

NAVAL AIR TRAINING COMMAND



**NAS CORPUS CHRISTI, TEXAS
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**CNATRAINST 1542.189
9 Mar 2023**

CHIEF OF NAVAL AIR TRAINING



ADVANCED HELICOPTER TRAINING SYSTEM AEROMEDICAL OFFICER MASTER CURRICULUM GUIDE 2023



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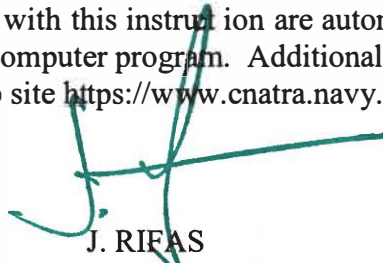
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CNATRA INSTRUCTION 1542.189

From: Chief of Naval Air Training

Subj: ADVANCED HELICOPTER TRAINING SYSTEM AEROMEDICAL OFFICER
MASTER CURRICULUM GUIDE

1. Purpose. This master curriculum guide is issued for the standardization of instruction and guidance to Instructors and administrators within the Naval Air Training Command.
2. Action. This instruction is effective on receipt. No changes will be made without the written authorization by the Chief of Naval Air Training (CNATRA).
3. Records Management. Records created as a result of this notice, regardless of media or format, must be managed per Secretary of the Navy Manual 5210.1 of September 2019.
4. Review and Effective Date. Per OPNAVINST 5215.17A, CNATRA N7 will review this instruction annually around the anniversary of its effective date to ensure applicability, currency, and consistency with Federal, Department of Defense, Secretary of the Navy, and Navy policy and statutory authority using OPNAV 5215/40 Review of Instruction. This instruction will be in effect for 10 years, unless revised or cancelled in the interim, and will be reissued by the 10-year anniversary date if it is still required, unless it meets one of the exceptions in OPNAVINST 5215.17A paragraph 9. Otherwise, if the instruction is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following the guidance in OPNAV Manual 5215.1 of May 2016.
6. Forms. The CNATRA forms utilized with this instruction are automated in the Training Learning Management System (T/LMS) computer program. Additional copies of CNATRA forms are available on the CNATRA Web site <https://www.cnatra.navy.mil/pubs-forms.asp>.



J. RIFAS
Chief of Staff

Releasability and distribution:

This instruction is cleared for public release and is available electronically only via Chief of Naval Air Training Issuances Web site,
<https://flankspeed.sharepoint-mil.us/sites/CPF-CNATRA/SitePages/Instructions.aspx>.

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SUMMARY OF CHANGES

CHANGE NUMBER	DATE OF CHANGE	CHANGE DESCRIPTION	PAGES AFFECTED/ INITIALS

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COURSE DATA

1. Course Title. Advanced Helicopter Training System Aeromedical Officer Master Curriculum Guide.
2. Course ID Number (CIN). Advanced Helicopter Training System Aeromedical Officer (AMO); Q-2C-1189.
3. Locations. NAS Whiting Field.
4. Course Status. Active.
5. Course Mission. The mission of the Aeromedical Officer (AMO) Indoctrination Curriculum is to provide exposure to the various flight regimes and associated phenomena of aeromedical concern. The term Aerospace Medical Officer includes all Bureau of Medicine and Surgery specialists that support the Naval Aviation fleet, including Residents in Aerospace Medicine (RAM), Flight Surgeon short course students, student Naval Aerospace and Operational Physiologists, student Naval Aerospace Experimental Psychologists, and Student Naval Aerospace Optometrists. This curriculum provides an introduction to the basic flight experiences encountered in daily training and fleet aircraft operations. Particular emphasis is placed on basic motor flight skills and familiarization with the physiological stressors associated with aviation specific evolutions.
6. Prerequisite Training. Basic flight and academic training for Aeromedical Officer Course C-6A-4005 physiology, water survival, Supplemental Emergency Breathing Device (SEBD). Successful completion of Naval Introductory Flight Evaluation (NIFE) 1, Q-9B-0178.
7. Security Clearance Requirements. None.
8. Follow-on Training. As dictated by the Manual of the Medical Department.
9. Course Length. For time-to-train calculations for this MCG please refer to Chief of Naval Training (CNATRA) N3 Annual Time-to-Train Entitlement Notice for active 1542 series instructions on the CNATRA Web site: <https://cnatra.navy.mil> under Resources, Publications, CNATRA OPS Documents.
10. Class Capacity. Variable.
11. Instructor Requirements. As established by Chief of Naval Operations (CNO) planning factors.
12. Course Curriculum Model Manager. Commander, Training Air Wing FIVE (COMTRAWING FIVE).

13. Quota Management Authority. CNATRA.

14. Quota Control. CNO.

15. Course Training Subjects

a. Rotary Ground Training

ROTARY GROUND TRAINING		
Stage	Symbol	Hours
Indoctrination	GND01	2.5
Aviation Safety	GND02	1.0
Rotary Reflection Essay	GND03	2.0
Squadron Checkout	GND04	1.0
Totals		6.5

b. Rotary Flight Support

ROTARY FLIGHT SUPPORT		
Stage	Symbol	Hours
Helicopter Fundamentals and Aerodynamic Theories	AER01	4.0
Aerodynamics II: Helicopter Performance and Flight Phenomena	AER02	1.4
Systems	SYS01	3.5
Crew Resource Management	CRM01	3.2
Course Rules	CR01	0.7
NATOPS Open Book Exam	NAT01	3.0
Day Familiarization	DAY01	1.7
Pre-flight	DAY02	3.7
NITE Lab	NGT01	8.0
Basic Instruments	BI01	1.4
Formation	FRM01	1.4
Totals		32.0

c. Rotary Flight Training. Below are the programmed times for flight training events and media.

ROTARY FLIGHT TRAINING									
Block	Flight/Events	LVL 6 FTD		LVL 7 FTD		TH-73A			
						Dual		SCT	
		Flts	Hrs	Flts	Hrs	Flts	Hrs	Flts	Hrs
DAY20	Basic Cockpit Procedures	1	1.5						
DAY30	Basic Flight/Integrated Scan			1	1.5				
DAY40	Day Familiarization					1	2.0	1	2.0
NGT30	Night/NVG Familiarization			1	1.5				
NGT40	Night/NVG Familiarization					1	2.0	1	2.0
BI20	Basic Instruments	1	1.5						
BI40	Basic Instruments					1	1.7	1	1.7
FRM40	Formation							1	2.0
Total		2	3.0	2	3.0	3	5.7	4	7.7

16. Training Preparation Time. In addition to the hours formally planned for classes, simulators, and flights, significant additional time to prepare and study should be expected outside of scheduled training hours. This range varies depending on the complexity of the material and individual student needs and may be up to several hours per event. For simulator and flight events, specific brief and taxi times will be programmed into T-SHARP and accounted for on the flight schedule, per the following table, unless specifically stated in the syllabus notes for the event.

ADDITIONAL FORMAL TRAINING TIME PER EVENT			
Training Area	Brief/Pre-flight/Taxi	Taxi/Debrief	Total
Flight	2.25	0.5	2.75
Simulator	0.5	0.5	1.00

17. Physical Requirements. As specified in the Manual of the Medical Department, Chapter 15, and all applicable anthropometric standards.

18. Obligated Service. Refer to MILPERSMAN for Naval personnel.

19. Primary Instructional Methods. Self-study, lecture, Computer Aided Instruction (CAI), simulator, and in-flight instruction.
20. Preceding Curriculum Data. N/A.
21. Student Performance Measurement and Application of Standards. The standards outlined in Chapter VIII, Course Training Standards, are used to evaluate AMO student performance of individual items and maneuvers. Final judgment regarding the satisfactory performance of any flight maneuver rests with the Instructor Pilot (IP) who must assess the environmental and systems factors affecting the conditions under which the performance is measured.

ABBREVIATIONS

The following is a list of abbreviations used in the curriculum:

AGL	-	Above Ground Level
AERO	-	Aerodynamics
AIM	-	Aeronautical Information Manual
ALSS	-	Aviation Life Support System
AMO	-	Aeromedical Officer
AOB	-	Angle of Bank
ASI	-	Aviation Student Indoctrination
ATC	-	Air Traffic Control
ATF	-	Aviation Training Form
ATIS	-	Automatic Terminal Information Service
ATJ	-	Aviation Training Jacket
BAW	-	Basic Air Work
BI	-	Basic Instruments
CAI	-	Computer Aided Instruction
CCS	-	Central Control System
CIN	-	Course ID Number
CNAF	-	Commander, Naval Air Forces
CNATRA	-	Chief of Naval Air Training
CNO	-	Chief of Naval Operations
CO	-	Commanding Officer
CRM	-	Crew Resource Management
CTS	-	Course Training Standard
DA	-	Decision Altitude
DAT	-	Desktop Avionics Trainer
DME	-	Distance Measuring Equipment
DoD	-	Department of Defense

EOB	-	End of Block
EP	-	Emergency Procedure
ET	-	Extra Training
FAF	-	Final Approach Fix
FLIP	-	Flight Information Publication
FMS	-	Flight Management System
FSS	-	Flight Service Station
FTI	-	Flight Training Instruction
GPS	-	Global Positioning System
ICS	-	Intercommunication System
CAI	-	Interactive Courseware (Computer Aided Instruction)
IFR	-	Instrument Flight Rules
IMC	-	Instrument Meteorological Conditions
IIMC	-	Inadvertent Instrument Meteorological Conditions
IP	-	Instructor Pilot
KIAS	-	Knots Indicated Airspeed
KNDZ	-	Whiting Field NAS South
MAP	-	Missed Approach Point
MCG	-	Master Curriculum Guide
MDA	-	Minimum Descent Altitude
MIF	-	Maneuver Item File
MIL	-	Mediated Interactive Lecture
MOA	-	Military Operating Area
NAMI	-	Naval Aerospace Medical Institute
NATOPS	-	Naval Air Training and Operating Procedures and Standardization
NAVAID	-	Navigational Aid
NIFE	-	Naval Introductory Flight Evaluation
NM	-	Nautical Mile(s)

NVG	-	Night Vision Goggles
OLF	-	Outlying Field
PAPI	-	Precision Approach Path Indicator
PCL	-	Pocket Check List
PMSV	-	Pilot to Metro Service
PTT	-	Part Task Trainer
SAS	-	Stability Augmentation System
SCT	-	Special Crew Time
SNA	-	Student Naval Aviator
SOP	-	Standard Operating Procedure
SSR	-	Special Syllabus Requirement
TACAN	-	Tactical Air Navigation System
TTO	-	Training Time Out
TTT	-	Time to Train
USMC	-	United States Marine Corps
VFR	-	Visual Flight Rules
VASI	-	Visual Approach Slope Indicator
VMC	-	Visual Meteorological Conditions
VOR	-	VHF Omnidirectional Range

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GLOSSARY

1. Advancing X. Completed event within the normal syllabus flow. Excludes events with last characters in the range 84-89.
2. Aviation Training Form (ATF). A grade sheet documenting student performance for all categories of training regardless of media, phase, or stage.
3. Aviation Training Jacket (ATJ). The ATJ is the student's training record. It contains ATFs, calendar card, grade reports, and all other associated training information. It follows the student through all phases of training.
4. Block of Training. A sequential series of lessons within a training stage sharing an identical MIF. The second numerical character in the lesson designator identifies a block.
5. Course of Training. The entire program of pre-flight, flight, simulation, academics, and officer development conducted in all media during the programmed training days.
6. Course Training Standard (CTS). A description of required behaviors and standards of performance for a specific maneuver.
7. Courseware. The technical data, FTIs, audio, video, film, Interactive Courseware (CAI), instructor guides, student study guides, and other training material developed to support and implement the course of instruction.
8. Emergency Procedure (EP). Any degradation of aircraft systems or flight conditions requiring pilot action or intervention.
9. End of Block (EOB). The last event in a block of training.
10. Extra Training (ET) (SXX87). Additional student training flights ordered by the Operations Officer, or higher, to make up for documented instructional deficiencies.
11. Familiarization. The stage of training that combines both day and night familiarization.
12. Flight Training Instruction (FTI). A CNATRA-approved manual describing flight procedures and techniques for each training stage.

13. Hours per X (H/X). The average length for each event in a block, rounded to the nearest tenth of an hour.

14. Lesson Designator. All rotary syllabus events have a lesson designator in the following format:

Char	Meaning	Remarks	
Beginning Letters (May be 1 to 3 letters)	Block	GND – Ground	CR – Course Rules
	Subject/Stage	SYS – Systems	NAT – NATOPS
		DAY – Day Familiarization	NGT – Night Familiarization
		AER – Aerodynamics	BI – Basic Instruments
		CRM – Crew Resource Management	FRM – Formation
2nd	Media	0 or 1 – Ground Training, CAI, DAT 2 – PTT or FTD 6 3 – FTD 7 4 – Aircraft	
3rd	Block	Sequential, indicating block within Subject/Stage.	
4th and 5th	Event/Check Identifier	Sequential, indicating event within block, or other event types as shown below:	
		84 – Adaptation Flight	88 – Initial Progress Check
		85 – Practice Simulator	89 – CO Progress Check
		86 – Warmup	90 – Check Flight/Exam
		87 – Extra Training	
Last Letter	Type of Student	A – Advanced Helicopter	I – IUT
		T – Tilt-Rotor	X – Transition
		C – Conversion IP	M – AMO

15. Maneuver Item File (MIF). A listing of required maneuvers and associated proficiency levels for each block of training.

16. Master Syllabus. Chapters I–VII list all training syllabus activities, prerequisites, and desired training flow.

17. Required Item. Any maneuver coded with a plus sign (+). This symbol indicates the maneuver is required and must be accomplished to the specified standard in that block of training.

18. Special Syllabus Requirements (SSR). One-time, ungraded demonstration item.
19. Stage of Training. A subdivision of a Phase, comprised of events leading to a single set of objectives, designated by a common symbol (e.g., Familiarization, Instruments, Navigation, Formation). The first one to three letters in the lesson designator identifies the stage of each lesson (Example: DAY4001M is in the Day Familiarization stage).
20. Supplementary ATF. A form inserted into a student's ATJ that contains non-syllabus information.
21. Training Media. Media include aircraft, PTTs, simulators, and CAI.

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Chapter I

General Instructions

1. Syllabus Management

a. Distribution. Participating squadron personnel.

b. Interpretation. The syllabus is directive. Should circumstances create situations not covered within the scope of this syllabus, or specific course of action appears to conflict with other directives, consult CNATRA (N71).

c. Deviations. Document all deviations on the event's ATF.

d. Changes. Recommended changes shall be submitted per CNATRAINST 1550.6F.

e. Execution. AMO students execute all curriculum events in Chapters II through VII.

f. Syllabus Description. The training in this syllabus introduces AMO students to the unique operating environment of Navy and Marine Corps rotary, with an emphasis on mission type and length, aircrew ergonomics, and the support AMOs can give to fleet rotary squadrons. AMO rotary training should occur after NIFE, but before T-6 training. Stages are grouped by like-flight training regimes such as Familiarization, Instrument, and Formation. Each stage is subdivided into training blocks. The training blocks consist of a specified number of flights. MIFs identify the required maneuvers and the minimum acceptable level of performance that must be achieved at the completion of each block of training.

2. Training Management

a. Syllabus Progression

(1) Other than noted exceptions, syllabus events shall be flown sequentially within each stage. Blocks shall not be started without all prerequisites completed.

(2) Where clearly identified, students may be in different stages simultaneously and must complete all events. The flowchart on page I-7 delineates the sequence of flying events and their ground training prerequisites. System training management is designed to facilitate up to two graded events (flight, simulator, exam, or a combination thereof) per student per day.

(3) The first event in stage must be completed within 14 calendar days of the associated flight support lecture. The associated flight support lecture must be redone if 14 or more days have elapsed.

(4) The first event in stage cannot be completed the same day as the associated flight support lecture.

b. Hours/X (H/X). IPs shall plan and execute missions to meet H/X as closely as practical. If actual event length varies from the programmed H/X by more than 0.3 hours, annotate reason(s) in ATF's general comments section. A student's deficiency is not an acceptable reason to exceed H/X by more than 0.3 hours.

3. Warmup Events (SXX86). Warmup event is defined in CNATRINST 1500.4K. Warmup events are not required for the AMO syllabus.

4. Additional Flights and Simulators

a. Extra Training Events (SXX87). All ETs shall be dual (other than noted exceptions) and coded as SXX87 (e.g., C4187). Refer to CNATRINST 1500.4K.

b. Additional Events to Meet Minimum Syllabus Time

(1) Syllabus events may be waived by the TRAWING Commander or at the direction of the NAMI Director of Academics. This shall be documented in the ATJ with a waiver letter.

(2) Squadron COs are responsible for ensuring that ETs flown to meet curriculum minimums provide the student with worthwhile training.

5. Ground Training and Briefing Requirements

a. Mission Preparation, Briefings, and Debriefings

(1) EOB Events. The IP shall carefully review the ATFs in planning the EOB event to ensure the profile includes opportunities to reach MIF on all critical items and optional items attempted in the block.

(2) Preparation. IPs shall demonstrate flight plan and weather brief information. Students shall arrive for each flight with:

(a) Thorough knowledge of:

1. The flight's Discuss Items and special syllabus requirements, as listed in Chapters III–VII.

2. Procedural knowledge of all items for the event's training block.

(3) Briefing

(a) The Instructor shall review the student's previous applicable ATFs before each event. Thoroughly cover the current mission's:

1. Discuss Items, as listed in Chapters II–VII.
2. Specific objectives.
3. Required procedures for accomplishing those objectives.
4. Planned profile and contingencies.

(4) Debriefing

(a) After each event, the Instructor shall critique the student's performance using cause and effect analysis, particularly with respect to the CTS.

(b) Mission complexity and student progress will govern the time required for the debrief.

(c) Debriefing must be detailed and comprehensive. The ATF shall be completed prior to the student's next event. Exceptions may be made for out-and-in flights. In such instances, the student will be provided feedback on performance as soon as possible following the event.

b. Emergency Procedures Briefing and Training

(1) Emergency procedures training builds the AMO student's understanding and situational awareness in the aircraft. The IP should conduct emergency procedure demonstrations and/or discussions on all training events to show the AMO student crew dynamics and CRM. They are not expected to memorize EPs or conduct the procedures themselves.

(2) Incorporate emergency procedures training into simulator events when practical; however, instructional block objectives take precedence.

6. Mission Grading Procedures and Evaluation Policies. Refer to CNATRAINST 1500.4K. Events not completed may be waived by the NAMI Director of Academics. In the event performance is unsatisfactory, and remediation would lead to an excessive TTT, the Training Air Wing shall notify the NAMI Director of Academics for further direction. The AMO student is expected to know and be able to thoroughly discuss all the Discuss Items and maneuver

procedures from the Flight Training Instruction (FTI) and Naval Air Training and Operating Procedures Standardization (NATOPS) but is not expected to gain proficiency in flying the TH-57 or TH-73A due to the abbreviated syllabus and short TTT. Therefore, AMOs shall meet a MIF of “3+” on General Knowledge and Procedures for all simulator and flight events and a MIF of “2+” for all other graded items. Any items listed as a MIF of “1” imply the Instructor shall demonstrate the maneuver. If time permits and AMO student proficiency allows, the Instructor may give them a chance to fly the maneuver as well.

7. Special Instructions and Restrictions

a. Flight Hour and Event Requirements and Restrictions

(1) Programmed Hours and Events. Syllabus-programmed flight hours are 13.4 hours. This is a combination of pilot time and special crew time (SCT). Actual event lengths will cause variation. Accomplish all syllabus events.

(2) Minimum Night Hours: N/A.

(3) Maximum Daily Student Activities (Aircraft, Simulator, or Academic). Students shall not exceed two flights, simulator, and/or exam events during one duty day.

(4) Minimum Student Turn-Times. One hour is required between debriefing of an event and the brief for a follow-on event. This requirement does not apply to out-and-in profiles; however, the Instructor shall ensure adequate debrief and brief time is allocated.

(5) Crew Day. The period from the beginning of the student’s first event or official duty of the day until the completion of the last event of the day, including associated debrief and paperwork. Crew day shall not exceed 12 hours.

(6) Crew Rest. A minimum of 12 hours shall elapse between the conclusion of the student’s last scheduled event of the day (including associated debrief) and their first scheduled instructional event of the following day. After six consecutive scheduled days, students shall receive a minimum of one day off. Official duty, squadron training, and standby scheduling do not qualify as a day off.

(a) Source Documents. Students are responsible for reviewing applicable source documents (NATOPS, FTIs, local SOPs, etc.) prior to commencing each stage of training.

(b) Maneuver Demonstrations. The student shall not perform a maneuver for the first time until the IP demonstrates the maneuver unless previous training adequately fulfills this role. This does not apply to simulator events. All simulator and flight events, students should be given the opportunity to attempt to perform all maneuvers practicable at the discretion of the Instructor.

(c) Airspace Utilization. Conduct familiarization and formation events in designated areas. These events may be out-and-ins.

(d) Aircraft and Simulator Interchangeability

1. Simulator events may be conducted in the aircraft, at the TRAWING Commander's discretion, when the simulator is unavailable for extended periods of time.

2. Aircraft events may not be conducted in the simulator, unless otherwise stated in this MCG for XX86, XX87, XX88, or XX89 events.

b. All TH-73A Simulator and Flight Events

(1) AMOs should be given the opportunity to attempt to perform as many maneuvers as practical at the discretion of the IP.

(2) AMOs shall not be responsible for providing flight plan, route cards, navigation maps, or weather brief information.

(3) AMOs are not required to brief TH-73A systems in simulator or flight events.

(4) All Special Syllabus Requirements (SSR) shall be met unless waived by NAMI.

8. Course Objectives. Upon completion of this curriculum, the prospective AMO will demonstrate:

a. A basic knowledge of the fundamental concepts of aerodynamics, aircraft systems, and emergency procedures.

b. Proficiency in basic aviation ground operations.

c. The ability to execute straight and level as well as turning flight.

d. An understanding of standard operating guidelines associated with KNDZ operations.

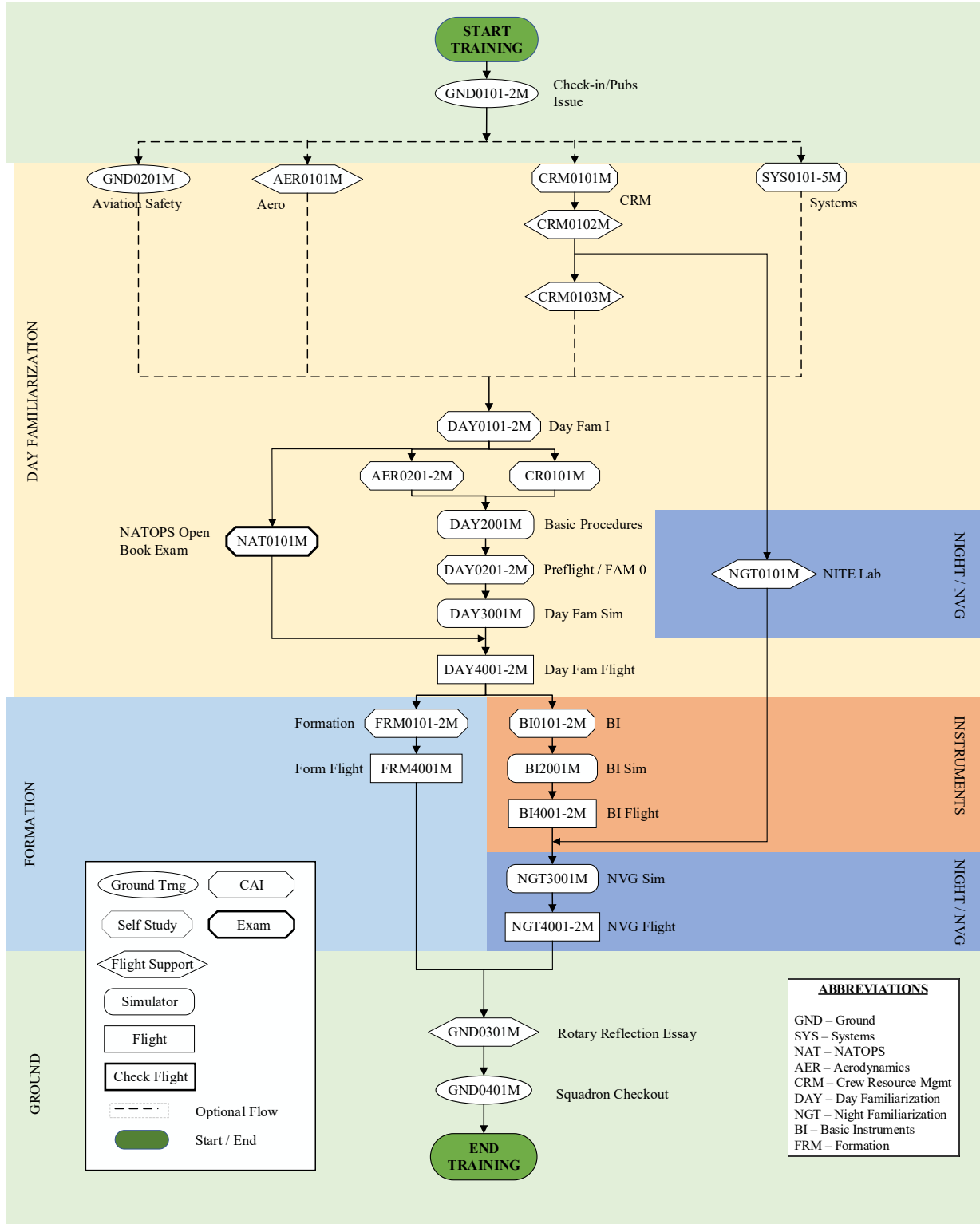
e. Familiarity with various rotary flight profiles associated with unusual physiological phenomena such as spatial disorientation and visual illusions. These flight environments shall include day familiarization maneuvers, nighttime, and instrument flight.

f. A working knowledge of the stressors associated with multiple, simultaneous pilot tasks commonly encountered during in-flight emergencies and instrument flight.

9. Course Flow Diagram. AMO student course flow diagram is on page I-7.

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AHTS AEROMEDICAL OFFICER COURSE FLOW



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Chapter II

Ground Training

Blk #	Media	Title	Events	Hrs	Blk Name
GND01	SQDN	Indoctrination	2	2.5	GND

1. Prerequisites. None.

2. Events

GND0101M SQDN Check-In 2.0

GND0102M Issue Training Publications Issue 0.5

3. Syllabus Notes

a. GND0101M should concentrate on an Operations Department brief, including how to read a flight schedule and write a snivel.

b. The Operations Department shall enroll the AMO students in the AMO syllabus in T-SHARP.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
GND02	MIL	Safety	1	1.0	GND

1. Prerequisites GND0102M (Training Publications Issue).

2. Events

GND0201M MIL Aviation Safety 1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
GND03	Self-Study	Rotary Reflection Essay	1	2.0	GND

1. Prerequisites

- a. FRM4001M (Formation).
- b. NGT4002M (Night/NVG Familiarization).

2. Events

GND0301M MIL Rotary Reflection Essay 2.0

3. Syllabus Notes. AMO students shall write a three-page paper reflecting on lessons learned and the training experience in rotary aircraft. This paper should focus on the rotary community and the factors affecting crew members, such as ergonomics, flight gear, mission length, relationships with Navy medical personnel, community culture, and barriers to care. A copy of the essay shall be delivered to the squadron Standardization Officer prior to Checkout (GND0401M) and the NAMI Director of Academic Training.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
GND04	SQDN	Checkout	1	1.0	GND

1. Prerequisite. GND0301M (Rotary Reflection Essay).

2. Events

GND0401M SQDN Checkout 1.0

3. Syllabus Notes. None.

4. Discuss Items. None.

Chapter III

Day Familiarization Training

Blk #	Media	Title	Events	Hrs	Blk Name
AER01	MIL	Helicopter Fundamentals and Aerodynamic Theories	1	4.0	AERO

1. Prerequisite. GND0102M. (Training Publications Issue).

2. Events

AER0101M	MIL	Helicopter Fundamentals and Aerodynamic Theories		4.0	
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3. Syllabus Notes. None.

Blk #	Media	Title	Events	Hrs	Blk Name
SYS01	CAI	Systems	5	3.5	SYS

1. Prerequisite. GND0102M. (Training Publications Issue).

2. Events

SYS0101M	CAI	TH-73A Helicopter Overview		0.7	
SYS0102M	CAI	Engine System		0.7	
SYS0103M	CAI	Transmission Power Train		0.7	
SYS0104M	CAI	Rotor and Flight Control Systems		0.7	
SYS0105M	CAI	Hydraulic System		0.7	

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
CRM01	CAI/MIL	Crew Resource Management	3	3.2	CRM

1. Prerequisite. GND0102M. (Training Publications Issue).

2. Events

CRM0101M	CAI	Crew Resource Management (CRM)		0.7	
CRM0102M	MIL	Crew Resource Management		1.5	
CRM0103M	MIL	Level A Annual Aeromedical Training		1.0	

3. Syllabus Notes. CRM0101M shall be completed prior to CRM0102M.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
DAY01	CAI/PTT	Day Familiarization	2	1.7	FAMFP

1. Prerequisites

- a. CRM01 Block (Crew Resource Management).
- b. AER01 Block (Helicopter Fundamentals and Aerodynamic Theories).
- c. SYS01 Block (Systems).
- d. GND0201M (Aviation Safety).

2. Events

DAY0101M	CAI	Checklists [Start Procedures]		0.7
DAY0102M	PTT	Day FAM Avionics Trainer Self-Study 1		1.0

3. Syllabus Notes. DAY0102M should be complete prior to DAY0202M.
4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
AER02	CAI	Aerodynamics II: Helicopter Performance and Flight Phenomena	2	1.4	AERO

1. Prerequisite. DAY0102M (Day FAM Avionics Trainer Self-Study 1).

2. Events

AER0201M CAI Autorotation 0.7

AER0202M CAI Tail Rotor Considerations 0.7

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	Blk Name
CR01	CAI	Course Rules	1	0.7	CR

1. Prerequisite. DAY0102M (Day FAM Avionics Trainer Self-Study 1).

2. Events

CR0101M	CAI	NDZ Course Rules		0.7	
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3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
DAY20	FTD-6	Basic Cockpit Procedures	1	1.5	1.5

1. Prerequisites

- a. AER0202M (Tail Rotor Considerations).
- b. CR0101M (NDZ Course Rules).

2. Events

DAY2001M FTD-6 Basic Cockpit Procedures 1.5

3. Syllabus Notes. The AMOs are in an introductory syllabus for exposure only so the Instructor is meant to walk through the event with them. The Instructor will sit in the left seat and demonstrate checklist use, basic communication procedures and radio use, as well as KNDZ ground operations.

4. Special Syllabus Requirements. The Instructor shall demonstrate the familiarization level speed change, turn pattern, and single axis inputs prior to the AMO attempting them.

5. Discuss Items

DAY2001M

Engine Start, checklist usage, cockpit ergonomic setup, CRM differences between single seat and crew mentality, radio communication, ICS, KNDZ ground operations.

6. Block MIF

CTS REF	MANEUVER	DAY2001M
1	General Knowledge/Procedures	3+
2	Abnormal Starts/Abort Start	1
2	Emergency Shutdown	1
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
5	Crew Resource Management	2+
6	Cockpit Management	1
7	Prestart Checklists	1
7	Engine Start Checklist	1
7	Systems Checks	1
7	Shutdown Checklist	1
8	Radio Procedures	1
16	Familiarization Level Speed Change	1
17	Familiarization Turn Pattern	1
18	Single Axis Inputs	1
19	Course Rules	1
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	Blk Name
DAY02	CAI/ SQDN	Pre-flight	2	3.7	DAYFP

1. Prerequisite. DAY2001M (Basic Cockpit Procedures).

2. Events

DAY0201M	CAI	Pre-flight Procedures		0.7
DAY0202M	SQDN	FAM 0		3.0

3. Syllabus Notes

a. DAY0201M shall be completed prior to DAY0202M.

b. On DAY0202M, the IP shall familiarize the AMO with seat and flight control adjustments and operation of all doors.

4. Discuss Items

DAY0202M

Flight schedule, operating procedures (CNAF M-3710.7, NATOPS, RWOP, squadron SOP), aircraft pre-flight and post-flight inspection, emergency egress procedures, ALSS gear, flight line operations, exiting or entering the rotor arc, taxi signals, Training Time Out (TTO) policy.

Blk #	Media	Title	Events	Hrs	H/X
DAY30	FTD-7	Basic Flight/Integrated Scan	1	1.5	1.5

1. Prerequisite. DAY0202M (FAM 0).

2. Events

DAY3001M	FTD-7	Basic Flight/Integrated Scan		1.5	
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3. Syllabus Notes

a. The AMOs are in an introductory syllabus for exposure only so the Instructor is meant to walk through the event with them. The Instructor will sit in the left seat and demonstrate basic helicopter maneuvers to include hover, normal landings and takeoffs, normal approaches, steep approaches, sliding landings, autorotations, basic helicopter handling in cruise flight, and engine failures in a hover.

b. A Contract Instructor (CI) is required to run this simulator event.

c. During the last 10 minutes of event, the AMO student should reposition to the instructor station to observe the CI flying. The CI should conduct dynamic maneuvering to demonstrate simulator sickness.

4. Special Syllabus Requirements. The CI shall demonstrate a sliding landing and autorotation.

5. Discuss Items

DAY3001M

Day familiarization maneuvers (hover, vertical takeoff and landing, normal approach, steep approach), basic helicopter handling in cruise flight, simulated emergencies, autorotations, engine failure in a hover.

6. Block MIF

CTS REF	MANEUVER	DAY3001M
1	General Knowledge/Procedures	3+
2	Emergency Procedures	1
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
5	Crew Resource Management	2+
6	Cockpit Management	1
7	Prestart Checklists	2+
7	Engine Start Checklist	2+
7	Systems Checks	2+
7	Shutdown Checklist	2+
8	Radio Procedures	1
19	Course Rules	1
20	Vertical Takeoff	1
24	Transition to Forward Flight	1
25	Hover	1
26	Hover Turns	1
27	Hover Taxi	1
28	Square Patterns	1
29	Normal Approach	1
32	Vertical Landing	1
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	Blk Name
NAT01	Exam	NATOPS Exam	1	3.0	NAT

1. Prerequisite. DAY0102M (Day Familiarization).

2. Events

NAT0101M Exam NATOPS Open Book Exam 3.0

3. Syllabus Notes. AMOs shall turn in the NATOPS Open Book Exam prior to DAY4002M.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
DAY40	TH-73A	Day Familiarization	2	4.0	2.0

1. Prerequisites.

- a. DAY3001M (Day Familiarization Sim).
- b. NAT0101M (NATOPS Open Book Exam).

2. Events

DAY4001M	TH-73A	Day Familiarization		2.0	
DAY4002M	TH-73A	Day Familiarization Observe		2.0	

3. Syllabus Notes

a. The AMOs are in an introductory syllabus for exposure only so the IP is meant to demonstrate a day familiarization event. This block should concentrate on basic air work, low work maneuvers, impact of flight gear to extended flight operations, and ergonomics in the aircraft.

b. The IP shall demonstrate a full autorotation during each event in block.

c. DAY4002M is an observe event only; record as SCT in the flight records. The CTS for this block is for DAY4001M only.

d. The AMO student should conduct the DAY4001M event in the front seat and observe another day familiarization event in the cabin for DAY4002M the same day. The intent is to show the AMO student how extended mission length effects crew fatigue.

e. DAY4001M and DAY4002M may be flown in any order.

4. Special Syllabus Requirements. None.

5. Discuss Items

DAY4001M

Entering and exiting the rotor arc, VFR integrated scan and CRM, AMO responsibilities as copilot, South Whiting Field course rules, assigned OLF course rules, flight line safety (RWOP), trim techniques.

DAY4002M

EP methodology, CRM during simulated EPs (simulated engine failure in a hover or hover taxi, autorotations), engine fire, emergency shutdown, power curve, and power required exceeds power available.

6. Block MIF

CTS REF	MANEUVER	DAY4002M
1	General Knowledge/Procedures	3+
2	Emergency Procedures	1
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
5	Crew Resource Management	2+
6	Cockpit Management	1
8	Radio Procedures	1
9	Pre-flight Inspection	2+
13	Wave-off (Power-On)	1
14	Wave-off (Power-Off)	1
19	Course Rules	1
20	Vertical Takeoff	1
22	Maximum Load Takeoff	1
23	Obstacle Clearance Takeoff	1
24	Transition to Forward Flight	1
25	Hover	1
26	Hover Turns	1
27	Hover Taxi	1
28	Square Pattern	1
29	Normal Approach	1
30	Steep Approach	1
31	Quick Stop	1
32	Vertical Landing	1
33	No-Hover Landing	1
34	Simulated Engine Failure in a Hover	1
35	Power Recovery Autorotation	1
36	Full Autorotation	1

Chapter IV

Night Familiarization Training

Blk #	Media	Title	Events	Hrs	Blk Name
NGT01	Lab	NITE Lab	1	8.0	NGTFP

1. Prerequisite. CRM0102M (CRM).

2. Events

NGT0101M	Lab	Night Imaging Threat Evaluation (NITE) Lab	8.0
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3. Syllabus Notes

a. AMOs shall bring their NVG modified helmet, one set of AN/AVS-9 NVGs, and their NATOPS jacket to the NITE lab.

b. NVGs shall be checked out from the Paraloft.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
NGT30	FTD-7	Night/NVG Familiarization	1	1.5	1.5

1. Prerequisites

- a. NGT0101M (NITE Lab).
- b. BI4002M (Basic Instruments).

2. Events

NGT3001M	FTD-7	Night/NVG Familiarization		1.5	
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3. Syllabus Notes

- a. The AMOs are in an introductory syllabus for exposure only so the IP or CI is meant to demonstrate night familiarization maneuvers.
- b. AMOs shall checkout NVGs, conduct focusing procedures using Hoffman Box, and bring NVGs and helmet to brief.
- c. NGT3001M shall focus on familiarization maneuvers and pattern work. OLF Site X and KNDZ should be used.

4. Special Syllabus Requirements. Demonstrate effects of weather, terrain, ambient lighting, and lunar illumination conditions on NVG performance. Demonstrate the difference between NVG-compliant and noncompliant lighting both inside the cockpit and exterior to the aircraft.

5. Discuss Items

NGT3001M

TH-73A NVG-compatible lighting, Inadvertent Instrument Meteorological Condition (IIMC) at night, low-light level versus high-light level environments, NVG spatial disorientation, NVG field of view.

6. Block MIF

CTS REF	MANEUVER	NGT3001M
1	General Knowledge/Procedures	3+
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
5	Crew Resource Management	2+
6	Cockpit Management	1
8	Radio Procedures	1
9	Ground Operations	1
12	Terminal Procedures	1
13	Wave-off (Power-On)	1
20	Vertical Takeoff	1
24	Transition to Forward Flight	1
25	Hover	1
26	Hover Turns	1
29	Normal Approach	1
32	Vertical Landing	1
37	NVG Knowledge/Procedures	1
38	Goggle/De-Goggle Procedures	1
39	NVG Malfunctions	1
45	Unusual Attitude Recovery	1
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
NGT40	TH-73A	Night/NVG Familiarization	2	4.0	2.0

1. Prerequisite. NGT3001M (NVG Sim).

2. Events

NGT4001M	TH-73A	Night/NVG Familiarization		2.0	
NGT4002M	TH-73A	NVG Familiarization Observe		2.0	

3. Syllabus Notes

a. This event is for AMO student exposure to the night familiarization environment. The IP should demonstrate all maneuvers with the training focus on pattern work and familiarization maneuvers.

b. The first 30 minutes of the flight shall be conducted unaided for the AMO only. NVGs should be donned but not down. During NGT4001M, the IP should provide the AMO student time to adjust to the NVG environment during a terrain and obstacle familiarization.

c. NVG events should take off at or after end of evening nautical twilight to maximize training value.

d. The NGT4001M event shall be flown in the front seat and NGT4002M shall be flown as an observer. These events should be flown in the same night to emphasize the effects of NVGs and flight gear on crew fatigue during extended flight operations.

e. NGT4001M and NGT4002M may be flown in any order.

4. Special Syllabus Requirements. None.

5. Discuss Items

NGT4001M

NVG scan, NVG scene interpretation, techniques to reduce human error, Site X night operations, complacency, overconfidence on NVGs, aircrew fatigue on NVGs.

NGT4002M

Degrading weather and environmental effects on NVG performance, visual illusions on NVGs, NVG malfunctions and failures, and crew coordination and responsibilities on NVGs

6. Block MIF

CTS REF	MANEUVER	NGT4002M
1	General Knowledge/Procedures	3+
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
5	Crew Resource Management	2+
6	Cockpit Management	1
8	Radio Procedures	1
9	Ground Operations	1
12	Terminal Procedures	1
13	Wave-off (Power-On)	1
19	Course Rules	1
20	Vertical Takeoff	1
21	No-Hover Takeoff	1
22	Maximum Load Takeoff	1
24	Transition to Forward Flight	1
25	Hover	1
26	Hover Taxi	1
26	Hover Turns	1
29	Normal Approach	1
30	Steep Approach	1
32	Vertical Landing	1
33	No-Hover Landing	1
37	NVG Knowledge/Procedures	3+
38	Goggle/De-Goggle Procedures	3+
39	NVG Malfunctions	2+

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Chapter V

Instrument Training

Blk #	Media	Title	Events	Hrs	Blk Name
BI01	CAI	Basic Instruments	2	1.4	BIFP

1. Prerequisite. DAY4002M (Day FAM Avionics Trainer Self-Study 1).

2. Events

BI0101M CAI Basic Instrument Maneuvers 0.7

BI0102M CAI Instrument Approach Procedures 0.7

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
BI20	FTD-6	Basic Instruments	1	1.5	1.5

1. Prerequisite. BI0102M (Instrument Approach Procedures).

2. Events

BI2001M	FTD-6	Basic Instruments		1.5	
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3. Syllabus Notes

a. This block focuses on basic instrument flight procedures and maneuvers.

b. A CI is required to run this simulator event. They shall sit in the simulator with the AMO student to demonstrate BI maneuvers.

4. Special Syllabus Requirements

a. The CI shall demonstrate either the WABEN or BAWDI departure.

b. The CI shall demonstrate a VOR or TACAN instrument approach.

5. Discuss Items

BI2001M

Attitude instrument flight (including trim and scan techniques), CRM in the instrument environment, standard rate turn, level speed change, turn pattern, vertical S-1, and Oscar pattern.

6. Block MIF

CTS REF	MANEUVER	BI2001M
1	General Knowledge/Procedures	3+
2	Emergency Procedures	1
3	Headwork/Situational Awareness	2+
4	Basic Air Work	1
4	Straight and Level Flight	1
5	Crew Resource Management	2+
6	Cockpit Management	1
7	Instrument Checklist	1
7	Level Off Checklist	1
8	Radio Procedures	1
9	Ground Operations	2+
12	Terminal Procedures	1
40	Instrument Takeoff	1
41	Level Speed Change	1
42	Vertical S-1 Pattern	1
43	Turn Pattern	1
44	Oscar Pattern	1
45	Unusual Attitude Recovery	1
46	Non-Precision Approach	1
	Special Syllabus Requirements	1

Blk #	Media	Title	Events	Hrs	H/X
BI40	TH-73A	Basic Instruments	2	3.4	1.7

1. Prerequisite. BI2001M (Basic Instrument Sim).

2. Events

BI4001M	TH-73A	Basic Instruments		1.7	
BI4002M	TH-73A	Basic Instruments Observe		1.7	

3. Syllabus Notes

a. The BI flights are for AMO student exposure to the instrument environment. The IP shall demonstrate all maneuvers, then let the AMO student attempt them to improve basic air work.

b. The AMO student shall conduct the BI4001M event in the front seat and observe another BI event in the back for BI4002M. These events should be scheduled the same day.

c. BI4001M and BI4002M may be complete in any order.

d. IP shall demonstrate spatial disorientation during both events in the block.

4. Special Syllabus Requirements. None.

5. Discuss Items

BI4001M

Integrated scan and CRM, unusual attitudes, spatial disorientation, and weather required for BI flights (RWOP).

BI4002M

Observer responsibilities, and ICS operation in the back.

6. Block MIF

CTS REF	MANEUVER	BI4002M
1	General Knowledge/Procedures	3+
2	Emergency Procedures	1
3	Headwork/Situational Awareness	1
4	Basic Air Work	1
4	Straight and Level Flight	1
5	Crew Resource Management	2+
6	Cockpit Management	1
7	Instrument Checklist	1
7	Level Off Checklist	1
8	Radio Procedures	1
9	Ground Operations	1
10	Departure Procedures	1
11	En route Procedures	1
12	Terminal Procedures	1
15	SAS Off Flight	1
40	Instrument Takeoff	1
41	Level Speed Change	1
42	Vertical S-1 Pattern	1
43	Turn Pattern	1
44	Oscar Pattern	1
45	Unusual Attitude Recovery	1
46	Non-Precision Approach	1
47	Modified Normal Approach	1

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Chapter VI

Formation Training

Blk #	Media	Title	Events	Hrs	Blk Name
FRM01	CAI	Formation	2	1.4	FRMFP

1. Prerequisite. DAY4002M (Day Familiarization Flight).

2. Events

FRM0101M CAI Formation Flight Overview 0.7

FRM0102M CAI Formation Maneuvers 0.7

3. Syllabus Notes. None.

4. Discuss Items. None.

Blk #	Media	Title	Events	Hrs	H/X
FRM40	TH-73A	Formation	1	2.0	2.0

1. Prerequisite. FRM0102M (Formation Maneuvers).

2. Events

FRM4001M TH-73A Formation Observe 2.0

3. Syllabus Notes

a. AMO shall observe SNAs flight planning, briefing, and debriefing the formation event.

b. AMO shall observe formation maneuvers from the cabin for this event.

4. Special Syllabus Requirements. None.

5. Discuss Items

FRM4001M

Relative motion and radius of turn relationships, Lead and Wing helicopter responsibilities, cruise formation maneuvers, IIMC, loss of visual contact, formation lost communication, formation wave-off, aborts, and wing formation position and visual checkpoints.

6. Block MIF

CTS REF	MANEUVER	FRM4001M
1	General Knowledge/Procedures	3+
5	Crew Resource Management	2+

Chapter VII

Comprehensive MIF

1. Day Familiarization Stage

Device Event

DAY FAMILIARIZATION STAGE MANEUVER ITEM FILE				
CTS REF	MANEUVER	DAY2001M	DAY3001M	DAY4002M
1	General Knowledge/Procedures	3+	3+	3+
2	Emergency Procedures		1	1
2	Abnormal Starts/Abort Start	1		
2	Emergency Shutdown	1		
3	Headwork/Situational Awareness	2+	2+	2+
4	Basic Air Work	1	1	1
5	Crew Resource Management	2+	2+	2+
6	Cockpit Management	1	1	1
7	Prestart Checklist	1	2+	
7	Engine Start Checklist	1	2+	
7	Systems Check	1	2+	
7	Shutdown Checklist	1	2+	
8	Radio Procedures	1	1	1
9	Pre-flight Inspection			2+
13	Wave-off (Power-On)			1
14	Wave-off (Power-Off)			1
16	Familiarization Level Speed Change	1		
17	Familiarization Turn Pattern	1		
18	Single Axis Inputs	1		
19	Course Rules	1	1	1

MIF continued on next page.

DAY FAMILIARIZATION STAGE MANEUVER ITEM FILE				
CTS REF	MANEUVER	DAY2001M	DAY3001M	DAY4002M
20	Vertical Takeoff		1	1
22	Maximum Load Takeoff			1
23	Obstacle Clearance Takeoff			1
24	Transition to Forward Flight		1	1
25	Hover		1	1
26	Hover Turns		1	1
27	Hover Taxi		1	1
28	Square Patterns		1	1
29	Normal Approach		1	1
30	Steep Approach			1
31	Quick Stop			1
32	Vertical Landing		1	1
33	No-Hover Landing			1
34	Simulated Engine Failure in a Hover			1
35	Power Recovery Autorotation			1
36	Full Autorotation			1
	Special Syllabus Requirements	1	1	

2. Night Familiarization Stage

Device Event

NIGHT FAMILIARIZATION STAGE MANEUVER ITEM FILE			
CTS REF	MANEUVER	NGT3001M	NGT4002M
1	General Knowledge/Procedures	3+	3+
3	Headwork/Situational Awareness	2+	2+
4	Basic Air Work	1	1
5	Crew Resource Management	2+	2+
6	Cockpit Management	1	1
8	Radio Procedures	1	1
9	Ground Operations	1	1
12	Terminal Procedures	1	1
13	Wave-off (Power-On)	1	1
19	Course Rules		1
20	Vertical Takeoff	1	1
21	No-Hover Takeoff		1
22	Maximum Load Takeoff		1
24	Transition to Forward Flight	1	1
25	Hover	1	1
26	Hover Turns	1	1
27	Hover Taxi		1
29	Normal Approach	1	1
30	Steep Approach		1
32	Vertical Landing	1	1
33	No-Hover Landing		1
37	NVG Knowledge/Procedures	1	3+
38	Goggle/De-Goggle Procedures	1	3+

MIF continued on next page.

NIGHT FAMILIARIZATION STAGE MANEUVER ITEM FILE			
CTS REF	MANEUVER	NGT3001M	NGT4002M
39	NVG Malfunctions	1	2+
45	Unusual Attitude Recovery	1	
	Special Syllabus Requirements	1	

3. Basic Instrument Stage

Device Event

BASIC INSTRUMENT STAGE MANEUVER ITEM FILE			
CTS REF	MANEUVER	BI2001M	BI4002M
1	General Knowledge/Procedures	3+	3+
2	Emergency Procedures	1	1
3	Headwork/Situational Awareness	2+	1
4	Basic Air Work	1	1
4	Straight and Level Flight	1	1
5	Crew Resource Management	2+	2+
6	Cockpit Management	1	1
7	Instrument Checklist	1	1
7	Level Off Checklist	1	1
8	Radio Procedures	1	1
9	Ground Operations	2+	1
10	Departure Procedures		1
11	En route Procedures		1
12	Terminal Procedures	1	1
15	SAS Off Flight		1
40	Instrument Takeoff	1	1
41	Level Speed Change	1	1
42	Vertical S-1 Pattern	1	1
43	Turn Pattern	1	1
44	Oscar Pattern	1	1
45	Unusual Attitude Recovery	1	1
46	Non-Precision Approach	1	1
47	Modified Normal Approach		1
	Special Syllabus Requirements	1	

4. Formation Stage

 Device Event

FORMATION STAGE MANEUVER ITEM FILE		
CTS REF	MANEUVER	FRM4001M
1	General Knowledge/Procedures	3+
5	Crew Resource Management	2+

Chapter VIII

COURSE TRAINING STANDARDS

1. Purpose. These standards outline the tasks and proficiency required of student AMOs during training.
2. Student Duties and Responsibilities
 - a. Ensure the aircraft is pre-flighted, inspected, and equipped for the assigned mission.
 - b. Operate the aircraft to accomplish the mission using sound judgment and airmanship.
3. General Standards
 - a. Achieve training standards for VMC maneuvers in conjunction with visual clearing.
 - b. Unless otherwise specified, use Basic Air Work (BAW) standards for all items with altitude, airspeed, or heading parameters.
 - c. “Standard” equates to good (G/4).
 - d. Aircraft control must be smooth and positive. Performance may be within CTS and still not warrant a grade of good if control inputs are delayed, erratic, imprecise, or inappropriate. Slight deviations in establishing or maintaining the proper or desired aircraft attitude or position may occur during the maneuver being performed.
 - e. Momentary deviations outside CTS that do not compromise flight safety are acceptable if subsequent corrections are timely.
 - f. Procedural knowledge and application must comply with applicable directives and allow efficient mission accomplishment. If individual tasks require pre-mission planning, the standards from mission planning apply.
4. Execution. The MIF regulates student progression to meet required standards prior to phase completion. IPs shall evaluate student performance against these standards.
5. Job Tasks. Specific performance and standards required are described as follows:

BEHAVIOR STATEMENT	STANDARDS
Graded Item	
<ul style="list-style-type: none">• Description of the behavior, required action, and/or conditions.	<ul style="list-style-type: none">• Specific standards for the action. May be read as “The SNA ...”

6. Graded Items. The MIF for specific graded items varies for each stage. Several items are graded on all complete syllabus events. The standards for these universally graded items are listed first.

7. Course Training Standards

BEHAVIOR STATEMENT	STANDARDS
ALL STAGES CTS ITEMS	
1. General Knowledge/Procedures	
<ul style="list-style-type: none"> • Demonstrate a working knowledge of flight training instructions and directives. 	<ul style="list-style-type: none"> • Discusses all applicable items essential to the operation of the helicopter.
2. Emergency Procedures	
<ul style="list-style-type: none"> • Demonstrate in-depth knowledge of NATOPS EPs, system indications, and appropriate directives. 	<ul style="list-style-type: none"> • Identifies emergency or system failure indications and calls for the appropriate NATOPS procedure. • Indicates critical memory items in proper order and in a timely manner. • Calls for appropriate checklist following execution of critical memory items or when no critical memory items apply. • Uses critical thinking skills. • Determines appropriate landing criteria.
3. Headwork/Situational Awareness	
<ul style="list-style-type: none"> • Demonstrate critical thinking skills while maintaining situational awareness sufficient for flight safety. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Follows instructions. • Anticipates and mitigates potential issues. • Remains alert and oriented. • Accepts, processes, and applies information during flight execution.

BEHAVIOR STATEMENT	STANDARDS
4. Basic Air Work	
<ul style="list-style-type: none"> Establish and maintain desired altitude, airspeed, and heading during flight. 	<ul style="list-style-type: none"> Maintains helicopter in balanced flight and within 100 feet, 10 KIAS, 10 degrees of heading. Levels off within 100 feet of desired altitude. Accomplishes desired parameter within ± 10 seconds of correct time, as applicable. Maintains an effective scan inside and outside of the cockpit throughout the flight, identifying deviations, and properly responding using appropriate corrective control inputs. Uses collective, cyclic, and pedals to adjust collective pitch, helicopter attitude, and trim.
5. Crew Resource Management	
<ul style="list-style-type: none"> Demonstrate effective crew resource management skills. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Maintains awareness of what is happening on the ground, in the air, and with other crewmembers and copes with any subsequent mission impact as a result of these happenings. Gathers available data before arriving at final decision, clearly states decisions to the crew, and provides rationale for decisions. Displays assertive behavior when necessary and accepts assertive behavior from other crewmembers. Assesses requirements, risks, and makes decisions and identifies probable contingencies and alternatives. Ensures effective communication. Recognizes hazardous attitudes in self and other crewmembers. Resolves conflict in a positive manner. Provides positive leadership to the crew. Encourages crew participation in the decision-making process. Adapts to meet new situational demands.

BEHAVIOR STATEMENT	STANDARDS
6. Cockpit Management	
<ul style="list-style-type: none"> • Conduct cockpit setup and in-flight cockpit management. • Delegate crew tasks during mission execution. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Accomplishes checklist steps in a timely manner. • Demonstrates checklist discipline. • Monitors helicopter systems, indicators, radios, and flight support materials in the conduct of flight duties. • Prioritizes cockpit tasks using all available resources within the cockpit. • Monitors performance of delegated tasks.
7. Checklist Management	
<ul style="list-style-type: none"> • Determine and locate correct checklist or EP in the PCL. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, SOP, and PAC guidance and procedures. • Verbalizes each checklist step in a logical, clear, and concise manner with appropriate tempo, assisting PAC. • Verbalizes checklist requirement for EPs in a timely manner. • Stows checklist by 200 feet or upon completion as directed.
8. Radio Procedures	
<ul style="list-style-type: none"> • Provide verbal communications using helicopter radios during a mission. • Select appropriate radio, tune appropriate frequency, and execute correct procedure to transmit. • Prioritize radio transmissions in a multiple communications environment. 	<ul style="list-style-type: none"> • Verbalizes concise, professional, effective properly formatted radio calls using standard terminology. • Recognizes and acknowledges all communications directed to helicopter or aircrew. • Asks for and provides clarification when necessary. • Explains the purpose, format, and content of radio calls for a given situation.
9. Ground Operations	
<ul style="list-style-type: none"> • Perform pre-flight duties. • Move helicopter to and from parking area, as required. • Perform post-flight duties. 	<ul style="list-style-type: none"> • Complies with CNAF-M 3710.7, NATOPS, FTI, local SOPs, and training directives. • Inspects and properly wears personal equipment.

BEHAVIOR STATEMENT	STANDARDS
10. Departure Procedures	
<ul style="list-style-type: none"> • Execute departure brief and procedures prior to commencing departure. • Transition from takeoff location to en route environment. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Provides appropriate brief to crew for departure. • Complies with appropriate departure instructions, clearances, and/or procedures. • Achieves assigned and required headings within 10 degrees, altitudes within 100 feet, airspeeds within 10 KIAS, and intercepts within ± 5 radials of assigned radial and ± 0.5 DME of assigned DME. • Makes appropriate radio calls, frequency changes, and NAVAID adjustments.
11. En route Procedures	
<ul style="list-style-type: none"> • Calculate planned time and fuel computations to safely and efficiently accomplish the mission. • Conduct en route flight procedures. 	<ul style="list-style-type: none"> • Complies with FTIs, FLIPs, NATOPS FAR, and CNAF M-3710.7 guidance and procedures. • Effectively uses ATC, FSS, PMSV, ATIS, and available helicopter systems, as required. • Maintain awareness of en route considerations necessary for successful mission execution. • Updates present position while remaining established on desired flight path when navigating VFR. • Maintains course centerline between all NAVAIDs, fixes, and IFR checkpoints. Maintains within ± 3 radials of desired radial, and within ± 1.5 NM of GPS centerline, as appropriate. • Effectively plans for next phase of flight and takes appropriate actions prior to transitioning out of en route portion of flight.

BEHAVIOR STATEMENT	STANDARDS
12. Terminal Procedures	
<ul style="list-style-type: none"> • Transition from the en route portion of a flight to landing at an airfield or landing area. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTIs, and local SOP guidance and procedures. • Acquires necessary information for commencement of terminal procedures. • Establishes required communication with appropriate agencies in support of terminal procedures. • Complies with controlling agency or entity's instructions in a timely manner. • Establishes an appropriate flight path and landing profile for the terminal area and landing site utilizing appropriate visual references and/or pattern procedures. • Follows required visual approach guidance as appropriately (i.e., VASI, PAPI, and modified normal approach).
13. Wave-off (Power-On)	
<ul style="list-style-type: none"> • Abort a transition to landing or a descent during a power-on maneuver. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Makes appropriate radio and ICS calls. • Initiates smooth, coordinated control inputs, increasing collective smoothly without exceeding NATOPS limits. • Ensures twist grip is in the FLT position. • Ensures safe flight path throughout the maneuver, remaining prepared for an emergency landing in the event of a power loss. • Expeditiously arrests Rate of Descent (ROD) and transitions to a positive ROC while maintaining a 70-KIAS attitude in balanced flight.

BEHAVIOR STATEMENT	STANDARDS
14. Wave-off (Power-Off)	
<ul style="list-style-type: none"> • Abort a simulated EP or autorotative descent during a power-off maneuver. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Makes appropriate radio and ICS calls. • Initiates smooth, coordinated control inputs, increasing collective smoothly without exceeding NATOPS limits. • Ensures collective is full down prior to increasing twist grip (time permitting). • Ensures safe flight path clearing the helicopter of traffic and obstacles throughout the maneuver, remaining prepared for an emergency landing in the event of a power loss. • Expeditiously arrests ROD and transitions to a positive rate of climb while maintaining a 70-KIAS attitude in balanced flight.
15. SAS Off Flight	
<ul style="list-style-type: none"> • Maintain basic air work parameters while executing turns, climbs, or descents without the aid of the SAS, solely referencing the flight instruments. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Begins when the SAS is secured and ends when the SAS is turned on. • Maintains altitude ± 150 feet, heading ± 15 degrees, and airspeed ± 15 KIAS.

BEHAVIOR STATEMENT	STANDARDS
FAMILIARIZATION STAGE	
16. Familiarization Level Speed Change	
<ul style="list-style-type: none"> • Execute a level transition between airspeeds. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Begins when established at assigned altitude, heading, and airspeed and ends when the helicopter returns to the original parameters. • Clears helicopter for traffic prior to commencing maneuver. • Initiates smooth, coordinated control inputs to establish appropriate and consistent deceleration and acceleration to achieve specified airspeeds. • Maintains constant heading ± 10 degrees, constant altitude ± 100 feet, and does not overshoot desired indicated airspeed by more than 10 KIAS. • Maintains balanced flight throughout maneuver. • Stabilizes, momentarily, at each airspeed checkpoint, then smoothly transitions, as required.
17. Familiarization Turn Pattern	
<ul style="list-style-type: none"> • Execute coordinated turns at various AOBs for specific amounts of heading change. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Clears helicopter for traffic prior to commencing maneuver. • Initiates smooth, coordinated control inputs to establish appropriate AOB. • Maintains constant AOB ± 10 degrees, constant airspeed ± 10 KIAS, constant altitude ± 100 feet, and rollout of turns ± 5 degrees of desired heading. • Maintains balanced flight throughout maneuver. • Initiates reversal using smooth, coordinated control inputs.

BEHAVIOR STATEMENT	STANDARDS
18. Single Axis Inputs	
<ul style="list-style-type: none"> • Demonstrates helicopter response in forward flight and in a hover using single axis flight control manipulations. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Begins with the first flight control input and ends when the helicopter returns to a stable flight regime. • In a hover, begins with the first flight control input while established in a stable hover and ends when the helicopter returns to a stable hover after the completion of all the inputs. • In forward flight, begins with the first flight control input while established in straight and level flight and ends when the helicopter returns to straight and level flight after the completion of all the inputs. • Smoothly adds inputs.
19. Course Rules	
<ul style="list-style-type: none"> • Navigate local operating area. • Identify required checkpoints in flight. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Recalls required altitudes, airspeeds, radios frequencies, transponder codes, and routes of flights for all local area course rules. • Correctly identifies course rules checkpoints.
20. Vertical Takeoff	
<ul style="list-style-type: none"> • Maneuver helicopter vertically from a landed condition to a 3-foot AGL hover. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Ascends at a rate commensurate with conditions and skill. • Properly adjusts control inputs throughout maneuver in response to helicopter movements and winds. • Stabilizes helicopter within 1 foot of a 3-foot AGL hover. • Maintains helicopter nose alignment within 10 degrees of desired heading. • Maintains helicopter position over takeoff point.

BEHAVIOR STATEMENT	STANDARDS
21. No-Hover Takeoff	
<ul style="list-style-type: none"> • Transition from a landed state to forward flight, in a continuous maneuver without establishing a hover. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Smoothly coordinates collective pull with cyclic and pedals throughout maneuver, without exceeding FTI torque limit. • Maintains heading alignment within 10 degrees throughout the maneuver.
22. Maximum Load Takeoff	
<ul style="list-style-type: none"> • Execute power-limited takeoff maneuver simulating maximum helicopter loading requiring near maximum power available. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Conducts appropriate clearing turn prior to executing maneuver, identifying traffic that could affect helicopter maneuver. • Accounts for wind direction and speed prior to initiating maneuver. • Does not exceed assigned NG until complete with the maneuver. • Safely accelerates to 40 KIAS at or below 10 feet AGL.
23. Obstacle Clearance Takeoff	
<ul style="list-style-type: none"> • Climb vertically to clear barriers in the flightpath using a maximum performance takeoff. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Begins when on deck with collective full down and ends when transitioning through normal takeoff climb out parameters. • Conducts power check to ensure at least 15 percent power margin and increases power smoothly to maximum available for takeoff. • Maintains heading alignment ± 5 degrees, clears obstacle with at least 10 feet of clearance, and maintains within helicopter limitations. • Lifts vertically until clear of obstacles and smoothly pushes the cyclic forward to gain airspeed, maintaining power until reaching 70 KIAS.

BEHAVIOR STATEMENT	STANDARDS
24. Transition to Forward Flight	
<ul style="list-style-type: none"> • Transition from a stationary position through translational lift to establish forward flight. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Conducts appropriate clearing turn prior to commencing transition. • Properly accounts for wind direction and speed with appropriate control adjustments during transition. • Executes FTI procedures within ± 5 feet and ± 5 KIAS of checkpoints. • Maintains within 10 degrees of takeoff heading.
25. Hover	
<ul style="list-style-type: none"> • Maintain the helicopter in a zero ground speed, stable position over an assigned ground reference point at a consistent altitude. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Maintains 3-foot AGL skid height ± 1 foot. • Maintains heading ± 10 degrees. • Maintains helicopter position directly over desired ground reference point. • Makes appropriate corrections for drift, yaw, and altitude changes. • Properly accounts for environmental conditions and helicopter weight and power available. • Maintains obstacle, personnel, and helicopter awareness.

BEHAVIOR STATEMENT	STANDARDS
26. Hover Turns	
<ul style="list-style-type: none"> • Conduct a maneuver at hover altitude in which the nose of the helicopter is rotated either left or right while maintaining position over a reference point on the surface. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Begins when the helicopter starts to turn and ends when the helicopter returns to the original heading after 360 degrees of turn. • Accounts for wind direction and speed prior to commencing turn. • Initiates smooth, coordinated control inputs to achieve a controlled constant rate of turn. • Maintains constant rate of turn. Rate of turn commensurate with skill. Maintains 3-foot AGL skid height ± 2 feet. • Properly identifies surrounding traffic and accounts for them prior to maneuvering helicopter.
27. Hover Taxi	
<ul style="list-style-type: none"> • Maneuver the helicopter in ground effect, usually below translational lift airspeed. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Accounts for wind direction and speed when initiating taxi. • Initiates coordinated, smooth control inputs to change speed, heading, and altitude. • Maintains 3-foot AGL skid height ± 2 feet, within ± 10 degrees of heading, and maintains alignment ± 3 feet of centerline and at a speed commensurate with safety and pilot skill. • Smoothly transitions to a hover or to forward flight.

BEHAVIOR STATEMENT	STANDARDS
28. Square Patterns	
<ul style="list-style-type: none"> Execute a square pattern maneuver at hover altitude. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Accounts for wind direction and speed prior to commencing maneuver. Initiates helicopter movement using smooth, coordinated control inputs appropriate to environmental conditions and desired helicopter motion. Maintains 3-foot AGL skid height ± 2 feet, heading alignment ± 10 degrees, and helicopter alignment ± 3 feet of flight path centerline. Maintains appropriate visual scan resulting in appropriately anticipating control input requirements for maneuver execution.
29. Normal Approach	
<ul style="list-style-type: none"> Execute a normal approach maneuver. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Begins with initial power reduction abeam the landing location and ends when stable in a hover or transitioning to land. Executes profile with near constant AOB and with appropriate corrections. Initiates smooth, coordinated control inputs to establish and maintain normal approach profile. Accounts for winds when flying normal approach profile, initiating appropriate corrections and adjustments to arrive at the landing site. Maintains desired profile ± 50 feet, ± 10 KIAS, and using 10–20-degree glideslope. Manages energy state effectively to avoid steep approaches, high rates of descent, or excessive closure rates.

BEHAVIOR STATEMENT	STANDARDS
30. Steep Approach	
<ul style="list-style-type: none"> Execute a transition to landing using a steeper than normal glideslope for power management and/or obstacle avoidance. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Initiates a smooth transition to enter a steep approach profile, while maintaining a safe profile that does not exceed ± 50 feet, ± 10 KIAS, and 15–25-degree glideslope en route to landing. ROD does not exceed 500 fpm ± 200 fpm. Executes profile with near constant AOB and with appropriate corrections. Accounts for winds and airspeed when commencing the transition, making appropriate smooth, coordinated control inputs to intercept the steep approach profile. Manages energy state effectively to avoid high rates of descent or excessive closure rates. Effectively anticipates power requirements to arrest rates of closure and rates of descent, avoiding over controlling prior to landing.
31. Quick Stop	
<ul style="list-style-type: none"> Execute a coordinated deceleration. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Initiates smooth, coordinated control inputs to establish a level, decelerating flight profile. Maintains 50 feet AGL ± 10 feet and decelerates to 45 KIAS. Maintains ± 10 KIAS. Maintains constant flight path. Initiates smooth, coordinated control inputs to transition to 70 KIAS climb. Accounts for winds and adjusts control inputs appropriately throughout maneuver.

BEHAVIOR STATEMENT	STANDARDS
32. Vertical Landing	
<ul style="list-style-type: none"> • Maneuver helicopter vertically from a hover to a landing. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Initiates coordinated control inputs to smoothly transition to the touchdown with no sideward drift or yaw prior to touchdown. • Descends at a rate commensurate with conditions and skill. • Properly adjusts control inputs throughout maneuver in response to helicopter movements and winds. • Maintains helicopter nose alignment within 10 degrees of desired heading. • Maintains helicopter position over desired landing point. • Accounts for environmental conditions, helicopter weight and power available, and landing surface when landing. • After touchdown, smoothly lowers collective to the full down position.
33. No-Hover Landing	
<ul style="list-style-type: none"> • Execute transition to a zero-airspeed touchdown landing that does not use a hover in order to minimize power requirement and avoid rotor wash-related reduced visibility. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Accounts for environmental conditions, helicopter weight and power available, and landing surface when transitioning to landing profile. • Initiates landing using smooth, coordinated control inputs to smoothly transition to the touchdown landing. • Establishes a landing profile with no sideward drift or yaw prior to touchdown, and lands with skids in a level attitude. • Manages energy effectively to land the helicopter with minimal or no forward movement and does not result in a vertical landing from a hover.

BEHAVIOR STATEMENT	STANDARDS
34. Simulated Engine Failure in a Hover	
<ul style="list-style-type: none">• Execute an autorotation from a hover in response to a simulated engine failure.	<ul style="list-style-type: none">• Complies with NATOPS, FTI, and SOP guidance and procedures.• Initiates timely, smooth, coordinated control inputs in response to simulated engine failure initiation.• Does not move collective until ready to cushion the autorotation landing.• Eliminates yaw and all lateral and aft drift using smooth control inputs.• Initiates collective pitch increase appropriately for the helicopter sink rate and remaining N_R, resulting in a safe autorotation landing.• Maintains a skid level attitude and accepts minimal forward drift at touchdown.• After landing, smoothly lowers collective to full down position.

BEHAVIOR STATEMENT	STANDARDS
35. Power Recovery Autorotation	
<ul style="list-style-type: none"> • Execute an autorotation maneuver in a power-on condition. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Accounts for environmental conditions and helicopter weight and power available prior to executing maneuver. • Verifies crew is set prior to initiating maneuver. • Accounts for wind speed and direction and adjusts flight path accordingly. • Clears intended point of landing properly accounting for traffic, obstacles, and suitability of landing site. • Ensures helicopter is no slower than 80 KIAS before initiating maneuver and is no lower than 600 feet AGL for a straight-in, 800 feet AGL for a 90-degree, and 1,000 feet AGL for a 180-degree autorotation. • Initiates smooth, coordinated control inputs to enter and fly the maneuver maintaining balanced flight throughout. • Maintains N_R within NATOPS limits, and properly anticipates needed collective pitch changes. • Establishes helicopter on landing course line no lower than 300 feet AGL. • Executes flare and recovery commensurate with environmental conditions and helicopter weight to arrive over a safe landing area in a 5–15 knot hover taxi.

BEHAVIOR STATEMENT	STANDARDS
36. Full Autorotation	
<ul style="list-style-type: none"> • Execute an autorotation maneuver in a power-off condition. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Verifies crew is set prior to initiating maneuver. • Accounts for environmental conditions and helicopter weight and power available prior to executing maneuver. • Clears intended point of landing, properly accounting for traffic, obstacles, and suitability of landing site. • Accounts for wind speed and direction and adjusts flight path accordingly. • Ensures helicopter is no slower than 80 KIAS before initiating maneuver and is no lower than 600 feet AGL for a straight-in, 800 feet AGL for a 90-degree, and 1,000 feet AGL for a 180-degree autorotation. • Initiates smooth, coordinated control inputs to enter and fly the maneuver maintaining balanced flight throughout. • Maintains N_R within NATOPS limits, and properly anticipates needed collective pitch changes. • Establishes helicopter on landing course line no lower than 300 feet AGL.

BEHAVIOR STATEMENT	STANDARDS
37. NVG Knowledge/Procedures	
<ul style="list-style-type: none"> • Demonstrates in-depth knowledge of NVG operations, parts and functions, procedures, emergencies, and requirements during flight operations. 	<ul style="list-style-type: none"> • Indicates knowledge of CNAF M-3710.7, NATOPS, FTI, and SOP guidance and procedures for NVG. • Indicates knowledge of safe and effective use of NVGs. • Indicates knowledge of light effects, atmospheric effects, and associated light level effects on NVG performance. • Indicates knowledge of the proper use of helicopter interior and exterior lighting when on NVGs. • Indicates knowledge of Solar Lunar Almanac Prediction (SLAP) data and how to use it for NVG mission planning. • Indicates knowledge of proper NVG scan patterns during flight operations.
38. Goggle/De-Goggle Procedures	
<ul style="list-style-type: none"> • Execute goggle and de-goggle procedures. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Demonstrates proper goggle and de-goggle procedures in approved flight regime per the FTI and local SOPs. • Able to goggle and de-goggle in a timely fashion with regard to safety of flight. • Sets interior and exterior helicopter lighting for aided and unaided flight, as appropriate.

BEHAVIOR STATEMENT	STANDARDS
39. NVG Malfunctions	
<ul style="list-style-type: none"> • Execute NVG malfunction procedures when the IP turns off SNA NVGs. 	<ul style="list-style-type: none"> • Complies with FTI, Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) NVD Manual, and SOP guidance and procedures. • Passes controls to the copilot to troubleshoot. • Maintains helicopter air work under control and safely maneuvers away from obstacles. • Transitions to an instrument scan and communicates the NVG malfunction to the flight crew. • Demonstrates knowledge of NVG battery failure and NVG tube failure.
INSTRUMENT STAGE	
40. Instrument Takeoff	
<ul style="list-style-type: none"> • Conduct takeoff procedures and transition to forward flight without reference to a visible horizon. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Maintains takeoff torque ± 5 percent. • Smoothly accelerates to appropriate climb speed. • Maintains nose alignment with runway or takeoff heading. • Climbs at 70 KIAS ± 5 knots.
41. Level Speed Change	
<ul style="list-style-type: none"> • Execute a level transition between airspeeds. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Initiates smooth, coordinated control inputs to establish appropriate and consistent deceleration and acceleration to achieve specified airspeeds. • Maintains constant heading ± 10 degrees, constant altitude ± 100 feet, and does not overshoot desired indicated airspeed by more than 10 KIAS. • Maintains balanced flight throughout maneuver. • Stabilizes, momentarily, at each airspeed checkpoint, then smoothly transitions, as required.

BEHAVIOR STATEMENT	STANDARDS
42. Vertical S-1 Pattern	
<ul style="list-style-type: none"> Execute a coordinated transition to descend or climb for 1 minute and 500 feet of altitude change followed by transitioning back to the starting altitude while maintaining constant heading and airspeed in balanced flight. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Initiates smooth, coordinated control inputs to establish appropriate rate of climb or descent. Maintains constant heading ± 10 degrees, constant airspeed ± 10 KIAS. Maintains balanced flight throughout maneuver. Checks progress of climb or descent every 15 seconds and makes appropriate control inputs to adjust parameters. Completes maneuver ± 75 feet of desired altitude.
43. Turn Pattern	
<ul style="list-style-type: none"> Execute coordinated turns at various AOBs for specific amounts of heading change while maintaining constant altitude and airspeed in balanced flight. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Initiates smooth, coordinated control inputs to establish appropriate AOB. Maintains constant AOB ± 5 degrees, constant airspeed ± 10 KIAS, constant altitude ± 100 feet, and rollout of turns ± 5 degrees of desired heading. Maintains balanced flight throughout maneuver. Initiates reversal using smooth, coordinated control inputs at one-half the AOB in degrees of heading prior to the desired heading.

BEHAVIOR STATEMENT	STANDARDS
44. Oscar Pattern	
<ul style="list-style-type: none"> Execute a coordinated transition requiring altitude change while doing an SRT for 2 minutes, resulting in 1,000 feet of altitude change and 360 degrees of heading change, followed by a transition back to starting heading and altitude. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Initiates smooth, coordinated control inputs to establish a standard rate of turn and desired rate of climb or descent. Maintains an SRT \pmone-half needle width, constant airspeed \pm10 KIAS. Maintains balanced flight throughout maneuver. Checks progress of climb or descent every 15 seconds and makes appropriate control inputs to adjust parameters. Completes maneuver \pm75 feet of desired altitude and \pm10 degrees of desired heading.
45. Unusual Attitude Recovery	
<ul style="list-style-type: none"> Execute a recovery from an unusual attitude. 	<ul style="list-style-type: none"> Complies with NATOPS, FTI, and SOP guidance and procedures. Recognizes deviations and/or unusual attitude and executes appropriate procedures for instrument panel condition. Initiates verbal communication or assumes controls as required for given scenario. Maintains smooth and positive helicopter control. Does not allow helicopter to decelerate below 40 KIAS.

BEHAVIOR STATEMENT	STANDARDS
46. Non-Precision Approach	
<ul style="list-style-type: none"> • Execute an instrument approach using non-precision instruments and procedures. 	<ul style="list-style-type: none"> • Complies with CNAF M-3710.7, NATOPS, FTI, INAV WB, DoD FLIP, Instrument NATOPS, and applicable FAR/AIM guidance and procedures. • Conducts an approach brief prior to commencing an approach. • Obtains appropriate information, and accounts for current weather, winds, runway options, and available approaches when selecting an approach. • Once cleared for the approach and prior to final approach course, slows to 90 KIAS ± 5 KIAS, and maintains assigned altitude ± 75 feet. • Initiates timing ± 5 seconds of required start and maintains awareness of timing throughout the approach, as required. • Maintains ± 5 KIAS of approach speed and remains on final approach course ± 2 radials for VOR/TACAN procedures, or ± 2 dots for RNAV/Localizer procedures from FAF to MAP. • Descends no lower than MDA +50–0 feet until at MAP or until cleared to descend (by tower controller, or until visual of the runway for non-towered airfields). • Exercises effective CRM with aircrew. • Executes appropriate transition upon reaching the MAP. • Selects the correct flight path and maneuvers the helicopter safely to intercept the landing profile. • Complies with controller instructions in a timely manner.

BEHAVIOR STATEMENT	STANDARDS
47. Modified Normal Approach	
<ul style="list-style-type: none"> • Execute a transition to landing from a nonstandard pattern arrival path, intercepting the normal approach profile prior to landing. 	<ul style="list-style-type: none"> • Complies with NATOPS, FTI, and SOP guidance and procedures. • Maintains a safe profile that does not exceed ± 50 feet, ± 10 KIAS, and 10–20 degrees glideslope of the desired flight path to landing. • Accounts for winds, airspeed, and altitude when commencing the transition to landing and makes appropriate smooth, coordinated control inputs to intercept the normal approach profile. • Manages energy state effectively to avoid steep approaches, high rates of descent, or excessive closure rates. • Properly assesses traffic and orientation to landing site, obstacles, and winds when determining how to maneuver to intercept the normal approach profile. • Does not exceed any NATOPS limit or accept any unsafe condition.

Chapter IX

MASTER MATERIALS LIST

1. Individually Issued Materials

Pub ID	Title	QTY	Stage Manager
CNATRA P-431	NVG FTI	1	NVG
CNATRA P-470	Genesys PFD/MFD Avionics Trainer Self-Study 1	1	Ground
CNATRA P-471	Genesys PFD/MFD Day Familiarization Avionics Trainer Self-Study 2	1	Ground
CNATRA P-472	Genesys PFD/MFD Basic Instrument Avionics Trainer Self-Study 3	1	Instrument
CNATRA P-473	Genesys PFD/MFD VNAV Avionics Trainer Self-Study 4	1	Navigation
CNATRA P-474	Genesys PFD/MFD RI Avionics Trainer Self-Study 5	1	Instrument
CNATRA P-475	Practice Cockpit Management Self-Study	1	Ground
CNATRA P-476	Helicopter Fundamentals and Basic Aerodynamics Reference Book	1	Ground
CNATRA P-477	Day Familiarization FTI	1	Familiarization
CNATRA P-478	Night Familiarization FTI	1	Familiarization
CNATRA P-480	BI & RI FTI	1	Instrument
CNATRA P-481	Logistics Sea/SAR FTI	1	Terrain Flight
CNATRA P-482	Instrument Workbook	1	Instrument
CNATRA P-484	Formation Flight FTI	1	Formation
CNATRA P-486	AMO FTI	1	Ground
COMTRAWINGFIVEINST 3710.8 (series)	Rotary-Wing Operations Procedures (RWOP) Manual	1	N/A
COMTRAWINGFIVEINST 3710.9	TH-57 In-Flight Guide	1	N/A
NAVAIR 01-H73A-1	TH-73 NATOPS Flight Manual	1	N/A

Pub ID	Title	QTY	Stage Manager
NAVAIR 01-H73A-1B	TH-73 NATOPS Pocket Checklist	1	N/A
TRAWING FIVE 46C	Student Instrument Approach Plates	1	Instrument

2. Classroom Requirements

- a. One classroom: Each classroom has One (1) Interactive multimedia podium; One (1) 120” smart board; 18 eDesks with USB charging, 120a plugs, CAT5 plugs; printer; computer rack; commercial and NMCI Wi-Fi.
- b. One (1) PTT room: One (1) Interactive multimedia podium; One (1) 120” smart board.
- c. One (1) DAT room: One (1) Interactive multimedia podium; One (1) 120” smart board

3. Aircraft and Major Training Devices

- a. Two (2) TH-73A aircraft.
- b. One (1) Level 7 FTD.
- c. One (1) Level 6 FTD.
- d. Two (2) PTT CPT mixed reality devices.
- e. Two (2) DAT.
- f. 2 Brief and debrief spaces with two (2) computer monitors; NMCI (T-SHARP) computer.

4. Training References

Source	Pub ID	Title	Web site/Digital Location
CNAF	CNAF M-3710.7	NATOPS General Flight and Operation Instructions Manual	https://flankspeed.sharepoint-mil.us/sites/CPF-CNAP-HQ/N004/directives/Forms/AllItems.aspx?FilterField1=Instruction%5Fx002d%5FType&FilterValue1=CNAF%20Instruction&FilterType1=Choice&FilterDisplay1=CNAF%20Instruction&viewid=2b99db21%2De7c6%2D4825%2Dbaef%2D094d49f620d6
CNATRA	CNATRINST 1500.4K	Training and Administration Manual**	https://cpf.navy.deps.mil/sites/cnatra/Pages/Instructions.aspx
CNATRA	CNATRINST 1550.6F	Training Improvement Program*	https://cpf.navy.deps.mil/sites/cnatra/Pages/Instructions.aspx
FAA		FAA Aeronautical Chart Users' Guide	https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/aero_guide/
FAA	AC 90-66B	Non-Towered Airport Flight Operations	https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1032988
FAA	AC 90-114B	Automatic Dependent Surveillance-Broadcast Operations	https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1036989
FAA	FAA Order 8260.3D	United States Standard for Terminal Instrument Procedures (TERPS)	https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentid/1032731
FAA	FAA-H-8083-16B	Instrument Procedures Handbook	https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/instrument_procedures_handbook/
FAA	FAA-H-8083-21B	Helicopter Flying Handbook	https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/helicopter_flying_handbook/

Source	Pub ID	Title	Web site/Digital Location
FAA	FAA-H-8083-25B	Pilot's Handbook of Aeronautical Knowledge	https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/
FAA	FAR	Title 14 Aeronautics and Space Federal Aviation Regulations	https://www.faa.gov/regulations_policies/faa_regulations/
FAA	FAR AIM	FAR Aeronautical Information Manual (AIM)	https://www.faa.gov/air_traffic/publications/
GARMIN	190-02327-03	GTN-650 Pilots Guide	http://static.garmin.com/pumac/190-02327-03_b.pdf
MAWTS-1		MAWTS-1 NVD Manual (FOUO)***	https://mceits.usmc.mil/sites/mawts1
MAWTS-1	NTTP-3-22.3-ASTACSOP	USMC Assault Support Tactical SOP***	https://mceits.usmc.mil/sites/mawts1
NAVAIR	NAVAIR 00-80-T-112	NATOPS Instrument Flight Manual***	https://mynatec.navair.navy.mil/natechohme.htm
NAVAIR	NWP 3-22.5-SAR-TAC	SAR TACAID	https://www.public.navy.mil/airfor/srss/Documents/PUBS/NWP%203-22-5-SARTAC.pdf

**** Requires CAC Access, all SNAs authorized to have access.**

***** Requires CAC Access, U.S. SNAs authorized to have access. Foreign Military SNAs must request CNATRA approval for access to reference documents.**

***Training references requiring special access are not necessary to successfully complete the syllabus. Any information found in those documents is additional and is not to be used to as a basis for grading criteria for training standards.**

5. CNATRA Stage Manager Course Responsibilities

a. Ground Stage Manager

Event Code	Media Type	Title
GND0101M	SQDN	Check-in
GND0102M	Issue	Training Publications Issue
GND0201M	MIL	Aviation Safety
GND0301M	Self-Study	Rotary Reflection Essay
GND0401M	SQDN	Checkout
AER0101M	MIL	Helicopter Fundamentals and Aerodynamic Theories
AER0201M	CAI	Autorotation
AER0202M	CAI	Tail Rotor Considerations
SYS0101M	CAI	TH-73A Helicopter Overview
SYS0102M	CAI	Engine System
SYS0103M	CAI	Transmission Power Train
SYS0104M	CAI	Rotor and Flight Control Systems
SYS0105M	CAI	Hydraulic System
CR0101M	CAI	NDZ Course Rules

b. Day Familiarization Stage Manager

Event Code	Media Type	Title
DAY0101M	CAI	Checklists [Start Procedures]
DAY0102M	PTT	Day FAM Avionics Trainer Self-Study 1
CRM0101M	CAI	Crew Resource Management (CRM)
CRM0102M	MIL	Crew Resource Management
CRM0103M	MIL	Level A Annual Aeromedical Training
DAY0201M	CAI	Pre-flight Procedures
DAY0202M	SQDN	FAM 0
DAY2001M	FTD-6	Basic Cockpit Procedures
DAY3001M	FTD-7	Basic Flight/Integrated Scan
NAT0101M	Exam	NATOPS Open Book Exam
DAY4001M	TH-73A	Day Familiarization
DAY4002M	TH-73A	Day Familiarization Observe

c. Night Familiarization Stage Manager

Event Code	Media Type	Title
NGT0101M	MIL	NITE Lab
NGT3001M	FTD-7	Night/NVG Familiarization
NGT4001M	TH-73A	Night/NVG Familiarization
NGT4002M	TH-73A	NVG Familiarization Observe

d. Instrument Stage Manager

Event Code	Media Type	Title
BI0101M	CAI	Basic Instrument Maneuvers
BI0102M	CAI	Instrument Approach Procedures
BI2001M	FTD-6	Basic Instruments
BI4001M	TH-73A	Basic Instruments
BI4002M	TH-73A	Basic Instruments Observe

e. Formation Stage Manager

Event Code	Media Type	Title
FRM0101M	CAI	Formation Flight Overview
FRM0103M	CAI	Formation Maneuvers
FRM4001M	TH-73A	Formation Observe

APPENDIX A

AHTS AMO COURSE COMPLETION TRACKER

DONE	EVENT	MEDIA	EVENT NAME	DATE
<input type="checkbox"/>	GND0101M	SQDN	Check-in	
<input type="checkbox"/>	GND0102M	Issue	Training Publications Issue	
<input type="checkbox"/>	GND0201M	MIL	Aviation Safety	
<input type="checkbox"/>	AER0101M	MIL	Helicopter Fundamentals and Aerodynamic Theories	
<input type="checkbox"/>	SYS0101M	CAI	TH-73A Helicopter Overview	
<input type="checkbox"/>	SYS0102M	CAI	Engine System	
<input type="checkbox"/>	SYS0103M	CAI	Transmission Power Train	
<input type="checkbox"/>	SYS0104M	CAI	Rotor and Flight Control Systems	
<input type="checkbox"/>	SYS0105M	CAI	Hydraulic System	
<input type="checkbox"/>	CRM0101M	CAI	Crew Resource Management (CRM)	
<input type="checkbox"/>	CRM0102M	MIL	Crew Resource Management	
<input type="checkbox"/>	CRM0103M	MIL	Level A Annual Aeromedical Training	
<input type="checkbox"/>	DAY0101M	CAI	Checklists (Start Procedures)	
<input type="checkbox"/>	DAY0102M	PTT	Day FAM Avionics Trainer Self-Study 1	
<input type="checkbox"/>	AER0201M	CAI	Autorotations	
<input type="checkbox"/>	AER0202M	CAI	Tail Rotor Considerations	
<input type="checkbox"/>	CR0101M	CAI	NDZ Course Rules	
<input type="checkbox"/>	DAY2001M	FTD-6	Basic Cockpit Procedures	
<input type="checkbox"/>	DAY0201M	CAI	Pre-flight Procedures	
<input type="checkbox"/>	DAY0202M	SQDN	FAM 0	
<input type="checkbox"/>	DAY3001M	FTD-7	Basic Flight/Integrated Scan	
<input type="checkbox"/>	NAT0101M	Exam	NATOPS Open Book Exam	
<input type="checkbox"/>	DAY4001M	TH-73A	Day Familiarization	
<input type="checkbox"/>	DAY4002M	TH-73A	Day Familiarization Observe	
<input type="checkbox"/>	BI0101M	CAI	Basic Instrument Maneuvers	
<input type="checkbox"/>	BI0102M	CAI	Instrument Approach Procedures	
<input type="checkbox"/>	BI2001M	FTD-6	Basic Instruments	
<input type="checkbox"/>	BI4001M	TH-73A	Basic Instruments	
<input type="checkbox"/>	BI4002M	TH-73A	Basic Instruments Observe	

DONE	EVENT	MEDIA	EVENT NAME	DATE
<input type="checkbox"/>	NGT0101M	MIL	NITE Lab	
<input type="checkbox"/>	NGT3001M	FTD-7	Night/NVG Familiarization	
<input type="checkbox"/>	NGT4001M	TH-73A	Night/NVG Familiarization	
<input type="checkbox"/>	NGT4002M	TH-73A	Night/NVG Familiarization Observe	
<input type="checkbox"/>	FRM0101M	CAI	Formation Flight Overview	
<input type="checkbox"/>	FRM0102M	CAI	Formation Maneuvers	
<input type="checkbox"/>	FRM4001M	TH-73A	Formation Observe	
<input type="checkbox"/>	GND0301M	Self-Study	Rotary Reflection Essay	
<input type="checkbox"/>	GND0401M	SQDN	Checkout	