DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
CNATRA
250 LEXINGTON BLVD SUITE 102
CORPUS CHRISTI TX 78419-5041

CNATRAINST 1542.54K
N3111
23 JAN 2001

CNATRA INSTRUCTION 1542.54K

Subj: PRIMARY STUDENT NAVAL FLIGHT OFFICER/NAVIGATOR TRAINING CURRICULUM

1. Purpose. To promulgate the curriculum for training student Naval Flight Officers (NFOs), and USAF Navigators in the Primary phase of Undergraduate Naval Flight Officer/Navigator training.

2. Cancellation. CNATRAINST 1542.54J (Primary); MCG P-854; ATFs CNATRA 1542/1089-1090.

3. Action. This instruction is effective for implementation upon receipt. No changes will be made without written authorization of the Chief of Naval Air Training (CNATRA).

4. Forms. The CNATRA forms required by this directive may be procured by submitting a Printed Materials Request, CNET-GEN 5604/1, to CNATRA (N1221). The CNATRA-GEN forms may be obtained through normal supply channels or by submitting a DD Form 1348 to Commanding Officer, Naval Air Station (NAS), Pensacola, Supply Department (Code 19560), Pensacola, Florida 32508-5002 as appropriate.

J. GARCIA
Chief of Staff

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COURSE DATA

1. Course Title. Primary Student Naval Flight Officer and Navigator Training.

2. Course Identification Number. Primary - Q-2D-0012.

3. Course Mission. Primary Undergraduate Student Naval Flight Officer/Navigator Training is designed to provide commissioned officers in the U.S. Navy, U.S. Marine Corps, and U.S. Air Force and international services with the skills and knowledge required to safely aviate, navigate, communicate and manage aircraft systems and aircraft in visual and instrument conditions. Primary skill and performance levels required are outlined in this Instruction. Successful completion of the Primary phase of training qualifies graduates for entrance into Intermediate Naval Flight Officer Training or Interservice Undergraduate Navigation Training.

4. Course Length (Optimum). 69.25 training days; 13.86 training weeks; 98 calendar days.

5. Location. NAS Pensacola (Sherman Field), Pensacola, FL 32508.

6. Class Capacity. Variable, maximum 40, minimum 10, optimum 17.

7. Instructor Requirements. As determined by Chief of Naval Operations (CNO) approved planning factors.

8. Course Curriculum Manager. Commander, Training Air Wing SIX.

9. Quota Management Authority. Chief of Naval Air Training and Commander, Air Education and Training Command.

10. Quota Control. Chief of Naval Operations and Chief of Staff of the Air Force.

11. Implementation Date. Upon receipt.

12. Personnel and Rating Eligible. Officers assigned by the Chief of Naval Personnel, the Commandant of the Marine Corps and Commander of United States Air Force Military Personnel.

13. Obligated Service. In accordance with applicable service directives.

14. NOBC/NEC Earned. None.

15. Physical Requirements. As specified by applicable service directives.

16. Security Clearance Required. None.

17. Prerequisite Training. Aviation Preflight Indoctrination Training, Q-9B-0020.

18. Follow-On Training. Intermediate Student Naval Flight Officer/Navigator Training, Q2D0027, and Joint Undergraduate Navigator Training (JUNT) Course No. J-NA-AT.

19. Primary Instructional Methods. Lecture; self and group-paced; flight tutorial.

20. Student Performance Measurement

a. Academic. Criterion reference testing is used to determine course grades. One end-of-course examination of 25 to 100 questions will determine a course grade. When course duration or content make this impractical, course examinations are divided into parts which are administered where appropriate during the course. All grades within each course will be combined to determine the course grade. A final academic grade is derived by combining all course grades using Navy Standard score normative reference measurement procedures.

b. Flight and Trainer. All units are subjectively graded using normative reference measurement procedures. Flight and trainer grade averages are maintained separately.

c. Final Phase Grades. Final Academic, Flight Support, Flight and Simulator grades are algebraically combined and applied to the Navy Standard Scoring System.

d. Flight Support courses. All Flight Support courses contain essential information a student requires to successfully complete this curriculum. The nature of this information is combined with overall syllabus events and therefore is continually tested. An example is UHF and Pilot communications. This is an essential aviation element that does not lend itself well to the academic testing environment.

21. Application of Standards to the Measurement of Student Performance. The standards outlined in Section I are used to evaluate the student's performance of individual items. The standards serve as a guide and describe the envelope or parameters in which a student must characteristically perform to satisfactorily meet the training objectives. Procedural knowledge and application must be in accordance with applicable directives or manuals. Final judgment regarding the satisfactory performance of any item rests with the instructor who is capable of assessing the factors affecting the conditions under which the performance is measured.

22. Drop on Request (DOR) Policy. All Naval Air Training Command (NATRACOM) courses are voluntary. Accordingly, students have the option to individually request termination of training. Any time the student makes a statement such as "I quit" or "DOR", he or she shall be immediately removed from the training

environment and referred to the division or training officer for administrative action.

23. Training Time Out Policy. Any time a student or instructor has apprehension concerning his or her personal safety or that of another, he or she shall signal for a "Training Time Out" to clarify the situation and receive or provide additional instruction as appropriate. "Training Time Out" signals other than verbal, shall be appropriate to the training environment and clearly indicated in the Master Curriculum Guide, instructor lesson topic guides and student guides. Appropriate visual signals for this curriculum are: 1) the cut signal, 2) hold signal (raised clenched fist or raised crossed forearms with clenched fists), or 3) stop signal (arm extended in front, open hand, palm out). Care must be taken not to misconstrue these signals as aircraft handling signals or vice versa.

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CURRICULUM GUIDELINES

1. Sequencing. The Primary phase consists of two stages: Familiarization (FAM) and Airways Navigation (ANAV). Module 0 gets the students checked-in and indoctrinated in Undergraduate Student Naval Flight Officer/Navigator training. Module 1 contains Primary flight support instruction, T-34C cockpit procedures simulator training and familiarization flight training. Module 2 contains Airways flight support instruction, Airways Navigation Simulators, Airways Navigation Trainers and Airways Navigation Flight Training. The following guidelines shall be followed:

a. Module O events may be given at anytime during Primary training.

b. Module 1 events are sequenced in the order that the instruction should be given. As a minimum, Undergraduate Student Naval Flight Officer/Navigators must receive all academic, flight support and simulators listed in the sequence of instruction prior to the FAM 1. FAM 5 (night) may be flown anytime after FAM 6X. For scheduling purposes, FAM 1-6X must be flown in sequence in stage with the exception of FAM 5 as noted above.

c. Module 2 events are sequenced in the order that the instruction should be given. As a minimum, Undergraduate Student Naval Flight Officer/Navigators must receive all academic, flight support and simulators listed in the sequence of instruction prior to the ANAV 1. For scheduling purposes, ANAV 1-6X must be flown in sequence in stage.

2. Briefing Time. Adequate briefing time shall be provided. Instructors shall give sufficient explanation of the requirements of each flight and shall thoroughly debrief/critique the student's performance. Students may not be briefed any earlier than 24 hours prior to the planned departure. Although students may be briefed early on fundamental techniques, all members of the flight or crew must be present for the NATOPS brief just prior to departure. The minimum items that must be briefed are as follows:

a. Weather

b. Sequence of events

c. Communication plan

d. Exceptions, omissions, additions, and substitutions to maneuvers and procedures described in the Flight Training Instruction (FTI) and the briefing guide for the specific curriculum flight

e. No radio (NORDO) procedures

f. Applicable emergency procedures.

3. Schedule Limitations

a. The student's working day from first scheduled event to last on-deck time (debrief included) shall not exceed 12 hours.

b. A minimum of 12 hours shall elapse between the student's last completed event/lecture and the first scheduled event/lecture of the following day.

c. The student's maximum work week is 6 days followed by 2 days off. Training air wing (TRAWING) commanders may waive this requirement on an individual basis within the guidance set forth in CNATRAINST 1500.4F.

d. Students will be limited to two events (flight/simulator) per day.

4. Flight Standardization. All flights outlined within this curriculum shall be conducted in accordance with the current T-34C NATOPS Flight Manual. All maneuvers outlined within this curriculum shall be conducted, without exception, in accordance with the current T-34C flight training instructions.

5. Solo Restrictions. Solo flight is not authorized.

6. Administration

a. FAMs 1-3 should be flown with the same instructor.

b. Aviation training forms (ATFs)

(1) A CNATRA ATF shall be completed in accordance with CNATRAINST 1500.4F, for each curriculum flight and simulator event. All items graded unsatisfactory, below average or above average shall be commented upon in the remarks section.

(2) ATFs shall be graded the same day the flight or simulator is flown.

(3) All items called for in the curriculum must be completed, no additional items may be added.

R) c. Warm-up Criteria

(1) A student shall be given an optional warm-up event if the student has not flown in seven calendar days and the time elapsed between curriculum flights is in the same stage. This optional warm-up is given to regain flight proficiency due to the layoff if below average or unsatisfactory performance in radar operations, visual navigation, or airmanship results from the delay. (R

(2) If a student with a layoff of greater than six days completes the event satisfactorily, the flight will count as a regular curriculum event, and the student will progress to the next event. (R

(3) Below average or unsatisfactory performance in preflight or procedural categories cannot be attributed to a flight layoff period. (R

(4) Warm-ups do not apply when progressing to a different aircraft or to a new stage. (A

(5) The instructor is required to state on the ATF the reasons for awarding a warm-up. (A

(6) Warmup guidance for students who have not flown for over 14 days is provided in CNATRAINST 1500.4F. (A

d. Extra Time. Extra time flights and extra instruction shall be governed by the limits prescribed in CNATRAINST 1500.4F.

e. Aviation Training Jacket Review. The following flights are considered progress checks and require a jacket review by the check instructor: FAM-6X and ANAV-6X. In addition, ATJ’s will be reviewed monthly by the student’s personal advisor noting any trends or problem areas.

f. Waiving Flights or Simulators. The flights and simulators listed are the minimum number to be completed by all students. Unless specifically authorized, no provisions of this curriculum shall be waived without authorization from the Chief of Naval Air Training.

g. Incomplete Flight. Refer to CNATRAINST 1500.4F for guidance.

h. Weather/Safety Pilots. No requirement for weather or safety pilots exists in this curriculum.

i. Emergency Procedures. Emergency procedures and handling of aircraft malfunctions must be learned in such a manner as to build the student’s confidence in the aircraft. An emergency procedures examination shall be successfully completed prior to Familiarization flights.

j. Flight Simulator Interchangeability. Flight and simulator events may not be interchanged without approval by the Chief of Naval Air Training.

6. Definitions. The following terms found in the flight curriculum description will be applied to flight training as defined in this instruction:

a. Discuss

Instructor:	Quiz the student on the applicable procedures, systems, or maneuvers.
Student:	Responsible for knowledge of the procedures prior to the event brief.
Item:	Graded with an "X" by the instructor in the grade columns on the Aviation Training Form (ATF), labeled "DI" in the "ID" column. If this is not available on the ATF, they should be graded in the most appropriate area (e.g., HW, PROC, or EP).

b. Brief

Instructor:	Brief the student on the applicable procedures.
Student:	Responsible for knowledge of the procedures prior to the event brief.
Item:	Not graded if **average**, but marked with "BRF" by the instructor in the grade columns on the ATF, labeled "B" in the "ID" column (if applicable). Graded if **other than average** with an "X" by the instructor on the ATF in the most appropriate area (e.g., HW, PROC or EP, if applicable).

c. Demonstrate

Instructor:	Perform the maneuver with precision and accompanying description.
Student:	Responsible for knowledge of the procedures prior to the event brief.
Item:	Not graded, but marked with "DEMO" by the instructor in the grade columns on the ATF, labeled "D" in the "ID" column.

d. Introduce:

Instructor: Coaches the student through the maneuver as necessary, and/or may demonstrate the maneuver.

Student: Responsible for knowledge of the procedures prior to the event brief and perform the maneuver with coaching as necessary.

Item: Graded with an "X" by the instructor in the grade columns on the ATF, labeled "I" in the "ID" column.

e. Practice

Instructor: Observe the student with minimal coaching; may also demonstrate the maneuver if necessary.

Student: Must perform maneuver with minimal coaching.

Item: Graded with an "X" by the instructor in the grade columns on the ATF, labeled "P" in the "ID" column.

f. Review

Instructor: Observe and grade the maneuver without coaching; airborne critique is encouraged.

Student: Expected to perform the maneuver without coaching and devoid of procedural errors. The level of performance must warrant progression to the next stage or phase of training.

Item: Graded with an "X" by the instructor in the grade columns on the ATF, labeled "R" in the "ID" column.

g. Non Graded

Instructor: Observe maneuver; item will be graded only if performed above average, below average or unsatisfactory.

Student: Expected to perform the maneuver without coaching and devoid of procedural errors. The level of performance must warrant progression to the next stage or phase of training.

Item: Not graded, but marked with **"NG"** if the student's performance for that maneuver was **average** by the instructor on the

ATF, labeled "NG" in the "ID" column. Graded with an **"X"** in the appropriate grade column if the student's performance for that maneuver was **other than average**.

h. Did Not Do

Instructor: A required item on the ATF, which was not done or completed for various reasons (i.e., weather, aircraft malfunctions, etcetera).

Student: Maintain and present a copy of the ATF to the instructor of the next like event so the next instructor is clear about all PGI/DND item(s).

Item: Not graded, but marked with "DND" by the instructor in the grade columns on the ATF. If the event is incomplete, an associated remark is required. One incomplete item constitutes an incomplete event.

i. Not Applicable Item

Not graded, but marked with "NA" by the instructor in the grade columns on the ATF. This is used **ONLY** for items in the following two different cases:
(1) **LABELED** on the ATF "Optional" or its equivalent.

(2) On authorized compressed/waived **set** of flights/events compressed into one flight/event (e.g., IUT Curriculum, Standard Primary Waivers, etcetera). In both of these two cases, the event shall be considered **COMPLETE**. If not within these two categories it is considered incomplete, refer to and use DND instead.

j. Previously Graded Item

Instructor: A maneuver previously graded on an Incomplete event. The item may be flown on the next attempt if fuel/time permits or if required in order to accomplish the previously "DND" item(s) (e.g., Ground Procedures, Taxi, Takeoff, etcetera). Each "PGI" item shall be graded **again** if the student's performance is anything other than average.

Student: If required to perform the maneuver again, expected to do so at the level shown in the "ID" column.

Item: Not graded, but marked with **"PGI"** by the instructor on the ATF in the appropriate grade column if the student's performance for that item was **average** or if it was not performed again. Graded with an **"X"** by the instructor on the ATF in the appropriate grade column if the student's performance for that item was **other than average**.

k. Not Observed — Normally used for student solo events. Instructor (ODO/FDO/RDO) shall brief the student thoroughly to ensure preparedness. The student is expected to perform the maneuver as briefed to the skill level stipulated in the review description above. Not graded, but marked with **"NOB"** by the ODO/FDO/RDO on the ATF Graded with an **"X"** in the appropriate grade column of the student's performance for that maneuver was **other than average**, as observed by a qualified instructor (i.e., ODO/FDO, RDO, Section/ Division Leader, etcetera).

l. S-Coded flights — Student instructional flights designated by the "S" (e.g., BI-1S) are flown in the flight simulator.

SECTION I

1. Training Hour Summary

FLIGHT TRAINING

STAGE	SYMBOL	EVENTS	HOURS	TOTAL HOUR
T-34C Familiarization	FAM	6	2.0*	10.5
T-34C Airways Navigation	ANAV	6	2.0	12.0
TOTALS		12		22.5

* FAM 1, 5, and 6 are 1.5 hours vice 2.0.

SIMULATORS/TRAINERS

STAGE	SYMBOL	EVENTS	HOURS	TOTAL HOURS
2B37 Cockpit Procedure Trainer	CPT	3	1.5	4.5
2B37 Instrument Navigation Simulator	OFT	4	1.5	6.0
Gbnt** Inst. Navigation Trainer	TP	8	2.0*	15.0
TOTALS		15		26.0

* TP 7 is 1.5 hours vice 2.0.
** GBNT is synonymous with the 2B47.

FLIGHT SUPPORT

SUBJECT	SYMBOL	PERIODS	TOTAL HOURS
Safety	SAF	2	1.5
Communications	COMM	4	7.0
Instrument Navigation	BINAV	10	19.6
Familiarization Preparation	FAMP	6	10.0
Air Crew Coordination	ACT	1	3.0
Airways Navigation Preparation	ANP	1	1.5
RIOT Training	RIOT	3	1.5
GBNT (2B47) Familiarization	TP 0	1	1.0
Bailout Training	BOT	1	3.0
T-34C Familiarization	FAM-0	1	3.0
TOTALS		30	51.1

ACADEMIC

SUBJECT	SYMBOL	PERIODS	TOTAL HOURS
Meteorology	MET	5	10.0
Flight Information Publications	FLIP	9	14.0
Flight Planning	FPLN	6	14.5
T-34C Aircraft Systems	NAMO	1	16.0
T-34C NATOPS	NATOPS	9	19.5
TOTALS		30	74.0

ADMINISTRATIVE

SUBJECT	SYMBOL	PERIODS	HOURS
Student Check-In	ADM	15	12.5
Simulator Indoctrination	ADM	1	1.0
Primary Graduation & Checkout	ADM	1	.5
TOTALS		17	14.0

2. Training Allocation By Module

MOD	FLIGHT HOURS/EVENTS	SIM/TRAINER HOURS/EVENTS	FLIGHT SUPP ACAD/ADMIN HOURS	Tc DAYS	Tt DAYS
0			14.0	2.33	2.80
1	10.5/6	4.5/3	83.5	26.77	32.12
2	12.0/6	21.5/12	41.6	28.61	34.33
TOTALS	22.5/12	26.0/15	139.1	57.71	69.25

3. Training Time Analysis

a. Calculation of Additional Training Time. In addition to the curriculum training time reflected in the Training Hour Summary, the following table represents the additional training time involved for each programmed classroom hour, flight or simulator. The "k" factor figures reflect the average time a student is involved in the direct learning process, either in preparation for, or utilizing training equipment, not specifically documented by specific curriculum hours.

ADDITIONAL TIME PER PROGRAM CURRICULUM HOUR (ch) or EVENT (e)

Training Area	Preparation & Study	Brief & Debrief	Preflight & Taxi	Total(k)
Flight (T-34C)	5.0	2.5	.6	8.1*
Trainer (GBNT)**	2.75	1.0		3.75*
Simulator (2B37)	3.5	1.0		4.5*

* training time per event
** GBNT is synonymous with the 2B47

Administrative time, transit time from activity to activity, meals, scheduling delays and military watch standing duties are not considered. The student training week is based on 6 hours of training per day, 5 days a week (30 hours). Computation of student training is based on the following formula:

ch = curriculum hours, used for all calculations except flights.
e = events, used only for flight events.
k = additional training time per curriculum hour or event.
Tc = Total Curriculum Time.

$$\frac{ch + ((ch \text{ or } e) \times k)}{6 \text{ (days) or } 30 \text{ (weeks)}} = Tc$$

The Tc calculated is the total time required to complete this phase of training.

b. Time to Train (Tt). The following factors are considered in computing Time to Train: weather, unsatisfactory events and associated delays, medical grounding and flight or simulator events canceled due to lack of instructor or equipment availability. The combination of these factors constitutes additional time required to train and is expressed as a percentage (_t) of the Curriculum Time (Tc). The _t for Primary training is 20 percent. The formula for computing Time to Train (Tt) is as follows:

$$Tc + (Tc \times \Delta t) = Tt$$

c. Primary Phase Training Time

Time to Train (Tc)

Training Area		Hours	Events	Tc Days	Tc Weeks
Flight:	FAM	10.5	6	9.85	1.97
	ANAV	12.0	6	10.10	2.02
SUBTOTAL a		22.5	12	19.95	3.99
Simulator:	GBNT	15.5	8	7.58	1.52
	CPT	4.5	3	3.00	.60
	OFT	6.0	4	4.00	.80
SUBTOTAL b		26.0	15	14.58	2.92
Academic & Flight Support		125.1	60	20.85	4.17
SUBTOTAL c		125.6	60	20.85	4.17
TOTALS	a	22.5	12	19.95	3.99
	b	26.0	15	14.58	2.92
	c	125.1	60	20.85	4.17
TOTALS		173.6	87	55.38	11.08
Administrative		14.0	17	2.33	.47
GRAND TOTAL Tc		187.6	104	57.71	11.55

d. Time to Train (Tt)

	Curriculum DAYS	WEEKS
Curriculum (Tc)	57.71	11.55
X _t (20%)	11.54	2.31
Time to Train (Tt)	69.25	13.86

4. MODULE SUMMARY

MODULE	FLIGHT	ACAD/ADMIN AND FLIGHT SUPPORT	SIMULATOR	TRAINER
0		ADM 1-17		
1	FAM 1-6X,	SAF 1-2, MET 1-5 FLIP 1-9, NATOPS 1-9, COMM 1-2, ACT 1, FAMP 1-6, NAMO, BOT 1, FAM 0	CPT 1-3,	
2	ANAV 1-6X	BINAV 1-10, COMM 3-4, ANP 1, FLPN 1-7, RIOT 1-3, TP 0	OFT 1-4	TP 1-8

CURRICULUM OUTLINE

MODULE 0

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 0-1	ADM 1	ADMINISTRATION PROCESS	1.0
MOD 0-2	ADM 2	CO'S WELCOME	.2
MOD 0-3	ADM 3	TRAINING AIDS ISSUE	.5
MOD 0-4	ADM 4	FLIGHT COMMANDER INTRODUCTION	.2
MOD 0-5	ADM 5	ACADEMIC TRAINING OFFICER INTRODUCTION	.5
MOD 0-6	ADM 6	SECURITY/URINALYSIS BRIEF	.85
MOD 0-7	ADM 7	LEGAL BRIEF	.5
MOD 0-8	ADM 8	STUDENT CONTROL BRIEF	.75
MOD 0-9	ADM 9	DENTAL/MEDICAL/RECORDS BRIEF	1.5
MOD 0-10	ADM 10	FLEET AWARENESS BRIEF (MINI FLEET)	3.0
MOD 0-11	ADM 11	MEDICAL BRIEF	.5
MOD 0-12	ADM 12	LOGS RECORDS BRIEF	.5
MOD 0-13	ADM 13	WATCH STANDERS BRIEF	1.0
MOD 0-14	ADM 14	SCHEDULES BRIEF	1.0
MOD 0-15	ADM 15	SIMULATOR INDOCTRINATION	1.0
MOD 0-16	ADM 16	LEARNING CENTER/COFFEE MESS BRIEF	.5
MOD 0-17	ADM 17	PRIMARY GRADUATION	.5
		Total Module 0 Hours	14.0

MODULE 1

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-1 Lecture	SAF 1	FLIGHT LINE SAFETY BRIEF	1.0
MOD 1-2 Lecture	SAF 2	T-34C EGRESS BRIEF	0.5
MOD 1-3 Lecture	METRO 1	WEATHER REPORTS/TERMINAL FORECASTS	2.0
MOD 1-4 Lecture	METRO 2	SURFACE ANALYSIS/PROGNOSTICATION CHARTS	2.0
MOD 1-5 Lecture	METRO 3	SEVERE WEATHER/PIREPS/DASH 1'S	2.0
MOD 1-6 Lecture	METRO 4	REVIEW	2.0
MOD 1-7 Exam	METRO 5	EXAMINATION	2.0
MOD 1-8 Lecture	FLIP 1	FLIP/GP TAKE HOME EXAMINATION	1.0
MOD 1-9 Lecture	FLIP 2	AP 1B/1A	2.0
MOD 1-10 Lecture	FLIP 3	FLIGHT INFORMATION HANDBOOK	1.0
MOD 1-11 Exam	FLIP 4	IFR SUPPLEMENT	2.0
MOD 1-12 Lecture	FLIP 5	IFR HIGH CHART	1.5
MOD 1-13 Lecture	FLIP 6	IFR LOW CHART	1.5
MOD 1-14 Lecture	FLIP 7	APPROACH PLATES/ TAKE-HOME EXAMINATION	2.0
MOD 1-15 Lecture	FLIP 8	STANDARD INSTRUMENT DEPARTURES	1.0
MOD 1-16 Lecture	FLIP 9	COURSE REVIEW	2.0

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-17 Lecture	COMM 1	COMMUNICATION TECHNIQUES VFR DEPARTURES/ARRIVALS	1.5
MOD 1-18 Lecture	COMM 2	IFR PROCEDURES DEPARTURES/ ARRIVALS/EN ROUTE	2.0
MOD 1-19 Lecture	NAMO 1	T-34C SYSTEMS (LORAL)	16.0
MOD 1-20 Lecture	NATOPS 1	NATOPS INTRODUCTION	1.0
MOD 1-21 Lecture	NATOPS 2	AIRCRAFT OPERATING LIMITATIONS	2.5
MOD 1-22 Lecture	NATOPS 3	NORMAL OPERATIONS /CHECKLISTS	3.0
MOD 1-23 Lecture Bailout Trainer (Front Cockpit) F/C	BOT 1	BAILOUT TRAINER	3.0
MOD 1-24 Lecture	NATOPS 4	AIRCRAFT SERVICING	1.0
MOD 1-25 Lecture	NATOPS 5	EMERGENCY PROCEDURES REVIEW	7.5
MOD 1-26 Lecture	NATOPS 6	AIRCRAFT PERFORMANCE DATA/POCKET CHECKLIST	1.0
MOD 1-27 Lecture	NATOPS 7	NATOPS REVIEW	1.0
MOD 1-28 EXAM	NATOPS 8	EMERGENCY PROCEDURES EXAMINATION	1.0
MOD 1-29 EXAM	NATOPS 9	NATOPS EXAMINATION/REVIEW	1.5
MOD 1-30 Lecture	FAMP 1	FLIGHT PREPARATION	.5
MOD 1-31 Lecture	FAMP 2	CHECKLISTS	3.0

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-32 Lecture	FAMP 3	VFR PROCEDURES	1.5
MOD 1-33 Lecture	FAMP 4	WINFLIR/VIDSMAF	1.0
MOD 1-34 Lecture	FAMP 5	ACRO/STALLS/SPINS	2.0
MOD 1-35 Lecture	FAMP 6	NIGHT PROCEDURES/LANDING PATTERN	2.0
MOD 1-36 Lecture	ACT 1	AIRCREW COORDINATION	3.0
MOD 1-37 2B37/2C42	CPT 1	COCKPIT PROCEDURES TRAINER	1.5

INTRODUCE

a. Communication procedures
b. Pre-start checklist
c. Start checklist
d. Pre-taxi checklist
e. Instrument checklist
f. Ground run-up checklist
g. Takeoff checklist
h. Cruise checklist
i. Landing checklist
j. After-landing checklist
k. Engine shutdown checklist
l. VFR course rules (NPA rwy 7)

PERIOD REQUIREMENTS	DURATION SYMBOL	DESCRIPTION	HOURS
MOD 1-38 2B37/2C42	CPT 2	COCKPIT PROCEDURES TRAINER	1.5

DISCUSS

Emergency landing pattern (ELP)

INTRODUCE

a. Abnormal starts
b. Emergency engine shutdown
c. Engine fire on ground (during start)
d. Engine fire on ground (after start)
e. Aborted takeoff
f. Engine fire in-flight
g. Abnormal ITT during shutdown

PRACTICE

a. All normal checklists
b. Communication procedures
c. VFR course rules (NPA rwy 25)

MOD 1-39 2B37/2C42	CPT 3	COCKPIT PROCEDURES TRAINER	1.5

INTRODUCE

a. Electrical/unknown electrical fire
b. Smoke and fume elimination
c. Generator failure
d. Emergency gear extension
e. Engine malfunctions
    1. Loss of useful power
    2. Flameout (with airstart)
    3. Seized engine (landing to unprepared surface)
f. Practice precautionary emergency landing (PPEL)
g. Ditching

PRACTICE

a. All normal checklists
b. Previously introduced emergency procedures
c. Communication procedure
d. Course rules (NPA rwy 19)

DURATION REQUIREMENTS	SYMBOL	DESCRIPTION	HOURS
MOD 1-40 Lecture	FAM 0	T-34C FAMILIARIZATION	3.0

DISCUSS

a. Weather brief
b. NOTAMs
c. VFR working area
d. VFR arrivials
e. Bailout
f. Emergency ground egress

DEMONSTRATE

a. Survival gear issue/inspection
b. Aircraft issue/WINFLIR preparation
c. Aircraft preflight
d. Oxygen mask usage
e. Aircraft postflight

PRACTICE

a. Strap in
b. Blindfold cockpit check
c. Emergency ground egress

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-41 T-34C F/C	FAM 1	FAMILIARIZATION FLIGHT 1	1.5

DISCUSS

a. Bailout
b. Emergency gear extension
c. Emergency egress
d. Starter limits
e. Abnormal starts
f. Normal idle indications
g. VHF radio usage
h. Brake failure

DEMONSTRATE

a. Taxi
b. Takeoff
c. Initial Climb to Altitude (ICA)
d. Area FAM
e. Turn pattern
f. Level Speed Change
g. Power Off Stall
h. Communication procedures

INTRODUCE

a. Preflight
b. Checklists
c. Start
d. Use and effect of controls/trim
e. Straight and level flight
f. Constant angle of bank turns (CABT)
g. Basic transitions
h. Emergency gear extension
i. Course rules/Homefield recovery
j. Winflir

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PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-42 T-34C F/C	FAM 2	FAMILIARIZATION FLIGHT 2	2.0

DISCUSS

a. Outlying field break
b. Pattern interval
c. Aborted takeoff
d. Gear and flap speeds
e. Crosswind approach and landings

DEMONSTRATE

a. Outlying field operations (OFO)
b. Full flap landings (2 minimum)
c. No flap landings (2 minimum)
d. Waveoff

INTRODUCE

a. Taxi
b. Takeoff
c. Initial climb to altitude (ICA)
d. Turn pattern
e. Level peed change
f. Power off stall
g. Communication procedures

PRACTICE

a. Preflight
b. Checklists
c. Start
d. Use and effect of controls/trim
e. Straight and level flight
f. Constant angle of bank turns (CABT)
g. Basic transitions
h. Course rules/Homefield recovery

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-43 T-34C F/C	FAM 3	FAMILIARIZATION FLIGHT 3	2.0

DISCUSS

a. Ditching
b. ITT, TQ, oil, N1 limits
c. Chip detector caution light
d. Engine failure
e. Out of control recovery

DEMONSTRATE

a. Practice precautionary emergency landing (PPEL)
b. High altitude power loss (HAPL)
c. Approach turn stall (ATS)
d. Spin
e. Slip

INTRODUCE

a. Outlying field operations (OFO)
b. Full flap landings (2 minimum)
c. No flap landings (2 minimum)
d. Waveoff

PRACTICE

a. Preflight
b. Ground procedures (Ch. List, Start, Taxi)
c. Takeoff
d. Initial climb to altitude (ICA)
e. Straight & level flight
f. Constant angle of bank Turns (CABT)
g. Turn Pattern
h. Power off stall (POS)
i. Basic transitions
j. Communication procedures
k. Course rules/Homefield recovery

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-44 T-34C F/C	FAM 4	FAMILIARIZATION FLIGHT 4	2.0

DISCUSS

a. Prohibited maneuvers
b. G limits
c. Electrical/unknown origin fire
d. Engine fire
e. Smoke and fume elimination
f. Airstart/limits
g. Tower controlled field ops

INTRODUCE

a. HAPL (ELP flown by IP)
b. PPEL (ELP flown by IP)
c. Approach turn stall (ATS)
d. Spin
e. Outlying field operations (OFO) (at tower controlled field)
f. Landing pattern

PRACTICE

a. Takeoff
b. Initial climb to altitude (ICA)

REVIEW

a. Preflight
b. Ground procedures
c. Course rules/Homefield recovery
d. Communications procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-45 T-34C F/C	FAM 5	FAMILIARIZATION FLIGHT 5	1.5

DISCUSS

a. Night ground operations
b. Interior light failure
c. Plane captain night signals
d. ALDIS lamp signals

INTRODUCE

a. Night ground procedures
b. Night takeoff
c. Night landing pattern

REVIEW

a. Preflight
b. Communications procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 1-46 T-34C F/C	FAM 6X	FAMILIARIZATION FLIGHT 6X	1.5

DISCUSS

a. Any emergency procedure
b. Any limitation

DEMONSTRATE

Aerobatics

INTRODUCE

Landing pattern

PRACTICE

a. Takeoff
b. Initial climb to altitude (ICA)
c. Approach turn stall (ATS)
d. Spin
e. HAPL (ELP flown by IP)
f. Outlying field operations (OFO) (at tower controlled field)

REVIEW

a. Preflight
b. Ground Procedures
c. Course rules/Homefield recovery
d. Communications procedures

Total Module 1 Hours -	ACADEMIC	83.5
	- FLIGHT/SIMULATOR	15.0

MODULE 2

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-1 Lecture	BINAV 1	RADIO AIDS TO NAVIGATION	1.0
MOD 2-2 Lecture	BINAV 2	NAVAID POSITIONING	2.0
MOD 2-3 Lecture	BINAV 3	RADIAL TRACKING	2.5
MOD 2-4 Lecture	COMM 3	COMMUNICATIONS IN INSTRUMENT ENVIRONMENT	1.5
MOD 2-5 2B47	TP 0	GROUND BASED NAVIGATION TRAINER (GBNT)	1.0
MOD 2-6 RIOT	RIOT 1	INTRODUCTION TO RIOT TRAINER	0.5
MOD 2-7 Lecture	COMM 4	GCA PATTERN/COMMUNICATIONS	2.0
MOD 2-8 RIOT	RIOT 2	NAVIGATION PRACTICE	0.5
MOD 2-9 2B47	TP 1	GBNT RADIAL TRACKING	2.0
MOD 2-10 Lecture	BINAV 4	TACAN ARCING	2.0
MOD 2-11 Lecture	BINAV 5	APPROACHES/DEPARTURES	2.0
MOD 2-12 Lecture	BINAV 6	PT/PT NAVIGATION	3.0
MOD 2-13 RIOT	RIOT 3	RIOT PRACTICE	0.5
MOD 2-14 2B47	TP 2	GBNT RADIAL TRACKING/ COMMUNICATIONS	2.0
MOD 2-15 Lecture	BINAV 7	HOLDING	2.5
MOD 2-16 2B47	TP 3	GBNT PT/PT TRAINER	2.0
MOD 2-17 Lecture	BINAV 8	2B47 GCA PATTERN	1.6

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-18 Lecture	BINAV 9	BINAV REVIEW	1.5
MOD 2-19 2B47	TP 4	GBNT PT/PT TRAINER	2.0
MOD 2-20 EXAM	BINAV 10	BINAV EXAMINATION/REVIEW	1.5
MOD 2-21 2B47	TP 5	GBNT PT-PT	2.0
MOD 2-22 Lecture	FPLN 1	JET LOGS	2.5
MOD 2-23 Lecture	FPLN 2	DD175	1.5
MOD 2-24 Lecture	FPLN 3	SITUATIONAL AWARENESS/TURN POINT PROCEDURES/FUEL AND TIME ANALYSIS	2.5
MOD 2-25 2B47	TP 6	GBNT RADIAL TRACKING	2.0
MOD 2-26 Lecture	FPLN 4	MISSION COMPLETION FEASIBILITY/ WEATHER CRITERIA	3.0
MOD 2-27 2B47	TP 7	GBNT D/R NAVIGATION	1.5
MOD 2-28 2B47	TP 8	GBNT TACAN NAVIGATION/PT-PT	2.0
MOD 2-29 Lecture	FPLN 5	REVIEW	2.0
MOD 2-30 EXAM	FPLN 6	EXAMINATION/REVIEW	3.0

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-31 Lecture	ANP 1	NFO/NAV RESPONSIBILITIES	1.5
MOD 2-32 2B37/2C42	OFT 1	AIRWAYS NAVIGATION SIMULATOR	1.5

DISCUSS

a. Instrument scan/ALT cross check
b. IND-350
c. NFO responsibilities
d. Approach plates
e. TACAN approaches.

INTRODUCE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. Holding
q. TACAN approach

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-33 2B37/2C42	OFT 2	AIRWAYS NAVIGATION SIMULATOR	1.5

DISCUSS

a. Altitude gyro
b. Instrument lag
c. Missed approach procedures
d. Draft report
e. GCA approaches

INTRODUCE

a. Missed approach procedures
b. Draft
c. GCA (2 minimium 1 PAR, 1 ASR)

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-34 2B37/2C42	OFT 3	AIRWAYS NAVIGATION SIMULATOR	1.5

DISCUSS

Radar vectors TACAN final

INTRODUCE

Radar vectors TACAN final (2 minimum)

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. Missed approach procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-35 2B37/2C42	OFT 4	AIRWAYS NAVIGATION SIMULATOR	1.5

DISCUSS

VOR approach

INTRODUCE

VOR approach

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. GCA
q. Missed approach procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-36 T-34C R/C	ANAV 1	AIRWAYS NAVIGATION 1	2.0

DISCUSS

a. Lost aircraft procedures
b. Lost communication procedures
c. Restoring electrical power
d. Uncontrollable high power

INTRODUCE

TACAN approach

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Altitude selection
i. En route course control
j. Turn point procedures
k. Time estimates
l. Fuel management analysis
m. Point-to-point navigation
n. Metro/ATIS evaluation
o. Holding
p. NATOPS limits/emergency procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-37 T-34C R/C	ANAV 2	AIRWAYS NAVIGATION 2	2.0

DISCUSS

a. O2 usage
b. Special use airspace
c. Bleed air warning light
d. Fluctuating oil pressure
e. Low oil pressure/high oil temperature

INTRODUCE

No gyro GCA

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. GCA
q. NATOPS limits/emergency procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-38 T-34C R/C	ANAV 3	AIRWAYS NAVIGATION 3	2.0

DISCUSS

a. Loss of useful power
b. Canopy speed limitation
c. Airspeed limitations
d. Inflight damage

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude Selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. Holding
q. TACAN approach
r. Radar vectors TACAN final
s. NATOPS limits/emergency procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-39 T-34C R/C	ANAV 4	AIRWAYS NAVIGATION 4	2.0

DISCUSS

a. Stopover flight plans
b. Weather minimums (Takeoff, Approach, Alternate)
c. VOR Approach
d. Operations away from home base
e. Servicing
f. Departure procedures versus radar departure

INTRODUCE

a. Visual glideslope interpretation (if available)
b. Circling Approach (if available)
c. VOR approach

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. NATOPS limits/emergency procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-40 T-34C R/C	ANAV 5	AIRWAYS NAVIGATION 5	2.0

INTRODUCE

Missed Approach procedures/climbout

PRACTICE

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. Holding
q. TACAN approach
r. GCA
s. NATOPS limits/emergency procedures

PERIOD REQUIREMENTS	SYMBOL	DESCRIPTION	DURATION HOURS
MOD 2-41 T-34C R/C	ANAV 6X	AIRWAYS NAVIGATION 6X	2.0

DISCUSS

a. High/Low chart symbology
b. Terminal change notice
c. Any instrument emergency

REVIEW

a. NFO responsibilities
b. Crew coordination communications
c. Jet log
d. DD-175
e. Equipment operation
f. Scan
g. Communication procedures
h. Departure
i. Altitude selection
j. En route course control
k. Turn point procedures
l. Time estimates
m. Fuel management analysis
n. Point-to-point navigation
o. Metro/ATIS evaluation
p. Holding
q. TACAN approach
r. NATOPS limits/emergency procedures

Total Module 2 Hours -	ACADEMIC	41.6
	- FLIGHT/SIMULATOR	33.5

SECTION II

1. SUMMARY OF TERMINAL OBJECTIVES

PRIMARY PHASE CURRICULUM

The Primary Naval Flight Officer/Navigator Training Curriculum is designed to teach the basic skills and knowledge required to safely aviate, navigate, communicate, and manage aircraft systems. Upon satisfactory completion of this phase, the student will be able to perform the following terminal objectives:

A. Apply without error the policies and guidance of Squadron and Naval Aviation Safety Programs to identify, avoid and report hazards.

B. Maintain spatial orientation while controlling an aircraft through the use of visual and instrument scan in visual or instrument meteorological conditions with instructor assistance, during day and night shore based operations.

C. Navigate an aircraft via visual references and navigation instruments with the assistance of a flight instructor.

D. Communicate with appropriate facilities via two-way radio using standard naval aviation and Federal Aviation Administration terminology.

E. Comply with specified flight policies, guidance and procedures provided by OPNAVINST 3710.7R, Naval Air Training and Operating Procedures Standardization (NATOPS), Federal Aviation Regulations and command directives.

F. Use Flight Information Publications (FLIP), Notices to Airmen (NOTAMS) and other applicable flight information to plan and fly in the Federal Aviation Administration's Air Traffic Control (ATC) system.

G. Use forecast and observed weather conditions, and knowledge of meteorology and meteorological theory and its effects on aircraft performance to plan and conduct safe and efficient flight operations.

H. Determine aircraft condition and readiness for flight during preflight and postflight.

I. Operate and assess an aircraft and its systems in accordance with NATOPS and flight training instructions (FTIs), reporting any anomaly to the instructor.

J. Apply crew coordination concepts and procedures during aircraft operations.

K. Demonstrate adequate preparation for flight and mission accomplishment.

2. SUMMARY OF ENABLING OBJECTIVES

The enabling objectives (EOs) listed below are grouped into ten areas which, when completed, will satisfy the corresponding terminal objectives. Upon satisfactory completion of the Primary Flight Officer Training Curriculum, the student will be able to perform the following EOs. Given one T-34C aircraft, a thorough briefing, approved checklists and publications the student will be able to conduct dual flight with a qualified flight instructor on board providing instruction, assistance, or supervision. Though it is not an objective of this course to solo the student in the T-34C, a specific intent is to develop as much as possible those pilot skills that would enable the student to control the T-34C from engine start to engine shut down with the minimum of instructor assistance.

OPERATIONS	CONDITIONS	STANDARDS
A. Safety		
A-1. Recall the functions, organization, and procedures of the Naval Aviation Safety program as defined in OPNAVINST 3750.6Q.	Given an oral or written examination.	80% accuracy.
A-2. Recall specific safety hazards and their avoidance procedures associated with VT-4/10 flight operations.	Given an oral or written examination.	80% accuracy.
B. Aircraft Control		
B-1. Taxi and perform ground operations.	With instructor and ground crew assistance, given prescribed route.	Clear of obstructions in compliance with NATOPS and air operations manual.
B-2. Takeoff and transition to climb.	VMC with instructor assistance as required, aircraft systems ready while accelerating to climb speed and establishing proper aircraft configuration.	Maintain aircraft alignment; maintain positive rate of climb, in compliance with NATOPS and operations manual.

OPERATIONS	CONDITIONS	STANDARDS
B-3. Abort takeoff, appraise aircraft systems and energy level.	Operational Flight Trainer, as required by actual emergency.	In compliance with NATOPS procedures.
B-4. Transition to and from climb, descent, level flight.	With instructor assistance as required.	Recognizing and attempting to correct deviations of + 200' IFR, + 300' VFR, + 20 kts IAS, + 20 degrees heading.
B-4.1. Measure and stabilize the T-34C attitude and power setting for specified visual and instrument maneuvers.	With instructor assistance as required within geographical limits.	Same as B-4.
B-5. Maintain internal and external visual scan patterns while evaluating aircraft systems performance and geographical position.	Visual meteoro-logical conditions (VMC), day, night.	In compliance with NATOPS and local directives.
B-5.1. Detect, report and avoid all aircraft in visual range.	VMC, day, night.	In compliance with NATOPS and local directives.
B-6. Perform aircraft stall and stall recovery.	With instructor assistance as required, day, VMC.	In accordance with training instructions.
B-6.1. Identify conditions creating stall and the stall warnings.	Same as B-6.	In accordance with training instructions.
B-7. Identify out-of-control flight and upright spin.	Day, VMC, cruise configuration.	In accordance with FTIs.
B-8. Locate the landing field and enter the landing pattern.	With instructor assistance as required, day and night given course rules and defined pattern.	In compliance with NATOPS and air station operations manual.

OPERATIONS	CONDITIONS	STANDARDS
B-9. Conduct landings.	With instructor assistance as required, day and night.	In accordance with the FTI.
B-9.1. Detect and attempt to correct glide slope errors.	With instructor assistance as required.	In compliance with the FTI.
B-9.2. Appraise attitude and power requirements for desired aircraft performance.	Same as B-9.	In compliance with the FTI.
B-10. Initiate or accept a landing wave-off.	Same as B-9.	In compliance with the FTI.
B-11. Monitor landing roll-out and deceleration.	With instructor assistance as required, day and night.	Ensure alignment ± 25 ft, while slowing aircraft, avoiding porpoise or bounce.
B-12. Recall aircraft emergency procedures.	As required, in all T-34C operating conditions during actual or simulated emergencies.	In accordance with NATOPS procedures. Maintain aircraft control.
B-12.1. Recall "immediate action" emergency procedures.	Given an oral or written examination, as required by actual emergency.	Without error.
B-13. Recognize and correct unusual aircraft attitudes modifying attitude and power for a controlled transition to the original flight path.	Using visual cues and instruments with instructor assistance as required, given aircraft attitude error induced by instructor.	Without exceeding A/C limitations and in accordance with NATOPS and FTIs.
B-14. Operate within T-34C aircraft operating limitations and capabilities.	Given a mission, with instructor assistance as required.	In accordance with NATOPS.

OPERATIONS	CONDITIONS	STANDARDS
B-14.1. Recall T-34C aircraft general description, systems, and operating limitations.	Given an open and closed book examination.	80% accuracy.
B-14.2. Extract T-34C aircraft performance data from NATOPS.	Given an open and closed book examination.	80% accuracy.
B-15. Recall the T-34C aircraft servicing procedures and all-weather operating procedures.	Given an open and closed book examination.	80% accuracy.
B-16. Perform appropriate T-34C aircraft operations checklists.	Given a mission, with instructor.	In accordance with NATOPS.
B-17. Fly Visual Flight Rules (VFR) departure, entry and traffic pattern procedures.	Given a mission, with instructor.	In accordance with FLIP and local directives
C. Navigation		
C-1. Identify aircraft position relative to an operable Tactical Air Navigation (TACAN)/VOR station.	Given a TACAN/VHF Omnidirectional Range (VOR) and FLIP.	Without error.
C-1.1. Recall the characteristics of radio aids to navigation.	Given an oral or written examination.	80% accuracy
C-2. Identify aircraft position relative to geographic reference.	VMC, day, and night.	75% accuracy.
C-3. Perform the 2-minute prior, mark-on-top and wings level call at each turnpoint.	Given a specified route and Simulator or in flight.	Without error.
C-4. Execute TACAN point-to-point navigation.	Given a specified route, with instructor assistance as required.	Within 4 nm.

OPERATIONS	CONDITIONS	STANDARDS
C-5. Execute a standard instrument departure.	Same as C-1.	Within ± 1 nm of arcs, ± 6 degrees or 2 nm of course.
C-6. Execute a radio instrument and ground controlled approach (GCA).	Same as C-1.	Same as C-5.
C-7. Execute entry and holding pattern procedures.	Same as C-1.	In accordance with the FTI, AIM and NATOPS.
C-8. Determine mission completion feasibility based on fuel require-ments at each naviga-tional checkpoint.	Given a jet log and single en route chart during simulator or flight navigation training mission.	In accordance with OPNAVINST 3710.7R.
C-8.1. Calculate estimated fuel remaining at destination initial approach fix (IAF).	During simulator or flight navigation training mission.	± 30 pounds.
C-9. Calculate estimated time of arrival at each navigational checkpoint.	During simulator or flight navigation training mission.	± 1 minute.
C-9.1 Determine ground speed.	During simulator or flight navigation training mission.	± 10 nm per hour.
C-10. Evaluate observed and forecast meteoro-logical conditions to avoid weather hazards and enhance mission accomplishment.	During simulator or flight navigation training mission.	In accordance with OPNAVINST 3710.7R.
C-11. Derive aircraft heading using Dead Reckoning techniques.	Given a course.	± 5 degrees.
C-12. Preform ground control approach.	With reference to instruments given printed approach criteria, with instructor assistance as required.	In accordance with FTI and published procedures.

OPERATIONS	CONDITIONS	STANDARDS
D. Communications		
D-1. Communicate via two-way radio using standard naval aviation and Federal Aviation Administration (FAA) terminology with appropriate agencies during: a. ground operations b. departure c. en route d. arrival	VMC, Instruments Meteorological Conditions (IMC), day and night, given assigned mission and route, in normal or emergency conditions.	With no errors that will preclude mission success.
D-1.1. Recall naval aviation and FAA two-way radio communication procedures.	Given an oral or written examination.	With no errors that will preclude mission success.
E. Flight Policy		
E-1. Recall the scope of the NATOPS program.	Given an oral or written examination.	80% accuracy.
E-2. Recall the parts of the NATOPS manual.	Given an oral or written examination.	80% accuracy.
E-3. Recall the sections of the NATOPS Pocket Checklist.	Given an oral or written examination.	80% accuracy.
E-4. Comply with specified flight policies and procedures provided in OPNAVINST 3710.7R.	During aircraft operations.	Without error.
E-4.1. Recall specified flight policies and procedures in OPNAVINST 3710.7R.	Given an oral or written examination.	80% accuracy.
E-5. Comply with specified flight policies and procedures set forth in FAA Regulations Part 91.	During aircraft operations.	Without error.

OPERATIONS	CONDITIONS	STANDARDS
F. Mission Planning		
F-1. Locate, interpret and apply information in FLIP General Planning.	Given a mission.	Without error.
F-2. Locate, interpret and apply information in FLIP Area Planning 1, 1A and 1B.	Given a mission.	Without error.
F-3. Locate, interpret and apply information in the FLIP IFR En Route Supplement.	Given a mission.	Without error.
F-4. Locate, interpret and apply information in FLIP Flight Information Handbook.	Given a mission.	Without error.
F-5. Locate, interpret and apply information on FLIP IFR En Route High Altitude Chart.	Given a mission.	Without error.
F-6. Locate, interpret and apply information on FLIP En Route Low Altitude and Area Charts.	Given a mission.	Without error.
F-7. Locate, interpret and apply information on FLIP Standard Instrument Departure.	Given a mission.	Without error.
F-8. Locate, interpret and apply information in FLIP Terminal Instrument Approach Procedures.	Given a mission.	Without error.
F-9. Complete a Jet Log.	Given a mission, FLIP, NATOPS and OPNAVINST 3710.7Q.	In accordance with appropriate Peculiar to Aviation Training (PAT) publication and without error.

OPERATIONS	CONDITIONS	STANDARDS
F-10. Complete a DD-175 using FLIP and Jet Log information.	Given a mission.	In accordance with appropriate PAT publication and without error.
G. Meteorology		
G-1. Describe the lower layers of the atmosphere and its composition, stating the primary flight hazards and weather elements, including hypoxia and the OPNAVINST 3710.7R rules for oxygen use.	Given an oral or written examination.	80% accuracy.
G-2. Define, state, compute, and list selected parameters used with atmospheric temperatures, including its effect on aircraft altimetry, and its application to density altitude.	Given an oral or written examination.	80% accuracy.
G-3. Define, state, compute and list selected parameters used with atmospheric pressure, and its effects on aircraft altimetry, including the solving of altimeter problems.	Given an oral or written examination.	80% accuracy.
G-4. State the basic concepts behind the large and small scale wind systems, including the determination of gradient and surface winds.	Given an oral or written examination.	80% accuracy.

OPERATIONS	CONDITIONS	STANDARDS
G-5. Describe the relationship between atmospheric temperature and moisture content and its effects on flight, including a familiarization of the major cloud types and their associated flight characteristics.	Given an oral or written examination.	80% accuracy.
G-6. Define and state various definitions, terms, rates, and requirements, associated with stability/instability of the atmosphere.	Given an oral or written examination.	80% accuracy.
G-7. Define an air mass and describe the classification system of air masses, including the flight conditions of selected air masses.	Given an oral or written examination.	80% accuracy.
G-8. Describe how the various frontal systems form, including the characteristics of each and their associated weather patterns that affect flight.	Given an oral or written examination.	80% accuracy.
G-9. State the fundamentals of thunderstorm development, including classification, structure, associated hazards, and the proper flight techniques for safe flight through or in the vicinity of thunderstorms.	Given an oral or written examination.	80% accuracy.

OPERATIONS	CONDITIONS	STANDARDS
G-10. Describe the causes of turbulence, including the wake turbulence phenomena, and state the various frequencies and intensity terms used to describe turbulence.	Given an oral or written examination.	80% accuracy.
G-11. State the requirements for ice formation, types of icing, and their effects on aircraft flight and aircraft components, including the evasive tactics that should be adhered to for a safe flight.	Given an oral or written examination.	80% accuracy.
G-12. Describe fogs and low ceiling clouds, stating the requirements for formation, including the saturation process, effects of wind, and how the various types form and dissipate. Then define the difference between and obscuration and partial obscuration.	Given an oral or written examination.	80% accuracy.
G-13. State and describe selected tropical and tornado weather phenomena, including the warnings issued for them and other weather phenomena.	Given an oral or written examination.	80% accuracy.
G-14. State information about and identify displayed data shown on station model plots, surface analysis charts, and the two types of surface prognostic charts.	Given an oral or written examination.	80% accuracy.

OPERATIONS	CONDITONS	STANDARDS
G-15. State information about and identify displayed data on radar summary and weather depiction charts.	Given an oral or written examination.	80% accuracy.
G-16. State information about and identify displayed data on severe weather watches and area forecasts.	Given an oral or written examination.	80% accuracy.
G-17. State information about and identify displayed data on in-flight weather advisories and pilot reports.	Given an oral or written examination.	80% accuracy.
G-18. State information about and identify displayed data on winds-aloft prognostic charts, constant-pressure charts, and winds-aloft forecasts.	Given an oral or written examination.	80% accuracy.
G-19. State information about and identify displayed data on aviation weather reports.	Given an oral or written examination.	80% accuracy.
G-20. State information about and identify displayed data on terminal forecasts.	Given an oral or written examination.	80% accuracy.
G-21. State the five parts of a DD175-1 "Flight Weather Briefing Form," and state the sources of weather information required to fill in the various blocks shown on the DD175-1, including Flight Forecast Folders.	Given an oral or written examination.	80% accuracy.

OPERATIONS	CONDITIONS	STANDARDS
H. Aircraft Condition		
H-1. Review information (VIDS/MAFs, Aircraft Inspection and Acceptance Record, etcetera) contained in aircraft discrepancy book to determine aircraft documented suitability for flight.	Given a mission with instructor and maintenance assistance.	In accordance with NATOPS.
H-2. Perform aircraft preflight and postflight inspections.	Given a mission.	In accordance with NATOPS.
H-3. Observe Completion of Maintenance Action Forms (MAF) as necessary.	During pre/postflight given a mission.	Without error.
H-4. Complete applicable parts of a WINFLIR.	During pre/postflight given a mission.	Without error.
I. Systems Operation		
I-1. Recognize the correct nomenclature, purpose, character-istics, functions, and location of T-34C systems, system components, and installed equipment.	Given a mission.	In accordance with NATOPS and FTI.
I-2. Operate and evaluate navigation equipment.	Given a mission.	In accordance with NATOPS and FTI.
I-3. Operate and evaluate communication equipment.	Given a mission.	In accordance with NATOPS and FTI.
I-4. Operate and evaluate environmental system.	Given a mission.	In accordance with NATOPS and FTI.

OPERATIONS	CONDITIONS	STANDARDS
I-5. Operate and evaluate fuel system.	Given a mission.	In accordance with NATOPS and FTI.
I-6. Operate and evaluate electrical system.	Given a mission.	In accordance with NATOPS and FTI.
I-7. Operate and evaluate engine system.	Given a mission.	In accordance with NATOPS and FTI.
I-8. Operate and evaluate flight instruments.	Given a mission.	In accordance with NATOPS and FTI.
J. Crew Coordination		
J-1. Coordinate aircraft operation with instructor.	Given a mission, VMC, IMC, day and night.	In accordance with NATOPS and local instructions.
J-1.1. Coordinate positive control of aircraft and transfer of control.	Given a mission, VMC, IMC, day and night.	Without error.
J-2. Coordinate aircrew duties and responsi-bilities.	Given a mission, VMC, IMC, day and night.	In accordance with NATOPS and local instructions.
J-2.1. Coordinate operational control of aircraft systems.	Given a mission, VMC, IMC, day and night.	Without error.
J-3. Relay safety of flight information to instructor.	Given a mission, VMC, IMC, day and night.	Without error.
K. Flight Mission Preparation		
K-1. Possess required flight materials.	Given a mission and a permission briefing.	Without error.
K-2. Recall required mission procedures and information.	Given a mission and a permission briefing.	90% accuracy.

SECTION III

MASTERS MATERIALS LIST

1. INDIVIDUALLY ISSUED MATERIALS

	NOMENCLATURE	IDENTIFICATION	QTY PER STUDENT		COST EACH
a.	Course Books				
	METRO	CNAT P-304	1		5.45
	BINAV	CNAT P-801	1		X.XX
	FLPN	CNAT P-802	1		X.XX
	SAFETY	CNAT P-803	1		0.84
	FLIP	CNAT P-804	1		2.01
	VOICE COMM	CNAT P-806	1		3.30
	1D23 GUIDE	CNAT P-807	1		2.82
	T-34C NATOPS	CNAT P-808	1		2.58
	ANAV FTI	CNAT P-810	1		1.67
	FAM FTI	CNAT P-842	1		6.77
	MASTER CURRICULUM GUIDE	CNAT P-854	1		X.XX
	T-34C AIRCRAFT SYSTEMS	CNAT P-858	1		3.84
b.	DOD Flight Information Publications				
	Low Altitude En Route Charts		X		X.XX
	Low Altitude Instrument Approach Procedures		X		X.XX
	En Route US IFR Supplement		X		X.XX
	Flight Information Handbook		X		X.XX
c.	Single Engine Jet Log	CNATRA-GEN 3760/1	X-XX	100	$ 0.03

NOMENCLATURE	IDENTIFICATION	REV DATE	QTY PER STU	COST EACH
d. Military Flight Plan	DD-171	X-XX	10	0.02
e. Aviation Training Forms (ATFs):				
Familiarization, FAM-1	CNATRA 1542/1080	01-01	1	0.03
Cockpit Familiarization, CPT-1S	CNATRA 1542/1081	01-01	1	0.03
Cockpit Familiarization, CPT-2S	CNATRA 1542/1082	01-01	1	0.03
Cockpit Familiarization, CPT-3S	CNATRA 1542/1083	01-01	1	0.03
Familiarization Flight, FAM-2	CNATRA 1542/1084	01-01	1	0.03
Familiarization Flight, FAM-3	CNATRA 1542/1085	01-01	1	0.03
Familiarization Flight, FAM-4	CNATRA 1542/1086	01-01	1	0.03
Familiarization Flight, FAM-5	CNATRA 1542/1087	01-01	1	0.03
Familiarization Flight, FAM-6X	CNATRA 1542/1088	01-01	1	0.03
Airways Navigation, OFT-1S	CNATRA 1542/1244	01-01	1	0.03
Airways Navigation, OFT-2S	CNATRA 1542/1245	01-01	1	0.03
Airways Navigation, OFT-3S	CNATRA 1542/1246	01-01	1	0.03
Airways Navigation, OFT-4S	CNATRA 1542/1247	01-01	1	0.03
Airways Navigation, ANAV-1	CNATRA 1542/1114	01-01	1	$ 0.03
Airways Navigation, ANAV-2	CNATRA 1542/1115	01-01	1	0.03

NOMENCLATURE	IDENTIFICATION	REV DATE	QTY PER STU	COST EACH
Airways Navigation, ANAV-3	CNATRA 1542/1116	01-01	1	0.03
Airways Navigation, ANAV-4	CNATRA 1542/1117	01-01	1	0.03
Airways Navigation, ANAV-5	CNATRA 1542/1780	X-XX	1	0.03
Airways Navigation, ANAV-6X	CNATRA 1542/1781	X-XX	1	0.03
*f. Local Directives				
(1) T-34C In-flight Pack (Checklists, Kneeboard and Stereo Route Cards)			1	0.51
(2) Course Homework Problems and Book Corrections			1 (set)	1.00
*g. Aviation Training Jacket	CNATRA-GEN 1542/10B		1	0.70
*h. Naval ATJ Summary Card	CNATRA 1542/95		1	0.02
*i. Weekly Calendar	CNATRA-GEN 1542/12		4	0.03
*j. Jacket Review Divider	CNATRA-GEN 1542/66		1	0.01
*k. Academic Training Summary			1	0.01
*l. Synthetic Training Summary			1	0.01
*m. NFO Flight Summary			1	0.01

* Indicates a one time issue only. Items are to be used for both Primary and Intermediate UNFO training.

2. SUPPORT MATERIALS

	NOMENCLATURE	IDENTIFICATION	QTY PER SITE	COST EACH
a.	NATOPS General Flight and Operating Instruction	OPNAVINST 3710.7Q	50	$2.50
b.	Plotter	(FSN)6605006938388	300	2.38
c.	Divider	(FSN)6605002435015	300	3.04
d.	CR2 Computer	(FSN)6605009284452	300	9.00
e.	NATOPS Instrument Flight Manual		2	2.50
f.	CV NATOPS Manual		2	2.50
g.	LSO NATOPS Manual		2	2.50
h.	DOD FLIP Publications	(Subscription Prices)		
	(1) General Planning		25	1.50
	(2) Area Planning 1		25	1.50
	(3) Area Planning 1A		25	1.50
	(4) Area Planning 1B		25	1.50
i.	Airman Information Manual	(NSN)290-3170-91-1	75	1.50
j.	T-34C NATOPS Flight Manual	NAVAIR O1-T-34AAC-1	300	3.50
k.	T-34C NATOPS Pocket Checklist	NAVAIR 01-T-34AAC-1B	300	4.72

3. MINOR TRAINING DEVICES

	TITLE	DEVICE NUMBER	SETS PER SITE	COST
a.	Introduction and General Review of the Atmosphere	4B78/1	5	$ 68.00
b.	Atmospheric Temperature	4B78/7	5	84.00
c.	Atmospheric Pressure/ Introduction	4B78/4 PT. #1	5	118.00
d.	Atmospheric Pressure/ Altimeter	4B78/4 PT. #2	X	X.XX
e.	Local Wind Effect and General Circulation	4B78/12 PT. #1 4B78/12 PT. #2	5	128.00
f.	Moisture and Clouds	4B78/18	5	X.XX
g.	Atmospheric Stability	4B78/17	5	X.XX
h.	Station Models on the Surface Weather Map	4B78/11	5	X.XX
i.	Frontogenesis and Warm Fronts	4B78/10	5	111.00
j.	Cold Fronts	4B78/9 PT. #1	5	111.00
k.	Squall Lines	4B78/9 PT. #2		X.XX
l.	Occluded and Stationary Fronts	4B78/8	5	76.00
m.	Icing Types and Causes of Structural Icing Hazards	4B78/3 PT. #1 4B78/3 PT. #2	5	132.00
n.	Fog and Low Ceiling Clouds	4B78/5 PT. #1 4B78/5 PT. #2	5	79.00
o.	Thunderstorms and Hazards	4B78/2 PT. #1 4B78/2 PT. #2	5	148.00
p.	Tornadoes and Tropical Cyclones	4B78/24	5	X.XX
q.	Surface Analysis Charts	4B78/6	5	X.XX
r.	Singer Caramate II Mod 88 (Projector Playback)	4G418B	25	296.00

4. AIRCRAFT AND MAJOR TRAINING DEVICES

a. Aircraft T-34C

Quantity controlled by contract.

b. Operational Flight Trainer 2B37

Quantity controlled by Naval Air Warfare Center Training Systems Division (NAVAIRWARCENTRASYSDIV), Training Material Management Division, Inventory Control Branch (Code 5204). Cost listed in NAVAIRWARCENTRASYSDIV Directory of Naval Training Devices, Cognizance Symbol 2"0".

c. Cockpit Procedure Trainer 2C42

Quantity controlled by NAVAIRWARCENTRASYSDIV, Training Material Management Division, Inventory Control Branch (Code 5204). Cost listed in NAVAIRWARCENTRASYSDIV Directory of Naval Training Devices, Cognizance Symbol 2"0".

d. Cockpit Trainer 12BK15A

Quantity controlled by NAVAIRWARCENTRASYSDIV, Training Material Management Division, Inventory Control Branch (Code 5204). Cost listed in NAVAIRWARCENTRASYSDIV Directory of Naval Training Devices, Cognizance Symbol 2"0".

e. Communication/Navigation Trainer 2B47

Quantity controlled by NAVAIRWARCENTRASYSDIV, Training Material Management Division, Inventory Control Branch (Code 5204). Cost listed in NAVAIRWARCENTRASYSDIV Directory of Naval Training Devices, Cognizance Symbol 2"0".

5. COST DATA SOURCES

a. CNAT PAT Publications Naval Publications and Printing Service Branch Office, NAS Corpus Christi, TX

b. Flight Planning Publications DOD Mapping Service, St. Louis, MO

c. NATOPS Publications Navy Tactical Support Activity (NAVTACSUPPACT WNY) Washington, DC

d. OPNAV Forms NAVSUP #20002

e. Training Panels NAVAIRWARCENTRASYSDIV Orlando, FL

f. Training Films U.S. Navy Photographic Center, N.S. Washington, DC