement.

(5) Maintain positive control and muzzle awareness at all times during live fire evolutions.

Prerequisites. ACAD-2514, TG-2530, NS-2335, (NS-2384 and NS-2385 IF LLL).

Required Reading. MAWTS-1 NVD Manual Ch 16

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate TG and Laser approved range, moving land target (MLT) if available.

TG-2534	1.5	240	T,A	1	MV-22B	A		NS	TGI

Goal. To introduce single aircraft Ramp Mounted Weapons System employment with a GAU-16/A at night utilizing a laser aiming device if available under HLL or LLL conditions.

Requirement

(1) Discuss

(a) CRM.

(b) ICS procedures.

(c) Safety.

(d) Weapons malfunctions/stoppages/emergencies.

(e) Muzzle awareness.

(f) Weapons preparation/nomenclature.

(g) Weapons effects on NVDs.

(h) Laser aiming devices/procedures.

(2) Introduce

(a) Firing techniques in a single aircraft environment utilizing NVDs.

(b) Laser utilization.

(c) Target acquisition utilizing NVDs.

(d) Single aircraft aerial gunnery operations at night.

(3) Review. TG-2531

Performance Standards

(1) Perform NVD TG procedures IAW MAWTS-1 Aerial Gunnery manual.

(2) Demonstrate use of fire control procedures to suppress targets while utilizing NVDs.

(3) Demonstrate verbally and practically all fire control voice and hand signals.

(4) Demonstrate use of Laser aiming devices for target acquisition and engagement.

(5) Maintain positive control and muzzle awareness at all times during multi-aircraft live fire evolutions at night.

Prerequisites. ACAD-2514, TG-2531, NS-2335, (NS-2384 and NS-2385 IF LLL).

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate TG and Laser approved range, moving land target (MLT) if available.

TG-2535	1.5	240	T,A,R	2	MV-22B	A	NS	TGI

Goal. To introduce multi-aircraft Ramp Mounted Weapons System employment with a M240D or GAU-16/A at night utilizing a laser aiming device if available under HLL or LLL conditions.

Requirement

(1) Discuss

(a) CRM.

(b) ICS procedures.

(c) Safety.

(d) Weapons malfunctions/stoppages/emergencies.

(e) Muzzle awareness in a multi-aircraft environment.

(f) Weapons preparation/nomenclature.

(g) Weapons effects on NVDs.

(h) Laser aiming devices/procedures.

(2) Introduce

(a) Firing techniques in a multi-aircraft environment utilizing NVDs.

(b) Laser utilization in a multi-aircraft environment.

(c) Target acquisition utilizing NVDs.

(d) Multi-aircraft aerial gunnery operations at night.

(3) Review. TG-2533, TG-2534 if flown with the GAU-16.

Performance Standards

(1) Perform NVD TG procedures IAW MAWTS-1 Aerial Gunnery manual.

(2) Demonstrate use of fire control procedures to suppress targets while utilizing NVDs.

(3) Demonstrate use of Laser aiming devices for target acquisition and engagement in a multi-aircraft environment.

(4) Maintain positive control and muzzle awareness at all times during multi-aircraft live fire evolutions at night.

Prerequisites. TG-2532, TG-2533, TG-2534 if flown with the GAU-16.

Ordnance. 600 rounds per gunner of appropriate ammunition.

External Syllabus Support. Appropriate TG and Laser approved range, moving land target (MLT) if available.

9. External Operations (EXT)

a. Purpose. To develop proficiency in day and NVD external load operations from confined areas.

b. General

(1) All external cargo operations shall utilize HST support.

(2) All maneuver descriptions are in the MV-22B ANTTP Manual.

c. Crew Requirement. P/P/CC/AO.

EXT-2631	1.5	365	T,A,R	1	MV-22B	A

Goal. Introduce single point external load hook-ups and drops to a confined area.

Requirement

(1) Discuss

(a) Crew responsibilities and communications during external operations.

(b) Aircraft hook system. Hook preflight and checks.

(c) Standard terminology.

(d) Cargo hook-up procedures.

(e) HWOG operation.

(f) HST composition, functions, and signals.

(g) HST safety brief.

(h) Single point operations.

(i) Reduced visibility conditions.

(j) Terrain/obstacle clearance.

(k) Inadvertent IMC procedures.

(l) Aircraft emergencies with external load (flight control system failures).

(m) Tactical considerations during external lift operations.

(n) Aerodynamic characteristics of external loads.

(o) Light and heavy external load considerations.

(2) Introduce

(a) External load hook-ups and drops to a confined area (minimum of 5 for initial sorties).

(b) Waveoff with external load.

Performance Standards

(1) Execute proper external procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper ICS terminology during external operations.

(3) Place the load within 10 meters of desired location.

Prerequisites. CAL-2133

Required Reading. ANTTP Ch 9, NATOPS Ch 4.12, 9.4.

External Syllabus Support. External load, HST, approved LZ with 7nm of protected airspace to 1,000' AGL.

EXT-2632	1.5	365	T,A,R	1	MV-22B	A

Goal. Introduce dual point external load hook-ups and drops to a confined area.

Requirement

(1) Discuss

(a) CRM.

(b) Aircraft hook system. Hook preflight and checks.

(c) Standard terminology.

(d) Cargo hook-up procedures for dual point.

(e) HWOG operation.

(f) HST composition, functions, and signals.

(g) HST safety brief.

(h) Dual point operations.

(j) Reduced visibility conditions.

(k) Terrain/obstacle clearance.

(l) Inadvertent IMC procedures.

(m) Aircraft emergencies with external load (flight control system failures).

(n) Tactical considerations during external lift operations.

(o) Aerodynamic characteristics of external loads.

(p) Light and heavy external load considerations.

(2) Introduce

(a) Dual point external load hook-ups and drops to a confined area (minimum of 5 for initial sorties).

(b) Waveoff with external load.

Performance Standards

(1) Execute proper external procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper ICS terminology during dual point external operations.

(3) Place the load within 10 meters of desired location.

Prerequisites. EXT-2631

External Syllabus Support. External load, HST, approved LZ with 7nm of protected airspace to 1,000' AGL.

EXT-2633	1.5	240	T,A,R	1	MV-22B	A	NS	NSI

Goal. Introduce single point external cargo operations at night using NVDs.

Requirement

(1) Discuss

(a) Any previously introduced EXT stage item.

(b) NVD briefing guide.

(c) Aircraft and landing zone lighting.

(d) Aircraft emergencies with external load.

(2) Introduce

(a) Identifying the zone and load using NVDs.

(b) External load hook-ups and drops to a confined area (minimum of 5 for initial sorties).

(c) Use of aircraft lighting (search light, hover light).

(3) Review. EXT-2631

Performance Standards

(1) Execute proper NVD external procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper ICS terminology during external operations.

(3) Place load within 10 meters of desired location.

Required Reading. MAWTS-1 NVD Manual Ch 14

Prerequisites. NS-2331, NS-2381(if LLL), EXT-2631.

External Syllabus Support. External load, HST, approved LZ with 7nm of protected airspace to 1,000' AGL.

EXT-2634	1.5	240	T,A,R	1	MV-22B	A	NS	NSI

Goal. Introduce dual point external cargo operations at night using NVDs.

Requirement

(1) Discuss

(a) Any previously introduced EXT stage item.

(b) NVD briefing guide.

(c) Aircraft and landing zone lighting.

(d) Aircraft emergencies with external load.

(2) Introduce

(a) Dual point external operations using NVDs.

(b) External load hook-ups and drops to a confined area (minimum of 5 for initial sorties).

(c) Use of aircraft lighting (search light, hover light).

(3) Review. EXT-2632.

Performance Standards

(1) Execute proper NVD external procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper ICS terminology during external operations.

(3) Place load within 10 meters of desired location.

Prerequisites. EXT-2632, EXT-2633

External Syllabus Support. External load, HST, approved LZ with 7nm of protected airspace to 1,000' AGL.

10. Ground Threat Reaction (GTR)

a. Purpose. To develop proficiency in the use of Electronic Warfare Principles, Aircraft Survivability Equipment (ASE), and threat reactions versus counter enemy surface-to-air threats.

b. General

(1) All maneuver descriptions are in the MV-22B ANTTP Manual.

(2) A WTI is required for all initial sorties in each POI. Aircrew who have completed their initial GTR sorties and have lost proficiency in that sortie may regain proficiency by flying with a LATI who is proficient in that sortie.

(3) The flight lead shall be GTR-2832 proficient and specifically brief all applicable GTR training rules per the MV-22 ANTTP Manual and T&R Program Manual.

(4) GTR 2832 shall be conducted against a threat emitter; e.g. SA-6, ZSU-23-4, etc. and requires an electronic warfare range.

(5) All initial sorties are to be done during the day. Subsequent execution of sorties that the CCUI/AOUI is proficient in may be done at night.

c. Crew Requirements. P/P/CC/AO.

ACAD-2810	0.5	*	T,A,R	CLSRM	WTI

EAD ASE

Goal. The CCUI/AOUI has a familiarity with the Aircraft Survivability Equipment (ASE).

Required reading. MV-22B NATIP ASE Chapter.

Prerequisites. ACAD-2210

ACAD-2811	0.5	*	T,A,R	CLSRM	WTI

Basic Principles of Electronic Warfare

Goal. The CCUI/AOUI has a familiarity with the basic principles of Electronic Warfare.

Required reading. MV-22B NATIP EW Chapter.

Prerequisites. ACAD-2810

ACAD-2812	0.5	*	T,A,R	CLSRM	WTI

AAA Threat to Assault Support

Goal. The CCUI/AOUI has a familiarity with the various AAA threats to assault support aircraft.

Required reading. AFTTP 3-1 AAA Chapter.

Prerequisites. ACAD-2810

ACAD-2813	0.5	*	T,A,R	CLSRM	WTI

IR SAM Threat to Assault Support

Goal. The CCUI/AOUI has a familiarity with the threat of IR SAMS to assault support.

Required Reading. AFTTP 3-1 IR SAM Chapter.

Prerequisites. ACAD-2810

ACAD-2814	0.5	*	T,A,R	CLSRM	WTI

RADAR SAM Threat to Assault Support

Goal. The CCUI/AOUI has a familiarity with the threat of RADAR SAMS to assault support.

Required Reading. AFTTP 3-1 RADAR SAM Chapter

Prerequisites. ACAD-2810.

ACAD-2815	1.0	*	T,A,R	CLSRM	WTI

MV-22B Ground Threat Reaction

Goal. The CCUI/AOUI has a familiarity with the reaction maneuvers executed by the MV-22B as a result of a ground threats.

Required Reading. NATOPS Ch 18, ANTTP Appendix A, Classified ANTTP Ch 2.

Prerequisites. ACAD-2810, ACAD-2811, ACAD-2812, ACAD-2813, ACAD-2814.

LAB-2820	0.5	*	T,A,R	CLSRM		WTI

MV-22B Ground Threat Reaction Walk through

Goal. The CCUI/AOUI has a solid understanding of all GTR maneuvers prior to inflight execution.

Required Reading. ANTTP GTR Program Guide Appendix.

Prerequisites. ACAD-2815

GTR-2832	1.5	180	T,A,R	2	MV-22B	A	(NS)	WTI

Goal. Introduce procedures to counter an IR and RADAR surface-to-air threat with a single aircraft.

Requirement

(1) Discuss

(a) CRM.

(b) Operation of ASE.

(c) Set-up of ASE to defend against a ground threat.

(d) Threat reaction and post engagement reaction.

(e) Lookout doctrine.

(f) Non-RADAR GTR line numbers.

(g) GTR training rules.

(2) Introduce

(a) Maneuvering against an IR and AAA threat.

(b) Maneuvering against a RADAR threat.

(c) Threat avoidance maneuvers and/or tactics to defeat threat systems.

(d) Use of expendables to defeat threat systems.

(3) Review. FORM-2182

Performance Standards

(1) Execute GTR vs a ground threat IAW the MV-22B ANTTP Manual.

(2) Properly call for maneuvers in response to a threat IAW the MV-22B ANTTP Manual.

(3) Properly employ all ASE IAW the MV-22B ANTTP Manual and NATIP.

(4) Demonstrate knowledge of IR SAMs and countermeasures.

(5) Maintain Situational awareness of wingman position and provide information to pilots in a timely manner.

Prerequisites. FORM-2182, LAT-2233, LAB-2820

Ordnance. 50 chaff and 40 flares.

External Syllabus Support. EW emitter, chaff and flare capable range, ground fire indication.

12. Carrier Qualification (CQ)

a. Purpose. To qualify the CCUI/AOUI in flight operations from a carrier deck or ship platform under day and NVD conditions.

b. General

(1) Refer to LHA/LHD/MCS NATOPS Manuals for carrier operations. Refer to NWP-42 for air capable ship operations.

(2) CQ-2935 shall be flown under HLL conditions for initial qualifications. An NSI is required for unqualified aircrew on NVD CQ flights.

(3) IAW NATOPS and NAVMC 3500.14, a crew chief/aerial observer is CQ upon completion of CQ-2935. A qualification letter signed by the commanding officer stating the crew chief/aerial observer is CQ is to be placed in the crew chief/aerial observer’s NATOPS jacket.

(4) The crew chief instructor will emphasize proper communication procedures, patterns, and aviation operations in the shipboard environment per aircraft and ship NATOPS and NAVMC 3500.14.

c. Crew Requirement. P/P/CC (AO required for NVD CQ).

CQ-2931 1.0 365 T,A,R 1 MV-22B A

Goal. Introduce day CQ patterns and procedures in a Field Carrier Landing Practice (FCLP) scenario.

Requirement

(1) Discuss

(a) CRM.

(b) Crewmember duties during CQs.

(c) Shipboard specific ICS procedures.

(d) Hand and Arm signals for shipboard operations.

(e) Flight deck operations.

(f) Wave offs.

(2) Introduce

(a) Carrier operation.

1 Airplane and conversion mode arrivals.

2 Charlie pattern for LHA/LHD and LPD/LSD (minimum 5 for initial sorties).

3 Communication procedures.

4 Lights and light signals.

5 LSE signals and procedures.

6 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

Performance Standards

(1) Properly execute the CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Demonstrate knowledge of ship landing deck configuration.

(3) Demonstrate proper clearance calls prior to landing.

(4) Correction calls over the spot are accurate, clear, and timely.

Prerequisites. CAL-2133

Required Reading. MV-22 NATOPS Ch 8, LHA/LPH/LHD NATOPS Ch 2, 3, 4, 5, 6, 7.2, 7.3 App a, d.

External Syllabus Support. FCLP site.

CQ-2932 1.5 365 T,A,R 1 MV-22B A

Goal. Day qualification flight.

Requirement

(1) Discuss

(a) CRM.

(b) Crewmember duties during CQs.

(c) Shipboard specific ICS procedures.

(d) Hand and Arm signals for shipboard operations.

(e) Flight deck operations.

(f) Wave offs.

(2) Introduce

(a) Carrier operation.

1 Airplane and conversion mode arrivals.

2 Charlie pattern for LHA/LHD and LPD/LSD (minimum 5 for initial sorties).

3 Communication procedures.

4 Lights and light signals.

5 LSE signals and procedures.

6 Departure procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(e) Steady heading approach.

(f) 45° slide approach.

Performance Standards

(1) Properly execute the CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Demonstrate knowledge of ship landing deck configuration.

(3) Demonstrate proper clearance calls prior to landing.

(4) Correction calls over the spot are accurate, clear, and timely.

Prerequisites. CQ-2931

External Syllabus Support. Landing platform afloat.

CQ-2934	1.0	365	T,A,R	1	MV-22B	A	NS	NSI

Goal. Introduce night aided CQ patterns and procedures in a FCLP scenario.

Requirement

(1) Discuss

(a) NVD CQ patterns.

(b) Crewmember duties during NVD CQs.

(c) Aircraft lighting.

(d) Ditching.

(e) CRM.

(2) Introduce

(a) Carrier operations using NVDs.

1 Night takeoff/landing patterns (minimum 5 for initial sorties).

2 Communication procedures.

3 Lighting procedures for night CQ operations.

4 LSE signals and procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(3) Review. CQ-2931

Performance Standards

(1) Perform standard CQ landing procedures previously outlined in CQ-2931.

(2) Maintain an aggressive NVD scan to acquire hazards and recognize improper landing profiles.

(3) Provide accurate correction calls to pilots over the landing spot.

Prerequisites. NS-2331, NS-2381 (if LLL), CQ-2931

Required Reading. MAWTS-1 NVD Manual Ch 17.

External Syllabus Support. FCLP site.

CQ-2935	1.5	365	T,A,R	1	MV-22B	A	NS	NSI

Goal. NVD qualification flight.

Requirement

(1) Discuss

(a) NVD CQ patterns.

(b) Crewmember duties during NVD CQs.

(c) Aircraft lighting.

(d) Ditching.

(e) CRM.

(2) Introduce

(a) Carrier operations using NVDs.

1 Night takeoff/landing patterns (minimum 5 for initial sorties).

2 Communication procedures.

3 Lighting procedures for night CQ operations.

4 LSE signals and procedures.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up with side-slip characteristics.

(3) Review CQ-2934

Performance Standards

(1) Perform standard CQ landing procedures previously outlined in CQ-2932.

(2) Maintain an aggressive NVD scan to acquire hazards and recognize improper landing profiles.

(3) Provide accurate correction calls to pilots over the landing spot.

Prerequisites. NS-2335, CQ-2932, CQ-2934

External Syllabus Support. Landing platform afloat.

312. MISSION SKILL PHASE

1. General

a. This phase of training is designed to enable aircrew to obtain proficiency in mission skills. Mission skills are designed to fulfill the requirements of the VMM's Mission Essential Task List (METL)as defined by the associated Marine Corps Task (MCT).

b. Events in this stage 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 escort aircraft (fixed or rotary wing), ASE (ALE-47, APR-39, etc.) and use of the defensive weapon system. On certain events integration with other ACE assets is required.

c. Discuss items for each event in this stage are designed to be the focus of scenario-based training for planning and execution, not necessarily for discussion during individual cockpit briefs. However, this does not preclude these items from being discussed during cockpit briefs.

d. Specific planning responsibilities should be delegated to PUIs in order to obtain a broad exposure to mission planning. Instructors shall ensure sufficient time is provided to complete all planning tasks.

e. Initial flights will be instructed by a designated section leader.

f. Stages. The following stages are included in the Mission Skill Phase of training.

(1) SEA

(2) SHORE

(3) AS

(4) AD

(5) TRAP

(6) AE

g. ROC will be per the T&R Program Manual.

h. Lectures listed in each stage must be completed in order to successfully complete the stage. However, they can be taught at any time and are not necessarily prerequisites for the simulator or flight events in the stage.

i. Aircrew shall complete all initial simulator and flight events in this phase of training in accordance with the requirements in the individual event header. Aircrew who have completed a simulator or flight event in this phase of training may maintain or regain proficiency in that same event by flying that event with a minimum of a section under (NS) conditions.

2. Operate from Expeditionary Sea Based Sites (SEA)

a. Purpose. This stage of training is designed to fulfill the requirement set in MCT 1.3.3.3.1, Conduct Aviation Operations From Expeditionary Sea-Based Sites.

b. General. This flight is intended to be flown in conjunction with the CQ-2935.

c. Crew Requirement. P/P/CC/AO.

SEA-3030 0.0 240 T,A,R

Goal. Introduce a sea-based assault support mission in a medium threat environment using NVDs.

Requirement. Proficiency in SEA-3030 is attained via simultaneous proficiency in CQ-2935 and SHORE-3131. A manual entry is required in M-SHARP for SEA-3030.

Required Reading. ANTTP Ch 8, 13, NATOPS Ch 8.

Prerequisites. NS-2384, NS-2385, TG-2533, GTR-2832, CQ-2935. (Note: These prerequisites apply even though this code is manually entered based upon completion of CQ-2935 and SHORE-3131).

3. Operate from Expeditionary Shore Based Sites (SHORE)

a. Purpose. This stage of training is designed to fulfill the requirement set in MCT 1.3.3.3.2, Conduct Aviation Operations From Expeditionary Shore-Based Sites.

b. Crew Requirement. P/P/CC/AO.

SHORE-3131 2.0 240 T,A,R 2 MV-22B A NS

Goal. Introduce an assault support mission in a medium threat environment with integrated fires in the objective area from an expeditionary shore-based site.

Requirement

(1) Discuss

(a) Use of SERE information.

(b) ROE.

(c) Objective area actions.

(d) Review contingency planning.

(2) Introduce. Execution of a medium threat mission from an expeditionary shore based site.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Accomplish the assigned mission.

Required Reading. ANTTP Ch 8, 14, NATOPS Ch 7.

Prerequisites. NS-2384, NS-2385, TG-2533, GTR-2832

Ordnance. 600 rds 7.62, 90 flares.

External Syllabus Support: 7.62 and expendable capable range, EW emitter, RW/FW attack aircraft, and approved LZ.

3. Assault Support (AS)

a. Purpose. To introduce day and night assault support tactical mission planning, briefing and execution. This stage of training is designed to fulfill the requirement set in MCT 1.3.4.1.

b. Crew Requirement. P/P/CC/AO.

ACAD-3210	0.5	*	T,A		CLSRM			WTI

Six Functions of Marine Aviation

Goal. The CCUI/AOUI has a familiarity with the different functions of Marine Corps aviation.

AS-3231	2.5	365	T,A,R	3	MV-22B	A		NS

Goal. Introduce a night assault support mission in a medium threat environment using a minimum of a division.

Requirement

(1) Discuss

(a) Use of SERE information.

(b) Review ROE.

(c) Review objective area actions.

(d) Review objective area planning.

(e) Review contingency plans.

(2) Introduce. Execution of a medium threat assault support mission using a division.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Demonstrate weapons employment procedures in a low threat tactical environment.

Required Reading. ANTTP Ch 8

Prerequisites. NS-2384, NS-2385 (if LLL), TG-2533, GTR-2832

Ordnance. 600 rds 7.62, 40 chaff and 50 flares.

External Syllabus Support. 7.62 and expendable capable range, EW emitter, RW/FW attack aircraft, and approved LZ.

4. Aerial Delivery (AD)

a. Purpose. This stage of training is designed to fulfill the requirement set in MCT 4.3.4 Conduct Air Delivery.

b. General. This flight is to be executed in conjunction with EXT-2632. All external cargo operations shall utilize HST support.

c. Crew Requirement. P/P/CC/AO.

AD-3330 0.0 240 T,A,R

Goal. Introduce an aerial delivery mission in a medium threat environment using a minimum of a section with integrated fires in the objective area.

Requirement. Proficiency in AD-3330 is attained via simultaneous proficiency in EXT-2633 and AS-3231. A manual entry is required in M-SHARP for AD-3330.

Required Reading. ANTTP Ch 11, NATOPS Ch 9.7-9.10.

Prerequisites. NS-2384, NS-2385, TG-2533, EXT-2634, GTR-2832. (Note: These prerequisites apply even though this code is manually entered based upon completion of EXT-2633 and AS-3231).

5. Tactical Recovery of Aircraft and Personnel (TRAP)

a. Purpose. To introduce day or NVD low threat tactical mission planning, briefing, and execution. This stage of training is designed to fulfill the requirement set in MCT 6.2.1.1 Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP).

b. Crew Requirement. P/P/CC/AO.

ACAD-3410 0.5 * T,A,R CLSRM WTI

TRAP for Enlisted Aircrew

Goal. The CCUI/AOUI has a familiarity with responsibilities associated with a TRAP mission.

Required Reading. ASTACSOP Pg 47-59

Prerequisite. ACAD-2210

TRAP-3430 2.5 365 T,A,R 2 MV-22B A (NS)

Goal. Introduce a tactical recovery of aircraft or personnel mission.

Requirement

(1) Discuss

(a) TRAP mission analysis.

(b) Threat analysis.

(c) Alert postures.

(d) Use of tactical SOPs.

(e) Use of standardized TRAP template.

(f) Enlisted Aircrew responsibilities.

(g) Use of Mission kits (Medevac, Hoist, etc.).

(h) Use of ASE.

(i) CRM.

(2) Introduce. Execution of a TRAP mission.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Configure the cabin for TRAP mission.

(3) Accomplish the assigned mission.

Prerequisites. NS-2384, NS-2385, TG-2533, GTR-2832

Ordnance. 600 rds 7.62, 40 chaff and 50 flares.

External Syllabus Support. 7.62 and expendable capable range, aircraft to perform RMC, RESCORT/RESCAP, approved LZ.

6. Air Evacuation (AE)

a. Purpose. To introduce day or NVD assault support tactical mission planning, briefing and execution. This stage of training is designed to fulfill the requirement set in MCT 6.2.2 Conduct Air Evacuation.

b. Crew Requirement. P/P/CC/AO.

ACAD-3510	0.5	*	T,A,R		CLSRM		WTI

NEO Execution

Goal. The CCUI/AOUI has a familiarity with responsibilities associated with a NEO mission.

ACAD-3511	0.5	*	T,A,R		CLSRM		WTI

Military Operations in Urban Terrain

Goal. The CCUI/AOUI has a familiarity with responsibilities associated with a mission in a MOUT environment.

ACAD-3512	0.5	*	T,A,R		CLSRM		WTI

Casualty Evacuation Operations

Goal. The CCUI/AOUI has a familiarity with responsibilities associated with a casualty evacuation mission.

Required Reading. MV-22 TPG Pg 34, 76.

AE-3530	2.0	240	T,A,R	2	MV-22B	A	(NS)

Goal. Introduce air evacuation mission in a medium threat environment using a minimum of a section.

Requirement

(1) Discuss

(a) Alert postures/stand-by timelines.

(b) Objective area analysis/planning.

(c) Fire support coordination measures.

(d) Tactical airspace considerations.

(e) Escort considerations.

(f) FARP planning.

(g) Contingency planning.

(2) Introduce. Execution of a medium threat air evacuation mission.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Properly employ all ASE IAW the MV-22B ANTTP Manual.

(3) Execute proper weapons employment procedures IAW the MV-22B ANTTP Manual.

(4) Demonstrate knowledge of air evacuation mission equipment.

(5) Accomplish the assigned mission.

Prerequisites. NS-2384, NS-2385, TG-2533, GTR-2832

Ordnance. 600 rds 7.62, 40 chaff and 50 flares.

External Syllabus Support. 7.62 and expendable capable range, approved LZ.

313. CORE PLUS SKILL PHASE

1. General. This phase addresses training in Core Plus Skill events. Prior to training in this phase a crew chief should be complete with core skills training.

a. Stages. The following stages are included in the Core Plus Skill Phase of training.

(1) DCM

(2) CBRN

(3) AI/E

(4) TAC

(5) CQ

(6) MAT

(7) RGR

(8) RI/E

(9) RGR

b. ROC will be per the T&R Program Manual.

c. Crew chiefs/aerial observers may fly night flights using NVDs in this phase under HLL or LLL conditions provided they are NSQ for that light level.

2. Defensive Combat Measures (DCM)

a. Purpose. To introduce and develop proficiency in tactics and aerial defensive measures used to evade enemy air-to-air threats.

b. General

(1) CCUI/AOUIs in this stage must be LAT qualified and proficient.

(2) A DCMI is required for all non-proficient aircrew.

(3) The flight lead must be DCM qualified and specifically brief all applicable DCM training rules per the MV-22B ANTTP Manual, the Aviation T&R Program Manual, and this Manual.

(4) After completion of DCM-4031 the CCUI/AOUI is DCM Qualified (DCMQ).

(5) The flight lead shall brief aggressor aircrew per Aviation T&R Program Manual and brief training rules prior to each flight.

(6) Sequences for all DCM flights shall be flown as outlined in the MV-22B ANTTP Manual.

c. Crew Requirements. P/P/CC/AO.

ACAD-4010	0.5	*	T,A	CLSRM	DCMI

Attack Helicopter Threat to Assault Support

Goal. The CCUI/AOUI has an introductory knowledge specific attack helicopter threats to assault support aircraft.

Required Reading. AFTTP 3-1 helicopter threat chapter.

ACAD-4011	0.5	*	T,A	CLSRM	DCMI

Fixed Wing Threat to Assault Support

Goal. The CCUI/AOUI has an introductory knowledge of the fixed wing threat to assault support.

Required Reading. AFTTP 3-1 fixed wing threat chapter.

ACAD-4012	0.5	*	T,A,R	CLSRM	DCMI

Defensive Combat Maneuvers

Goal. The CCUI/AOUI has an introductory knowledge of MV-22B Defensive Combat Manuevers.

Required Reading. ANTTP CH 15, ANTTP Appendix B, NAVMC 3500.14 paragraph 312, NAVMC 3500.11 Ch 3 paragraph 308 subparagraph 13.

Prerequisite. GTR-2832, ACAD-4010, ACAD-4011

LAB-4020	0.5	*	T,A,R		DCMI

Defensive Combat Maneuver Walk-through

Goal. The CCUI/AOUI has a satisfactory knowledge of MV-22B defensive combat maneuvers prior to inflight execution.

Required Reading. Defensive countermeasures program guide.

Prerequisite. ACAD-4012

DCM-4031	2.0	365	T,A,R	2	MV-22B	A		DCMI

Goal. Introduce section DCM against a FW aggressor.

Requirement

(1) Discuss

(a) Lookout doctrine.

(b) Situational awareness.

(c) Adversary aircraft parameters.

(d) Adversary weapons parameters, envelopes, and considerations.

(e) Mutual support.

(2) Demonstrate/Introduce

(a) Tiltrotor DCM versus a single FW aggressor per the MV-22B ANTTP Manual.

(b) DCM line numbers in accordance with the MV-22B ANTTP.

(c) Aggressor attacks at various altitudes.

Performance Standards

(1) Execute proper DCM vs a FW threat IAW the MV-22B ANTTP Manual.

(2) Maintain DCM ROC IAW the Aviation T&R Program Manual.

(3) Maintain proper lookout doctrine during DCM.

Prerequisites. LAT-2233, GTR-2832, LAB-4020

Ordnance. 60 flares.

External Syllabus Support. FW adversary, ACM range space.

3. Chemical, Biological, Radiological, and Nuclear (CBRN)

a. Purpose. To introduce the AR-5 CBRN protective mask and associated CBRN equipment.

b. General. For safe execution of all flights, 1 aircrewman shall remain unmasked during flights in the aircraft.

c. Crew Requirement. P/P/CC.

LAB-4120 0.5 * T,A CLSRM

CBRN Equipment Fitting and Familiarization

Goal. The CCUI/AOUI is introduced to CBRN protective equipment and is fitted with the required gear for flight operations.

Required Reading. NAVAIR 00-80T-121.

SCBRN-4130 1.0 * T,A 1 FFS/FTD S

Goal. Demonstrate the ability to conduct flight in an CBRN environment with mask and gear donned during day conditions.

Requirement

(1) Discuss

(a) CRM while masked, to include emergency procedures and ground handling signals.

(b) Mask limitations pertaining to vision and scan.

(c) Physiological limitations and fatigue factors imposed by CBRN protective equipment.

(d) Mask maintenance and factors that render the mask unserviceable.

(2) Demonstrate. Proper mask use (donning and doffing).

(3) Introduce

(a) CBRN defensive suit.

(b) Start while masked.

(c) Taxi while masked.

(d) Takeoff and landings while masked.

(e) Normal flight operations while masked.

Performance Standards

(1) Properly don CBRN protective equipment and conduct flight maneuvers.

(2) Demonstrate knowledge of CBRN operations IAW the MV-22B ANTTP Manual.

Prerequisites. LAB-4120.

SCBRN-4131 1.0 365 T,A,R 1 FFS/FTD S NS

Goal. Demonstrate the ability to conduct flight in an CBRN environment with mask and gear donned during NVD conditions.

Requirement

(1) Discuss

(a) NVD limitations pertaining to vision and scan.

(b) CRM while wearing the mask and NVDs.

(2) Demonstrate. Proper mask use (donning and doffing).

(3) Introduce

(a) CBRN defensive suit.

(b) Start while masked.

(c) Taxi while masked.

(d) Takeoff and landings while masked.

(e) Normal flight operations while masked.

Performance Standards

(1) Properly don CBRN protective equipment and conduct flight maneuvers with NVDs.

(2) Demonstrate knowledge of CBRN operations IAW the MV-22B ANTTP Manual.

Prerequisites. SCBRN-4130.

4. Alternate Insertion/Extraction Techniques (AIE)

a. Purpose. To develop proficiency in alternate Tiltrotor insertion and extraction techniques and procedures.

b. General. Initial AIE-4230 through AIE-4233 shall be conducted during the day. Subsequent execution of AIE-4230 through AIE-4233 may be conducted at night. Crew chiefs shall be NSQ for the appropriate light level if conducting AIE-4230 through AIE-4233 using NVDs. AIE-4234 shall not be conducted at night.

c. Crew Requirement. P/P/CC (AO required for NVD operations).

ACAD-4210	1.5	*	T,A,R	CLSRM

Aerial Delivery / PARAOPS

Goal. The CCUI/AOUI has an introductory knowledge of procedures to execute aerial delivery and PARAOPS from the MV-22B.

Required Reading. ANTTP Ch 9,10, NATOPS Ch 9.

Prerequisite. CAL-2131

ACAD-4211 0.5 * T,A,R CLSRM

Fastrope, Rappel, SPIE, Hoisting Operations

Goal. The CCUI/AOUI has an introductory knowledge of procedures to execute Fastrope, Rappel, SPIE, and hoisting operations from the MV-22B.

Required Reading. ANTTP Ch 11.

Prerequisite. CAL-2131

ACAD-4212 0.5 * T,A,R CLSRM

Helocast Operations

Goal. The CCUI/AOUI has an introductory knowledge of procedures to execute Helocast from the MV-22B.

Required Reading. ANTTP Chapter 8.9.

Prerequisite. CAL-2131

AIE-4230 1.5 365 T,A,R 1 MV-22B A (NS)

Goal. Introduce aerial delivery of cargo procedures.

Requirement

(1) Discuss

(a) CRM during aerial deliveries.

(b) Voice communication/standard terminology during aerial deliveries.

(c) Tactical considerations for aerial delivery of cargo.

(d) Proper rigging and preflight of equipment to be inserted by aerial delivery.

(2) Introduce. Insertion of cargo by aerial delivery.

Performance Standards

(1) Execute airdrop procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during airdrop operations.

Prerequisites. CAL-2133, ACAD-4210

External Syllabus Support. Aerial Delivery Platoon, CDS bundles.

AIE-4231 1.5 365 T,A,R 1 MV-22B A (NS)

Goal. Introduce PARAOPS procedures.

Requirement

(1) Discuss

(a) CRM during PARAOPS.

(b) Voice communication/standard terminology during PARAOPS.

(c) Tactical considerations for aerial delivery of troops.

(d) Cargo loading manual.

(2) Introduce. PARAOPS.

Performance Standards

(1) Execute PARAOPS procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during PARAOPS operations.

Prerequisites. CAL-2133, ACAD-4210

External Syllabus Support. Jumpmaster, qualified troops.

AIE-4232 1.5 365 T,A,R 1 MV-22B A (NS)

Goal. Introduce conduct of SPIE Rig.

Requirement

(1) Discuss

(a) HIGE/HOGE requirements.

(b) CRM. Pilots, crew chief, RST Master and RST Safety Observer brief together.

(c) Voice communication/standard terminology.

(d) ICS failures/hand and arm signals.

(e) Current Force Order/Wing SOP.

(f) Obstacle clearance.

(g) Emergency procedures.

(2) Introduce

(a) Inspection of SPIE Rig.

(b) Troop insertion/extraction via SPIE Rig.

Performance Standards

(1) Maintain proper lookout for extended hover when extracting/inserting troops.

(2) Execute proper SPIE procedures IAW the MV-22B ANTTP Manual.

(3) Maintain obstacle clearance.

Prerequisites. EXT-2631, EXT-2633 (if done at night). ACAD-4211

External Syllabus Support. Ropemaster, qualified troops.

AIE-4233 1.5 365 T,A,R 1 MV-22B A (NS)

Goal. Introduce insertion procedures via fast rope, rappel or hoisting.

Requirement

(1) Discuss

(a) HIGE/HOGE requirements.

(b) Crew chief duties.

(c) RST brief.

(d) Voice communication/standard terminology.

(e) ICS failure/hand and arm signals.

(f) Current Force Order/Wing SOP.

(g) Obstacle clearance/wave-off.

(h) Hoist system operation.

(i) Emergency procedures: Engine failure, uncommanded nacelle movement, nacelle blower failure.

(2) Introduce

(a) Preflight of fast rope frame/rappel rigging.

(b) Troop insertion via fast rope/rappelling/hoisting.

Performance Standards

(1) Maintain proper lookout for hover operations when deploying troops.

(2) Execute proper AIE procedures IAW the MV-22B ANTTP Manual.

(3) Maintain obstacle clearance.

Prerequisites. EXT-2631, EXT-2633 (if done at night), ACAD 4211.

External Syllabus Support. RST Master, qualified Marines.

AIE-4234 1.5 365 T,A,R 1 MV-22B A

Goal. Introduce aerial insertion of troops and equipment via helo cast and/or soft duck (deflated rubber boat) and introduce SAR operations.

Requirement

(1) Discuss

(a) CRM while performing helo cast or soft duck.

(b) Proper rigging and preflight of equipment to be inserted via helo cast and soft duck.

(c) Low altitude aircraft emergencies over water.

(d) Ditching/water landing.

(e) Salt encrustation/compressor stall.

(f) Helo cast/soft duck aerial delivery altitudes and airspeeds.

(g) Voice communications/standard terminology.

(h) Flight Director search patterns.

(i) Cargo loading manual.

(2) Introduce

(a) Insertion of troops and equipment by helo cast or soft duck.

(b) Preflight of aircraft, troops and equipment for helo cast or soft duck.

(c) SAR patterns and over-water hoisting operations.

Performance Standards

(1) Execute helo cast or soft duck procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during helo cast or soft duck operations.

Prerequisite. CAL-2133, ACAD-4212.

5. Carrier Qualification (CQ)

a. Purpose. Qualify the CCUI/AOUI in flight operations from a carrier deck or ship platform under night unaided conditions.

b. General

(1) Refer to LHA/LHD/MCS NATOPS Manuals for carrier operations. Refer to NWP-42 for air capable ship operations.

c. Crew Requirement. P/P/CC.

CQ-4431	1.0	365	T,A,R	1	MV-22B	A	N*

Goal. Introduce night unaided CQ patterns and procedures in a FCLP scenario.

Requirement

(1) Discuss

(a) Differences and similarities of day and night landing and takeoff techniques.

(b) Review CQ-2931 discussion items.

(2) Introduce

(a) Unaided carrier operation.

1 Night takeoff/landing patterns (minimum 5 for initial sorties).

2 Communication procedures.

3 Lights and light signals peculiar to night operations.

4 LSE signals and procedures.

5 Carrier aided and unaided lighting configurations.

(b) Self-taxi procedures.

(c) STOs.

(d) Pitch-up side slip characteristics.

Performance Standards

(1) Properly execute the night unaided CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Provide accurate drift correction calls to the pilots in the landing environment.

Required Reading. NATOPS Ch 8, LHA/LPH/LHD NATOPS Ch 2, 3, 4, 5, 6, 7.2, 7.3 App a, d.

Prerequisites. CQ-2931

External Syllabus Support. FCLP area.

CQ-4432	1.5	365	T,A,R	1	MV-22B	A	N*

Goal. Night unaided qualification flight.

Requirement

(1) Discuss

(a) Aircraft ditching.

(b) Emergency egress procedures.

(2) Introduce

(a) Procedures for unaided landings and takeoffs.

(b) Night unaided patterns.

(c) Unaided approaches and landings (minimum 5 for initial sorties).

(d) Aircraft lighting configuration.

(e) Deck lighting configuration.

(f) Unaided closure rates.

(3) Review

(a) CRM.

(b) Emergency Egress Lighting System (EELS).

(c) LSE signals.

(d) Voice procedures.

Performance Standards

(1) Properly execute the night unaided CQ pattern IAW LHA/LHD/MCS NATOPS.

(2) Provide accurate drift correction calls to the pilots in the landing environment.

Prerequisites. CQ-2932, CQ-4431

External Syllabus Support. Landing platform afloat.

6. Mountain Area Training (MAT)

a. Purpose. To develop proficiency in day and NVD mountainous terrain operations. Landings should be conducted at zones above 6,000'.

b. Crew Requirement. P/P/CC.

MAT-4530	1.5	365	T,A,R	1	MV-22B	A

Goal. Introduce operations and landings in mountainous terrain.

Requirement

(1) Introduce

(a) Mountainous area operations.

(b) Pinnacle landings.

(c) Slope landings.

(d) Landings and operations in valleys and canyons.

(e) Crosswind landings.

(2) Review. CAL-2133.

Performance Standards

(1) Execute proper MAT procedures IAW the MV-22B ANTTP Manual.

(2) Execute up-slope/down-slope and cross-slope landings.

(3) Provide pilots with timely and accurate information about LZ topography and aircraft drift.

Required Reading. NATOPS Ch 22, 23, 30, 31.

Prerequisites. CAL-2133

MAT-4531	1.5	365	T,A,R	1	MV-22B	A	NS

Goal. Introduce NS operations and landings in mountainous terrain.

Requirement

(1) Discuss. Any previously discussed MAT item.

(2) Introduce

(a) NVD mountainous terrain operations.

(b) NVD CALs in mountainous areas.

(3) Review. NS-2331.

Performance Standards

(1) Execute proper NVD MAT procedures IAW the MV-22B ANTTP Manual.

(2) Execute up-slope/down-slope and cross-slope NVD landings.

(3) Provide pilots with timely and accurate information about LZ topography and aircraft drift.

Prerequisites. MAT-4530, NS-2384, NS-2385

7. Rapid Ground Refueling (RGR)

a. Purpose. To introduce day and night rapid ground refueling and FARP procedures.

b. Crew Requirement. P/P/CC/AO.

ACAD-4610	1.0	*	T,A,R		CLSRM		WTI

MV-22B Rapid Ground Refueling

Goal. The CCUI/AOUI has an introductory knowledge of the MV-22B Rapid Ground Refueling equipment and FARP setup.

Required Reading. NATOPS Ch 4.15, 9.11.

Prerequisites. CAL-2133, LAB-2020

LAB-4620	2.0	*	T,A,R	1	MV-22B		WTI

Rapid Ground Refueling Lab

Goal. The CCUI/AOUI has an introductory knowledge of the set-up of an MV-22B RGR site.

Required Reading. ANTTP Ch 12, ASTACSOP Pg 59-69, MV-22 TPG Pg 31-33

Prerequisite. ACAD-4610

RGR-4630	0.5	365	T,A,R	1	MV-22B	A	(NS)

Goal. Introduce an RGR mission.

Requirement

(1) Discuss

(a) RGR site evaluation and selection.

(b) Fuel planning.

(c) RGR site security considerations.

(2) Introduce. Tactical planning, briefing, and execution of an RGR mission during day or night. The CCUI/AOUI will assist in the set up of the RGR site.

Performance Standards

(1) Maintain situational awareness with respect to the friendly and enemy situation and mission progress.

(2) Demonstrate proper knowledge and set up of the RGR mission kit.

(3) Safely conduct refueling operations in the RGR site.

(4) Provide fuel and/or ordnance to receivers.

(5) Demonstrate proper knowledge of NVD tactical considerations IAW the MV-22B ANTTP Manual and MAWTS-1 NVD Manual as applicable for the mission.

Prerequisites. CAL-2133, NS-2331 (IF HLL), NS-2381(If LLL), LAB-4620

External Syllabus Support. Approved site for refueling operations, receiver.

8. Rapid Insertion/Extraction Mission (RI/E)

a. Purpose. To demonstrate proficiency in alternate tiltrotor insertion and extraction techniques and procedures.

b. General. Initial RIE-4730 may be conducted day or night. Crew chiefs/aerial observers shall be complete in the appropriate AIE skill prior to conducting RIE-4730 and NSQ for the appropriate light level if conducting RIE-4730 utilizing NVDs.

c. Crew Requirement. P/P/CC/AO.

RIE-4730	2.5	240	T,A,R	1	MV-22B	A	(NS)

Goal. Demonstrate the ability to execute alternate insertion/extraction operations in a tactical environment.

Requirement

(1) Discuss

(a) CRM.

(b) Voice communication/standard terminology during AIE.

(c) Tactical considerations for the applicable AIE mission.

(2) Review. Appropriate AIE skill.

Performance Standards

(1) Execute AIE procedures IAW the MV-22B ANTTP Manual.

(2) Demonstrate proper crew coordination during AIE operations.

(3) Complete the mission.

Required Reading. MV-22 TPG pg, 46-50, ANTTP Ch 8-11.

Prerequisites. Appropriate AIE skill complete.

External Syllabus Support. Jumpmaster/Swimmaster/HRST Master, qualified troops.

314. INSTRUCTOR TRAINING PHASE (5000)

1. Crew Chief FRS Instructor Training (FIT)

a. Purpose. To certify a qualified MV-22B crew chief in instructional procedures and techniques to support crew chief training at the FRS.

b. General

(1) All Instructor Under Training (IUT) events are intended to emphasize standardization of crew chief procedures and techniques. The Crew

Chief Instructor Under Training (CCIUT) should be capable of demonstrating and verbalizing all training objectives associated with the Core Skill Introduction Phase of instruction.

(2) For academic support and certification criteria for NS and LAT Instructors refer to MAWTS-1 Course Catalog.

c. Crew Requirement. FRS CCI/CCIUT.

d. Prerequisites. Crew chiefs are not required to be NSQ in order to begin CCIUT training. However, crew chiefs shall be NSQ prior to completion of FIT-5033 as well as recommended by the Squadron Standardization Board.

FIT-5030	2.0	*	T,R	E	1	MV-22B	A	FRSCCI

Goal. Demonstrate standardized procedures for preflight, mission preparation, and postflight to include plane captain duties.

Requirement

(1) Discuss

(a) Instructional techniques.

(b) Student tendencies.

(c) Standardized procedures.

(d) Common student mistakes.

(e) Crew day/crew rest.

(2) Introduce

(a) Instructional techniques.

(b) Student tendencies.

(c) Standardized procedures.

(3) Review. Crew chief FAM procedures.

Performance Standards

(1) Demonstrate the ability to thoroughly brief and debrief students.

(2) Demonstrate the ability to instruct standardized procedures outlined in the V-22 NATOPS.

FIT-5031	1.5	*	T,R	E	1	MV-22B	A	FRSCCI

Goal. Review CAL instructional techniques.

Requirement

(1) Discuss

(a) ICS procedures and common tendencies.

(b) Closure rates to the ground.

(c) Waveoff procedures.

(d) Ramp operations.

(e) Obstacle clearance calls.

(f) Common student mistakes.

(2) Review

(a) Lookout doctrine.

(b) Aircraft clearances.

(c) Crew chief duties during CAL landings and takeoffs.

(d) CRM.

Performance Standard. Demonstrate standard CAL procedures and verbally correct students when standardized procedures are not executed.

FIT-5032	1.5	*	T,R	E	2	MV-22B	A	FRSCCI

Goal. Review formation flight instructional techniques.
Requirement

(1) Discuss

(a) Parade and cruise formations and positioning.

(b) Closure rates between aircraft.

(c) Lookout doctrine techniques in formation flight.

(d) Inter and intra-aircraft coordination.

(e) Common student mistakes.

(2) Review. Crew chief duties.

Performance Standards. Demonstrate standard FORM procedures previously outlined and show the ability to instruct a student on standard FORM procedures and terminology.

FIT-5033	2.0	*	T,R	E	1	MV-22B	A	NE/NI/ANI

Goal. Crew chief instructor standardization check.

Requirement. Evaluate the prospective crew chief instructor for standardization of instructional techniques and flight

procedures. All stages of training should be evaluated if possible. The evaluator will set itinerary.

Review. FIT-5030, FIT-5031, FIT-5032

Performance Standard. Demonstrate the ability to instruct students on standardized procedures covered in the Core Skill Introduction Phase of training.

Prerequisites. FIT-5030, FIT-5031, FIT-5032, and NSQ.

2. Tail Gunnery Instructor (TGI)

a. Purpose. To certify the MV-22B crew chief as a TGI capable of safely conducting academic and airborne instruction in the employment of crew served weapons in all aspects of tactical flight from the ramp position.

b. General. Reference the MAWTS-1 Course Catalog for the TGI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5410	1.0	*	T	E		CLSRM			MAWTS CC

Goal. The TGIUT will instruct one of the MAWTS-1 approved TGI courses to a MAWTS-1 Crew Chief Instructor.

TG-5430	1.5	*	T	E	1	MV-22B	A		TGI

Reference the MAWTS-1 Course Catalog for the TGI POI.

TG-5431	1.5	*	T	E	1	MV-22B	A	NS	TGI

Reference the MAWTS-1 Course Catalog for the TGI POI.

ACAD-5411	1.0	*	T			CLSRM			TGI

Goal. The TGIUT will receive EA Training the Aerial Gunner class IAW the MAWTS-1 Course Catalog.

TG-5432	1.5	*	T,R	E	2	MV-22B	A	(NS)	MAWTS CC

Reference the MAWTS-1 Course Catalog for the TGI POI.

TG-5433	1.5	*	T	E	1	MV-22B	A		TGI

Reference the MAWTS-1 Course Catalog for the TGI POI. The TGI listed in the event header must be proficient in both TG-5433 and TG-5434 to instruct this event.

TG-5434	1.5	*	T,R	E	2	MV-22B	A	(NS)	MAWTS CC

Reference the MAWTS-1 Course Catalog for the TGI POI.

3. Low Altitude Tactics Instructor (LATI)

a. Purpose. To certify the MV-22B crew chief as a Low Altitude Tactics Instructor (LATI) capable of safely conducting academic and airborne instruction in the MV-22B Low Altitude Tactics syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the LATI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5610	1.0	*	T	E		CLSRM			WTI
	Goal. The CCUI will instruct one of the MAWTS-1 approved LATI courses to a WTI or MAWTS-1 Crew Chief Instructor.								
LAT-5630	1.5	*	T	E	1	MV-22B	A		LATI
	Reference the MAWTS-1 Course Catalog for the LATI POI.								
LAT-5631	2.0	*	T,R	E	2	MV-22B	A		LATI
	Reference the MAWTS-1 Course Catalog for the LATI POI.								

7. Night Systems Familiarization Instructor (NSFI)

a. Purpose. To certify the MV-22B crew chief as a Night Systems Familiarization Instructor (NSFI) capable of instructing in the core skill introduction phase (1000 phase) of night vision device flights.

b. General. Reference the MAWTS-1 Course Catalog for the NSFI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5710	1.0	*	T	E		CLSRM			NSI/WTI
	Goal. The CCUI will instruct one of the MAWTS-1 approved NSFI courses to an NSI, WTI, or MAWTS-1 Crew Chief Instructor.								
NS-5731	1.5	*	T	E	1	MV-22B	A	NS	NSI
	Reference the MAWTS-1 Course Catalog for the NSFI POI.								
NS-5732	1.5	*	T,R	E	2	MV-22B	A	NS	NSI
	Reference the MAWTS-1 Course Catalog for the NSFI POI.								

8. Defensive Combat Maneuvers Instructor (DCMI)

a. Purpose. To certify the MV-22B crew chief as an instructor capable of safely conducting instruction of the MV-22B defensive combat maneuvering (DCM) syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the DCMI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5810	1.0	*	T	E		CLSRM			MAWTS CC
	Goal. The CCUI will instruct one of the MAWTS-1 approved DCM courses to a MAWTS-1 Crew Chief Instructor.								
DCM-5830	2.0	*	T	E	2	MV-22B	A		DCMI
	Reference the MAWTS-1 Course Catalog for the DCMI POI.								
DCM-5831	2.0	*	T,R	E	2	MV-22B	A		MAWTS CC
	Reference the MAWTS-1 Course Catalog for the DCMI POI.								

9. Night Systems Instructor (NSI)

a. Purpose. To certify the MV-22B crew chief as a Night Systems Instructor (NSI) capable of safely conducting ground and airborne instruction of the MV-22B Night Vision Device (NVD) flight syllabus.

b. General. Reference the MAWTS-1 Course Catalog for the NSI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

ACAD-5910	1.0	*	T	E		CLSRM			MAWTS CC
	Goal. The CCUI will instruct one of the MAWTS-1 approved NS courses to a MAWTS-1 Crew Chief Instructor.								
NS-5931	2.0	*	T	E	1	MV-22B	A	NS	NSI
	Reference the MAWTS-1 Course Catalog for the NSI POI.								
NS-5933	2.0	*	T	E	2	MV-22B	A	NS	NSI
	Reference the MAWTS-1 Course Catalog for the NSI POI.								
NS-5934	2.0	*	T,R	E	1	MV-22B	A	NS	MAWTS CC
	Reference the MAWTS-1 Course Catalog for the NSI POI.								
NS-5935	2.0	*	T,R	E	2	MV-22B	A	NS	MAWTS CC
	Reference the MAWTS-1 Course Catalog for the NSI POI.								

10. Weapons and Tactics Instructor (WTI)

a. Purpose. To certify the MV-22B crew chief as a Weapons and Tactics Instructor (WTI) capable of safely conducting ground and airborne instruction of the MV-22B tactical flight syllabus.

b. General. Reference the MAWTS-1 WTI Course Catalog for the detailed WTI POI.

c. Crew Requirements. Reference the MAWTS-1 Course Catalog for individual event requirements.

d. Total Training Events. Reference the MAWTS-1 Course Catalog for individual event requirements.

WTI-5950	504.0 *	T	E			MAWTS1 IP

Goal. The CCUI will receive all academic and flight instruction in accordance with the MAWTS-1 WTI Course Catalog.

315. REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD) PHASE (6000)

1. Purpose. To establish training for specific requirements.

2. General

a. Squadrons should use this phase of training for check flights, qualifications and designations. The CCUI/AOUI will demonstrate sound levels of aircraft/flight leadership and judgment required in a combat environment.

b. Requirement and qualification codes in the 6000 phase may be logged in conjunction with any sortie that completes its performance standards. For example, RQD-6030 may be flown in conjunction with any flight in the training syllabus provided that all the requirements for that flight have been met. When the flight to attain the qualification/designation is complete, a letter from the squadron commanding officer awarding the qualification or designation shall be placed in the NATOPS and/or APR.

c. After the commanding officer has designated the CCUI/AOUI in writing as gaining a designation or qualification, Operations shall make the required qualification or designation entry into M-SHARP.

3. Requirements

a. Purpose. To track requirements as outlined in the MV-22B NATOPS, OPNAVINST 3710.7 and OPNAVINST 1542.7.

b. General. This section allows squadrons to document and track annual NATOPS and Instrument check flights and CRM training.

c. Crew Requirements. All checks will be per applicable directives.

ACAD-6010	3.0	365	T,A,R	E	CLSRM	NI/ANI

Open Book NATOPS Examination

Goal. The Open Book Examination shall consist of, but not be limited to the question bank. The purpose of the open book examination portion of the written examination is to evaluate the airman’s knowledge of the appropriate publications and the aircraft.

Performance Standard. Achieve a minimum grade of qualified on the Open Book examination.

ACAD-6011	1.0	365	T,A,R	E	CLSRM	NI/ANI

Closed Book NATOPS Examination

Goal. The Closed Book Examination shall be limited to the question bank. The purpose of the closed book examination portion of the written examination is to evaluate the airman's knowledge of the concerning normal/emergency procedures and aircraft limitations.

Performance Standard. Achieve a minimum grade of qualified on the Closed Book examination.

Prerequisite. ACAD-6010

ACAD-6012	3.0	365	T,A,R	E		CLSRM			NI/NE

Oral NATOPS Examination

Goal. The Oral shall consist of, but not be limited to the question bank. The evaluator may draw upon their experience to propose questions of a direct and positive manner and in no way be opinionated to evaluate the airman's knowledge of the concerning normal/emergency procedures, aircraft limitations, and performance.

Performance Standard. Achieve a minimum grade of qualified on the Oral examination.

Prerequisite. ACAD-6011

ACAD-6016	1.0	365	T,A,R	E		CLSRM			CRMI/F

Crew Resource Management Refresher Lecture

Goal. Review the 7 critical CRM skills during a mission scenario as well as during emergencies and system failures.

RQD-6030	1.5	365	T,A,R	E	1	MV-22B	A	(N)	NI/ANI

Goal. Conduct an objective evaluation of the airman's knowledge of briefing, normal operating procedures (flight and ground), crew resource management, aircraft systems, performance criteria, emergency procedures, and debriefing. The focus is on normal and emergency procedures, not tactical execution. Emphasis shall be placed on the aforementioned items with the addition of local course rules, local SOPs, and admin flight procedures. The NATOPS evaluation is intended to evaluate compliance with NATOPS procedures. The NATOPS evaluation is the means to measure the airman's efficiency in the execution of normal operating procedures and reaction to emergencies and malfunctions. The NATOPS evaluation process should be as much a learning tool and/or experience as it is an evaluation.

Coordination. The crew chief under evaluation shall bring a completed NATOPS evaluation card.

Requirement. The proficiency expected by the evaluator in this flight shall be commensurate with the experience level

and highest qualification or designation of the crew chief under evaluation.

Performance Standards. The crew chief under evaluation must be prepared to safely demonstrate emergency procedures and knowledge of all maneuvers and procedures described within the NATOPS, OPNAV 3710.6 and in accordance with all SOPs. Upon successful completion of this event, the evaluator shall log the appropriate training code for tracking purposes.

Prerequisite. ACAD-6012

RQD-6031	1.5	365	T,A,R	E	1	MV-22B	A	(N)	CRMI/F

Goal. Review CRM principles while executing a simulated mission scenario.

Requirement. Review the 7 critical CRM skills during a mission scenario as well as during emergencies and system failures.

Performance Standards. Crew chiefs shall demonstrate effective use of the 7 critical CRM skills in accordance with OPNAVINST 1542.7, MV-22B NATOPS, and applicable directives.

Prerequisites. ACAD-6016

RQD-6036	2.0	90	T,A,R	E	1	FFS/FTD	S/A	(N)

Goal. Emergency Procedures review.

Requirement. This flight will review MV-22B emergency procedures and fulfills the requirement of the 90 day EP review requirement.

Performance Standards

(1) Comply with MV-22B NATOPS procedures while dealing with non-normal conditions.

Prerequisites. RQD-6030 (crew chief only).

316. T&R SYLLABUS MATRIX. The below matrix summarizes T&R syllabus event information.

MV-22B CREW CHIEF														
1000 PHASE CORE SKILL INTRODUCTION														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
GROUND SCHOOL														
ACAD	0100	GROUND SCHOOL INBRIEF	1.0			*	CLS	-	-		B,T		-	
ACAD	0101	ACAD BLK 1	11.5			*	CBT	-	-	ACAD 0100	B,T		-	
LAB	0200	FIRE EXT LAB	1.0			*	A	1	-	ACAD 0100	B,T			
LAB	0201	INGRESS,EGRESS	1.0			*	C/A		-	ACAD 0100	B,T		-	
LAB	0202	INTRO TO APU AND CMS STARTUP	5.0			*	S	1	-	ACAD 0100	B,T		-	
ACAD	0102	ACAD BLK 2	15.0			*	CBT	-	-	ACAD 0101	B,T		-	
LAB	0203	APU AND CMS STARTUP	5.0			*	S	1	-	ACAD 0101	B,T		-	
ACAD	0103	ACAD BLK 3	13.5			*	CBT	-	-	ACAD 0102	B,T		-	
LAB	0204	CONTROLS AND DISPLAY	5.0			*	S	1	-	ACAD 0102	B,T		-	
LAB	0205	COMM AND NAV	5.0			*	S	1	-	ACAD 0102	B,T		-	
ACAD	0104	ACAD BLK 4	9.0			*	CBT	-	-	ACAD 0103	B,T		-	
LAB	0206	NAVIGATION AND IEWS	4.0			*	S/A	-	-	ACAD 0103	B,T		-	
ACAD	0105	ACAD BLK 5	16.0			*	CBT	-	-	ACAD 0104	B,T		-	
LAB	0207	ENGINE	5.0			*	A	1	-	ACAD 0104	B,T		-	
LAB	0208	APU AND FIRE PROTECTION	2.0			*	A	1	-	ACAD 0104	B,T		-	
LAB	0209	WEIGHT AND BALANCE	4.0			*	S	1	-	ACAD 0104	B,T		-	
LAB	0210	CARGO LOADING	3.0			*	C/A	-	-	ACAD 0104	B,T		-	
ACAD	0106	ACAD BLK 6	12.0			*	CBT	-	-	ACAD 0105	B,T		-	
LAB	0211	PROPROTOR SYSTEM	3.0			*	A	1	-	ACAD 0105	B,T		-	
LAB	0212	HYDRAULICS, ENGINE START, EAPS	6.0			*	S	1	-	ACAD 0105	B,T		-	
ACAD	0107	ACAD BLK 7	12.5			*	CBT	-	-	ACAD 0106	B,T		-	
LAB	0213	LANDING GEAR	2.0			*	A	1	-	ACAD 0106	B,T		-	
LAB	0214	SERVICING	2.0			*	A	1	-	ACAD 0106	B,T		-	
LAB	0215	INTRO TO BFWS	11.0			*	S	1	-	ACAD 0106	B,T		-	
LAB	0216	BFWS	6.0			*	A/S	1	-	ACAD 0106	B,T		-	
ACAD	0108	ACAD BLK 8	22.0			*	CBT	-	-	ACAD 0107	B,T		-	
LAB	0217	INTRO TO PLANE CAPTAIN INSP	40.0			*	A	1	-	ACAD 0107	B,T		-	
ACAD	0109	ACAD BLK 9	17.0			*	CBT	-	-	ACAD 0108	B,T		-	
LAB	0218	START-UP,TAXI,SHUTDOWN	5.0			*	A	1	-	ACAD 0108	B,T		-	
LAB	0219	MOORING	2.0			*	A	1	-	ACAD 0108	B,T		-	
LAB	0220	ALSS EQUIPMENT	4.0			*	CLS	-	-	ACAD 0108	B,T		-	
LAB	0221	EMERGENCY PROCEDURES	4.0			*	C/A	-	-	ACAD 0108	B,T		-	
LAB	0222	MISSION PREPARATION	2.0			*	A	1	-	ACAD 0108	B,T		-	
ACAD	0110	CRM INITIAL	4.0			*	CLS	-	-	-	B,T		-	
ACAD	0111	NITE LAB	8.0			*	CLS	-	-	-	B		-	
TOTAL			268.5	0.0	0.0									

MV-22B CREW CHIEF														
1000 PHASE CORE SKILL INTRODUCTION (CONT)														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
FAM														
ACAD	1010	FAM STAGE INBRIEF	1.0			*	CLS	-	-	GND SCHOOL COMP	B,T		-	-
ESFAM	1032	CMS,CHECKLIST			2.0	*	S	1	-	ACAD 1010	B,T		-	100
ESFAM	1033	CC CALL OUTS,START-UP			2.0	*	S	1	-	ESFAM 1032	B		-	101
FAM	1043	ENG START,NAC DRILL,CONV PAT		2.0		*	A	1	D	ESFAM 1033	B,T		-	111
FAM	1044	CONV PTRN,STP APP,MGW		1.5		*	A	1	D	FAM 1043	B,T		-	112
FAM	1045	CONV PTRN, TRNS/CONV,LSC		1.5		*	A	1	D	FAM 1044	B,T		-	113
FAM	1046	APLN PTRN		1.5		*	A	1	D	FAM 1045	B		-	114
FAM	1047	APLN PTRN,HIGH AOB,STALLS		1.5		*	A	1	D	FAM 1046	B,T		-	115
FAM	1048	APLN PTRN,STALLS,ELP		1.5		*	A	1	D	FAM 1047	B		-	116
FAM	1049	FAM PROGRESS CHK		1.5		*	A	1	D	FAM 1048	B,T		-	118
FAM	1051	NIGHT FAM		1.0		*	A	1	N*	FAM 1049	B			120
TOTAL			1.0	12.0	4.0									
INST														
ACAD	1210	INST STAGE INBRIEF	1.0			*	CLS	-	-	FAM 1049	B,T		-	-
INST	1234	BASIC INSTRUMENT FLIGHT		2.0		*	A/S	1	(N*)	FAM 1051(NIGHT) ACAD 1210	B,T		-	-
TOTAL			1.0	2.0	0.0									
CAL														
ACAD	1310	CAL STAGE INBRIEF	1.0			*	CLS	-	-	FAM 1049	B,T		-	-
CAL	1332	CAL PTRN,TAC STRT-IN,RVL		2.0		*	A	1	D	ACAD 1310	B,T		-	131
TOTAL			1.0	2.0	0.0									
FORM														
ACAD	1410	FORM STAGE INBRIEF	1.0	-	-	*	CLS	-	-	FAM 1049	B,T		-	-
FORM	1432	FORM SEQ	-	2.0	-	*	A	2	D	CAL 1332 ACAD 1410	B,T		-	162
TOTAL			1.0	2.0	0.0									
LAT														
ACAD	1510	LAT STAGE INBRIEF	1.0	-	-	*	CLS	-	-	FAM 1049	B,T		-	-
LAT	1531	LAT MANEUVERS	-	1.5	-	*	A	1	D	ACAD 1510 CAL 1332	B		-	151
LAT	1532	LAT NAV, CMS PROG CHK	-	2.0	-	*	A	1	D	LAT 1531	B,T		-	152
TOTAL			1.0	3.5	0.0									
NS														
ACAD	1610	NS STAGE INBRIEF	1.0	-	-	*	CLS	-	-	FAM 1049	B,T		-	-
NS	1631	NVD FAM,FLIR USE	-	1.5	-	*	A	1	NS	FAM 1051 ACAD 1610 NITE LAB	B		-	171
NS	1633	NVD CAL,FLIR	-	1.5	-	*	A	1	NS	CAL 1332 NS 1631	B,T		-	173
NS	1635	NVD FORM	-	1.5	-	*	A	2	NS	FORM 1432 NS 1633	B,T		-	175
TOTAL			1.0	4.5	0.0									

MV-22B CREW CHIEF														
1000 PHASE CORE SKILL INTRODUCTION														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
CARGO														
ACAD	1710	CARGO OPERATIONS STAGE INBRIEF	1.0	-	-	*	CLS	-	-	FAM 1049	B,T		-	-
LAB	1720	INTERNAL CARGO LAB	2.0	-		*	C/A	-	-	ACAD 1710	B,T			-
LAB	1721	EXTERNAL CARGO LAB	2.0	-		*	C/A	-	-	ACAD 1710	B,T			-
LAB	1722	MISSION CONFIGURATIONS LAB	2.0	-		*	C/A	-	-	ACAD 1710	B,T			-
SCAR GO	1730	INTERNAL CARGO SIM	-	-	1.5	*	C/A	-	-	LAB 1720	B,T			-
SCAR GO	1731	EXTERNAL CARGO SIM	-	-	1.5	*	S/A	1	-	LAB 1721	B,T		-	-
TOTAL			7.0	0.0	3.0									
CHECKRIDE														
ACAD	6010	OPEN BOOK NATOPS EXAM	3.0	-	-	365	-	-	-	-	B,T,R	E	-	-
ACAD	6011	CLOSED BOOK NATOPS EXAM	1.0	-	-	365	-	-	-	ACAD 6010	B,T,R	E	-	-
ESREV	1830	EP REV	-	-	1.0	*	S/A	1	D	CORE SKILL INTRO COMPLETE	B		-	180
ESREV	1831	REV ALL MANEUVERS	-	-	2.0	*	S/A	1	D	ESREV 1830	B		-	181
REV	1832	REV ALL MANEUVERS	-	1.5	-	*	A	1	D	ESREV 1831	B,T		-	182
ACAD	6012	NATOPS ORAL EXAM	3.0	-	-	365	CLS M	-	-	ACAD 6011	B,T,R	E	-	-
RQD	6030	INITIAL NATOPS EVALUATION	-	1.5	-	*	A	1	D	ACAD 6012 REV 1832	B,T	E	-	183
TOTAL			7.0	3.0	3.0									
TOTAL CLS/FLT/SIM HOURS FOR PHASE			**288.5**	**29.0**	**10.0**									

MV-22B CREW CHIEF														
2000 PHASE CORE SKILL														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
FAM														
ACAD	2010	CRM GROUND INITIAL	4.0			*	CLS	-	-		A		-	-
ACAD	2011	NITE LAB	8.0			*	CLS	-	-		A		-	-
ACAD	2012	MV-22B AERIAL REFUELING	1.0			*	CLS	-	-		T,A		-	-
LAB	2020	INTERNAL FUEL TANK LAB	2.0			*	A	1	-		T,A,R		-	-
LAB	2021	FIRE EXTINGUISHER LAB	1.0			*	A	1	-		A		-	-
LAB	2022	INGRESS/EGRESS LAB	1.0			*	A	1	-		A		-	-
LAB	2023	STARTUP/SHUTDOWN/TAXI	1.0			*	A	1	-		A		-	-
LAB	2024	MOORING LAB	2.0			*	A	1	-		A		-	-
LAB	2025	ALSS FAM	2.0			*	CLS	-	-		A		-	-
LAB	2026	E.P./EMERGENCY EQUIPMENT LAB	2.0			*	A	1	-		A		-	-
TOTAL			24.0	-	-									
CAL														
CAL	2131	RVL CALS		1.5		180	A	1	D	RQD-6030	T,A,R		-	211
CAL	2133	TACTICAL CALS		2.0		365	A	1	D	CAL-2131	T,A			211
CAL	2135	SECTION CALS		2.0		365	A	2	D	CAL-2133	T,A		2133	212
CAL	2136	DIVISION CALS		1.5		365	A	3	D	CAL-2135	T,A,R		2133 2135	213
TOTAL			-	7.0	-									
FORM														
ACAD	2160	TACFORM FOR EAC	1.0	-		*	CLS	-	-	CAL-2133	T,A		-	-
FORM	2182	TACFORM		2.0		365	A	2	D	CAL-2133 ACAD 2160	T,A,R		2183	221
FORM	2183	DIVISION FORM		1.0		365	A	3	D	FORM-2182 CAL-2135	T,A		2182	213
TOTAL			1.0	3.0	-									
LAT														
ACAD	2210	LAT FOR EAC	1.0			*	CLS	-	-	RQD-6030	T,A,R		-	-
ACAD	2211	TACTICAL AIRCREW CONSIDERATIONS AND RESPONSIBILITIES	1.0			*	CLS	-	-	RQD-6030	T,R,A		-	-
LAB	2220	LAT WALKTHROUGH	0.5			*	CLS	-	-	ACAD-2210 ACAD-2211	T,A,R		-	-
LAT	2231	LAT REVIEW		1.5		365	A	1	D	LAB-2220 CAL-2133 FORM-2182	T,A		2131 2133	231
LAT	2233	SECTION LAT		2.0		180	A	2	D	LAT-2231 FORM-2182	T,A,R		2182 2231 2183	233
TOTAL			2.5	3.5	-									

MV-22B CREW CHIEF														
2000 PHASE CORE SKILL														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
NS HLL														
ACAD	2310	NIGHT VISION TRAINING	2.0			*	CLS	-	-		T,A		-	-
ACAD	2311	MV-22B FLIR	1.0			*	CLS	-	-	ACAD 2310	T,A		-	-
NS	2331	HLL FAM CALS		2.0		365	A	1	NS	CAL 2133 ACAD 2310	T,A		2133	241
NS	2332	HLL SECTION CALS		2.0		365	A	2	NS	NS 2331 CAL 2135 FORM 2182	T,A,R		2133 2135 2182 2183 2331	242
NS	2334	HLL LAT		1.5		240	A	1	NS	LAT 2233 NS 2331	T,A		2133 2231 2331	244
NS	2335	HLL SECTION LAT		2.5		240	A	2	NS	NS 2332 NS 2334	T,A,R		2133 2135 2182 2183 2231 2233 2331 2332 2334	245
TOTAL			3.0	8.0	-									
NS LLL														
NS	2381	LLL FAM CALS		2.0		240	A	1	NS	NS 2335	A		2133 2331	311
NS	2382	LLL SECTION CALS		2.0		240	A	2	NS	NS 2381	T,A,R		2133 2135 2182 2183 2331 2332 2381	312
NS	2384	LLL LAT		2.5		180	A	2	NS	NS 2382	T,A,R		2133 2135 2182 2183 2231 2233 2331 2332 2334 2335 2381 2382	314
NS	2385	LLL DIVISION CALS		2.5		240	A	3	NS	NS 2382	T,A,R		2133 2135 2136 2182 2183 2331 2332 2381 2382	315
TOTAL			0.0	9.0	-									

MV-22B CREW CHIEF														
2000 PHASE CORE SKILL														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
TG														
ACAD	2510	FUNDAMENTALS OF AG	1.0			*	CLS			2210	T,A		-	-
ACAD	2511	M240 MACHINE GUN	0.5			*	CLS			2510	T,A		-	-
ACAD	2512	GAU-16/A	0.5			*	CLS			ACAD 2510	T,A		-	-
ACAD	2513	LASER AIMING DEVICES	0.5			*	CLS			2511	T,A		-	-
ACAD	2514	LASER BORESIGHTING PROCEDURES	0.5			*	CLS			2512	T,A		-	-
LAB	2520	M240D	1.0			*	CLS			ACAD 2511	T,A			-
LAB	2521	GAU-16/A	1.0			*	CLS			ACAD 2512	T,A			-
TG	2530	M240D DAY		1.5		365	A	1	D	LAT 2233 LAB 2520	T,A		2133	260
TG	2531	GAU-16/A DAY		1.5		365	A	1	D	LAT 2233 LAB 2521	T,A		2133	-
TG	2532	M240D OR GAU-16/A DAY SECTION		1.5		365	A	2	D	TG 2530, TG 2531	T,A,R		2133 2530 or 2531	261
TG	2533	M240D NIGHT		1.5		240	A	1	NS	ACAD 2514 TG 2530, NS 2335 NS 2384, NS 2385 (IF LLL)	T,A		2133 2135 2331 2381(IF LLL) 2530	262
TG	2534	GAU-16/A NIGHT		1.5		240	A	1	NS	ACAD 2514 TG 2531, NS 2335 NS 2384, NS 2385 (IF LLL)	T,A		2133 2331 2381(IF LLL) 2531	-
TG	2535	M240D OR GAU-16/A NIGHT SECTION		1.5		240	A	2	NS	TG 2532, TG 2533, TG 2534	T,A,R		2133 2135 2331 2332 2381 2382(IF LLL) 2530 or 2531 2532 2533 or 2534	263
TOTAL			5.0	9.0	-									
EXT														
EXT	2631	DAY SINGLE POINT EXT		1.5		365	A	1	D	CAL 2133	T,A,R		2133	322
EXT	2632	DAY DUAL POINT EXT		1.5		365	A	1	D	EXT 2631	T,A,R		2133 2631	324
EXT	2633	NVD SINGLE POINT EXT		1.5		240	A	1	NS	NS 2331 NS 2381(IF LLL) EXT 2631	T,A,R		2133 2331 2381(IF LLL) 2631	323
EXT	2634	NVD DUAL POINT EXT		1.5		240	A	1	NS	EXT-2633 EXT-2632	T,A,R		2133 2331 2381(IF LLL) 2631 2632 2633	325
TOTAL			-	6.0	-									

MV-22B CREW CHIEF														
2000 PHASE CORE SKILL														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
GTR														
ACAD	2810	EAD ASE	0.5			*	CLS	-	-	2210	T,A,R		-	-
ACAD	2811	BASIC PRINCIPLES OF EW	0.5			*	CLS	-	-	2810	T,A,R		-	-
ACAD	2812	AAA THREAT TO A.S.	0.5			*	CLS	-	-	2810	T,A,R		-	-
ACAD	2813	IR SAM THREAT TO A.S.	0.5			*	CLS	-	-	2810	T,A,R		-	-
ACAD	2814	RADAR SAM THREAT TO A.S.	0.5			*	CLS	-	-	2810	T,A,R		-	-
ACAD	2815	MV-22B GROUND THREAT REACTION	1.0			*	CLS	-	-	2810 2811 2812 2813 2814	T,A,R		-	-
LAB	2820	MV-22B GTR WALK THROUGH	0.5			*	CLS	-	-	2815	T,A,R		-	-
GTR	2832	GROUND THREAT REACTION		1.5		180	A	2	(NS)	LAT 2233 FORM 2182 LAB-2820	T,A,R		2231 2233 2182 2183	331
TOTAL			4.0	1.5	-									
CQ														
CQ	2931	DAY FCLP		1.0		365	A	1	D	CAL 2133	T,A,R		2133	302
CQ	2932	DAY CQ		1.5		365	A	1	D	CQ 2931	T,A,R		2133 2931	304
CQ	2934	NVD FCLP		1.0		365	A	1	NS	CQ 2931 NS 2331 NS 2381(IF LLL)	T,A,R		2133 2331 2381(IF LLL) 2931	303
CQ	2935	NVD CQ		1.5		365	A	1	NS	NS 2335 CQ 2932 CQ 2934	T,A,R		2133 2331 2381(IF LLL) 2931 2932 2934	305
TOTAL			0.5	5.0	-									
TOTAL CLS/FLT/SIM HOURS FOR PHASE			**40.5**	**52.0**	**-**									

MV-22B CREW CHIEF														
3000 PHASE MISSION SKILL														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRAINING CODES	EVENT CONVERSION
SEA														
SEA	3030	MED THREAT SEA BASED ASSAULT		0.0		240	-	-	-	2384 2385 2533 2832 2935 3131	T,A,R		-	305
TOTAL			-	0.0	-									
SHORE														
SHORE	3131	MED THREAT SHORE BASED ASSAULT		2.0		240	A	2	NS	2384 2385 2533 2832	T,A,R		2133 2135 2182 2183 2331 2332 (2381 2382-IF LLL)	341
TOTAL			0.5	2.0	-									
AS														
ACAD	3210	SIX FUNCTIONS OF MARINE AVIATION	0.5			*	CLS	-	-	-	T,A,R		-	-
AS	3231	MED THREAT ASSAULT DIV		2.5		365	A	3	NS	2384 2385 2533 2832	T,A,R		2133 2135 2182 2183 2335 2382	343
TOTAL			0.5	2.5	-									
AD														
AD	3330	MED THREAT AERIAL DELIVERY		0.0		240	-	-	-	2384 2385 2533 2832 2633 3231	T,A,R		-	322
TOTAL			-	0.0	-									
TRAP														
ACAD	3410	TRAP FOR EAC	0.5			*	CLS	-	-	2210	T,A,R		-	-
TRAP	3430	TRAP MISSION		2.5		365	A	2	(NS)	2384 2385 2533 2832	T,A,R		2133 2135 2182 2183 2331 2332 2382	343
TOTAL			0.5	2.5	-									
AE														
ACAD	3510	NEO EXECUTION	0.5			*	CLS	-	-	-	T,A,R		-	-
ACAD	3511	MOUT	0.5			*	CLS	-	-	-	T,A,R		-	-
ACAD	3512	CASEVAC OPERATIONS	0.5			*	CLS	-	-	-	T,A,R		-	-
AE	3530	MED THREAT AIR EVACUATION		2.0		240	A	2	(NS)	2384 2385 2533 2832	T,A,R		2133 2135 2182 2183 2331 2332 2381 2382	343
TOTAL			1.5	2.0	-									
TOTAL CLS/FLT/SIM HOURS FOR PHASE			**3.0**	**9.0**	**-**									

MV-22B CREW CHIEF														
4000 PHASE CORE PLUS SKILL														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
DCM														
ACAD	4010	ATTACK HELICOPTER THREAT TO ASSAULT SUPPORT	0.5			*	CLS	-	-	-	T,A		-	-
ACAD	4011	FIXED WING THREAT TO ASSAULT SUPPORT	0.5			*	CLS	-	-	-	T,A		-	-
ACAD	4012	DEFENSIVE COMBAT MANEUVERS	0.5			*	CLS	-	-	4010 4011 GTR 2832	T,A,R		-	-
LAB	4020	DEFENIVE COMBAT MANEUVER WALK THROUGH	0.5			*	CLS	-	-	4012	T,A,R		-	-
DCM	4031	DEFENSIVE COMBAT MANEUVERS V. FW		2.0		365	A	2	D	LAT 2233 LAB 4020 GTR 2832	T,A,R		2182 2183 2231 2233	403
TOTAL			2.0	2.0	-									
CBRN														
LAB	4120	CBRN EQUIPMENT FAM	0.5			*	CLS	-	-	-	T,A		-	-
SCBR N	4130	DAY CBRN			1.0	*	S	1	D	LAB 4120	T,A		-	412
SCBR N	4131	NVD CBRN			1.0	365	S	1	NS	SCBRN 4130	T,A,R		4130	412
TOTAL			0.5	-	2.0									
AIE														
ACAD	4210	AERIAL DELIVERY/PARAOPS	1.5			*	CLS	-	-	CAL 2131	T,A,R		-	-
ACAD	4211	FASTROPE/RAPPEL/SPIE/ HOISTING OPERATIONS	0.5			*	CLS	-	-	CAL 2131	T,A,R		-	-
ACAD	4212	HELOCAST OPERATIONS	0.5			*	CLS	-	-	CAL 2131	T,A,R		-	-
AIE	4230	AERIAL DELIVERY		1.5		365	A	1	(NS)	CAL 2133 ACAD 4210	T,A,R		2133	420
AIE	4231	PARA OPS		1.5		365	A	1	(NS)	CAL 2133 ACAD 4210	T,A,R		2133	420
AIE	4232	SPIE		1.5		365	A	1	(NS)	EXT 2631 EXT 2633 (IF NVD) ACAD 4211	T,A,R		2133 2631 2633	422
AIE	4233	FASTROPE/RAPPEL/HOIST		1.5		365	A	1	(NS)	EXT 2631 EXT 2633 (IF NVD) ACAD 4211	T,A,R		2133 2631 2633	423
AIE	4234	HELOCAST		1.5		365	A	1	D	CAL 2133 ACAD 4212	T,A,R		2133	421
TOTAL			2.5	7.5	-									
CQ														
CQ	4431	NIGHT UNAIDED FCLP		1.0		365	A	1	N*	CQ 2931	T,A,R		2931	441
CQ	4432	NIGHT UNAIDED CQ		1.5		365	A	1	N*	CQ 2932 CQ 4431	T,A,R		2931 2932 4431	442
TOTAL			0.0	2.5	-									

MV-22B CREW CHIEF															
4000 PHASE CORE PLUS SKILL															
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
MAT														
MAT	4530	DAY MAT		1.5		365	A	1	D	CAL 2133	T,A,R		2133	362
MAT	4531	NVD MAT		1.5		365	A	1	NS	MAT 4530 NS 2384 NS 2385	T,A,R		2133 2331 2381 (IF LLL) 4530	363
TOTAL			-	3.0	-									
RGR														
ACAD	4610	MV-22B RAPID GROUND REFUELING	1.0			*	CLS	-	-	LAB 2020 CAL 2133	T,A,R		-	-
LAB	4620	RAPID GROUND REFUELING LAB	2.0			*	A	1	-	ACAD 4610	T,A,R		-	-
RGR	4630	RAPID GROUND REFUELING		0.5		365	A	1	(NS)	CAL 2133 NS 2331 (IF HLL) NS 2381 (IF LLL) LAB-4620	T,A,R		2133 2331 (IF HLL) 2381 (IF LLL)	
TOTAL			3.0	0.5	-	MISSION PLUS SKILLS? IVAN								
RI/E														
RIE	4730	TACTICAL AIE		2.5		240	A	1	(NS)	APPR. AIE SKILL COMPLETE	T,A,R			-
TOTAL				2.5										
TOTAL CLS/FLT/SIM HOURS FOR PHASE			**8.0**	**18.0**	**2.0**									

MV-22B CREW CHIEF														
5000 PHASE INSTRUCTOR TRAINING														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
FRS INST														
FIT	5030	CCIUT FAM		2.0		*	A	1	D	STAN BOARD APPROVAL	T,R	E		500
FIT	5031	CCIUT CAL		1.5		*	A	1	D	STAN BOARD APPROVAL	T,R	E		503
FIT	5032	CCIUT FORM		1.5		*	A	2	D	STAN BOARD APPROVAL	T,R	E		505
FIT	5033	CCIUT STANX		2.0		*	A	1	D	FRS CCIUT FLIGHTS COMPL, NSQ LLL 5030,5031, 5032,NSQ	T,R	E		508
TOTAL			-	7.0	-									
TGI														
ACAD	5410	TGI LECTURE	1.0			*	CLS	-	-	IAW MAWTS-1 COURSE CATALOG	T	E	-	-
TG	5430	TGI IUT		1.5		*	A	1	D	IAW MAWTS-1 COURSE CATALOG	T	E	-	540
TG	5431	TGI IUT		1.5		*	A	1	NS	IAW MAWTS-1 COURSE CATALOG	T	E	-	541
ACAD	5411	TRAINING THE AERIAL GUNNER	1.0			*	CLS	-	-	IAW MAWTS-1 COURSE CATALOG	T		-	-
TG	5432	TGI CERT		1.5		*	A	2	(NS)	IAW MAWTS-1 COURSE CATALOG	T,R	E	-	542
TOTAL			2.0	4.5	-									
LATI														
ACAD	5610	LAT LECTURE	1.0			*	CLS	-	-	IAW MAWTS-1 COURSE CATALOG	T	E	-	-
LAT	5630	LAT IUT		1.5		*	A	1	D	IAW MAWTS-1 COURSE CATALOG	T	E	-	521
LAT	5631	LAT CERT		2.0		*	A	2	D	IAW MAWTS-1 COURSE CATALOG	T,R	E	-	522
TOTAL			1.0	3.5	-									
NSFI														
ACAD	5710	NSFI LECTURE	1.0			*	CLS			IAW MAWTS-1 COURSE CATALOG	T	E	-	-
NS	5731	NSFI IUT		1.5		*	A	1	NS	IAW MAWTS-1 COURSE CATALOG	T	E	-	571
NS	5732	NSFI CERT		1.5		*	A	2	NS	IAW MAWTS-1 COURSE CATALOG	T,R	E	-	572
TOTAL			1.0	3.0	-									
DCMI														
ACAD	5810	DCMI LECTURE	1.0			*	CLS	-	-	IAW MAWTS-1 COURSE CATALOG	T	E	-	-
DCM	5830	DCMI IUT		2.0		*	A	2	D	IAW MAWTS-1 COURSE CATALOG	T	E	-	580 582
DCM	5831	DCMI CERT		2.0		*	A	2	D	IAW MAWTS-1 COURSE CATALOG	T,R	E	-	582
TOTAL			1.0	4.0	-									

MV-22B CREW CHIEF															
5000 PHASE INSTRUCTOR TRAINING															
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
NSI														
ACAD	5910	NSI LECTURE	1.0			*	CLS	-	-	IAW MAWTS-1 COURSE CATALOG	T	E	-	-
NS	5931	NSI IUT		2.0		*	A	1	NS	IAW MAWTS-1 COURSE CATALOG	T	E	-	590
NS	5933	NSI IUT		2.0		*	A	2	NS	IAW MAWTS-1 COURSE CATALOG	T	E	-	591
NS	5934	NSI CERT		2.0		*	A	1	NS	IAW MAWTS-1 COURSE CATALOG	T,R	E	-	592
NS	5935	NSI CERT		2.0		*	A	2	NS	IAW MAWTS-1 COURSE CATALOG	T,R	E	-	593
TOTAL			1.0	8.0	-									
WTI														
WTI	5950	WEAPONS AND TACTICS COURSE	504.0			*	-	-	-	IAW MAWTS-1 COURSE CATALOG	T	E	-	655
TOTAL			504.0	-	-									
TOTAL CLS/FLT/SIM HOURS FOR PHASE			**510.0**	**30.0**	**-**									

MV-22B CREW CHIEF														
6000 PHASE REQUIREMNETS/QUALIFICATIONS/DESIGNATIONS														
STAGE	TRNG CODE	EVENT DESCRIPTION	CLASS/LAB HOURS	FLIGHT HOURS	SIMULATOR HOURS	REFLY INTERVAL	DEVICE	# OF A/C	CONDITIONS	PREREQUISITE TRAINING CODES	POI	EVALUATION	CHAINING FLIGHT TRIANING CODES	EVENT CONVERSION
REQ														
ACAD	6010	OPEN BOOK NATOPS EXAM	3.0			365	CLS	-	-	-	T,A,R	E	-	-
ACAD	6011	CLOSED BOOK NATOPS EXAM	1.0			365	CLS	-	-	ACAD 6010	T,A,R	E	-	-
ACAD	6012	ORAL NATOPS EXAM	3.0			365	CLS	-	-	ACAD 6011	T,A,R	E	-	-
ACAD	6016	CRM GROUND CLASS	1.0			365	CLS	-	-	-	T,A,R	E	-	-
RQD	6030	NATOPS EVALUATION		1.5		365	A	1	(N)	ACAD 6012	T,A,R	E	-	600
RQD	6031	CRM FLIGHT		1.5		365	A	1	(N)	ACAD 6016	T,A,R	E	-	629
RQD	6036	E.P. SIM			2.0	90	S/A	1	(N)	RQD 6030	T,A,R	E	-	202
TOTAL			8.0	3.0	2.0									
TOTAL CLS/FLT/SIM HOURS FOR PHASE			**8.0**	**3.0**	**2.0**									