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

CNATRAINST 1550.6F
N7
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CNATRA INSTRUCTION 1550.6F

Subj: TRAINING IMPROVEMENT PROGRAM (TIP)

Ref: (a) CNATRAINST 1500.4H
(b) CNATRAINST 3710.13H
(c) CNATRAINST 5213.3H

1. Purpose. To standardize procedures for development, implementation, revision, and control of the Naval Air Training Command (NATRACOM) curricula and course training material for flight training. This instruction provides a mechanism to improve the process for personnel charged with training Naval Aviators (NA) and Naval Flight Officers (NFO). References (a) through (c) establish guidelines for this process.

2. Cancellation. CNATRAINST 1550.6E

3. Summary of Revision. Significant changes have been made to this instruction and it should be reviewed in its entirety.

4. Action. Commanders shall implement policy per this instruction to ensure maximum training effectiveness through standardized procedures. Recommendations for changes to this instruction shall be submitted to the Chief of Naval Air Training (CNATRA) (N7).

5. Forms. All forms referenced in this instruction are available on the CNATRA website at:
https://www.cnatra.navy.mil/pubs-forms.asp

D. M. EDGECOMB
Chief of Staff

Distribution:
CNATRA Website
CNATRA SharePoint

SUMMARY OF CHANGES

CHANGE NUMBER	DATE OF CHANGE	CHANGE DESCRIPTION	PAGES AFFECTED

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CHAPTER 1

NATRACOM TRAINING OVERVIEW

100. Objective. The CNATRA Training Improvement Program (TIP) provides a process for improving and standardizing training curricula and the associated training courseware to ensure CNATRA produces the finest combat capable aviators that meet fleet requirements.

101. Scope. This instruction applies to every individual involved at every level of flight training. Instructors on the flight line, in the simulator, and in the classroom are often the best sources of new ideas to improve training. This instruction is a reference for carrying out the responsibilities of CNATRA Pipeline Training Officers (PTO), Curriculum Model Managers (CMM), Curriculum Coordinators (CC), and Stage Managers (SM). Personnel involved in training management will find helpful information for translating operational requirements into the appropriate data entry and records.

102. Overview. The TIP is designed to facilitate turning good ideas into standardized procedures. The TIP uses a combination of Training Change Requests (TCR) and curriculum reviews to stimulate communication between various echelons of command and improve NATRACOM courses of instruction. At any level, stakeholders can submit a recommended improvement via a TCR. Action is then taken to review and implement valid suggestions through a formal process. Every change has an effect on multiple resources. In addition to the Flight Training Support Center effort to actually produce the courseware, resources include flight hours, simulator and classroom instructional hours, number of aircraft and simulators, number of military and contract instructors, maintenance and support contracts; and airfield operations. There are three reasons to change a curriculum:

a. Safety of Flight.

b. Increase Quality of Training.

c. Create Naval Aviation Enterprise (NAE) Efficiencies.

103. Definitions. Reference (a) defines terms and phrases generally used in CNATRA instructions and literature. Terms important to understanding the TIP, along with the hierarchy of the divisions of training, are as follows:

Division of training	Examples
Program	Pilot, NFO
Pipeline	Maritime, Strike, Rotary
Phase	Primary, Intermediate Jet, Advanced Rotary
Stage	Ground, Contact, Instrument, Formation
Block	FAM410X, FAM420X, FAM430X
Event	FAM4103, FAM4202, FAM4304

a. Program. A series of courses, which lead to the assignment of an aviation designator or Military Occupational Specialty (MOS).

b. Pipeline. A series of courses within a program, which provides instruction for a specific aircraft type.

c. Phase. The chief subdivisions of a course.

d. Stage. A subdivision of a phase, comprised of events leading to a single set of objectives, designated by a common symbol.

e. Block

(1) A sequential series of events within a stage sharing the same specific subject area.

(2) Training Integration Management System (TIMS) uses the term Category for the word label of a block or related blocks, to distinguish it from the block number, which it maintains as a different data field. Often there is only one block within a Category and the terms then essentially refer to the same unit of instruction. Regardless, Category is not used operationally in NATRACOM; it is only for training management.

f. Event. A scheduled period of prescribed instruction. It may be in an academic or laboratory classroom, simulator or flight environment.

g. Curriculum. A comprehensive plan of study including content, organization, and sequence. A Master Curriculum Guide (MCG) may cover one or more NATRACOM phases. Syllabus is often used in a similar context as curriculum, or as a subset referring to specific logistical and organizational components (e.g., Syllabus Notes, Special Syllabus Requirements). It should not be confused with the Fleet Replacement Squadron (FRS) use of the term for overall training, such as "the CAT I Syllabus."

h. Course. A complete integrated series of lessons, which are identified by a common title and/or number. Sometimes used as an informal term to indicate general periods of instructional study where a defined division of training (i.e., program, pipeline, or phase) or the term curriculum is more technically correct.

i. Courseware. A comprehensive term referring to all types of configuration-controlled materials supporting training or grading in a curriculum.

j. Media. The methods and materials used to convey learning objectives in a curriculum. Some components of courseware are also considered Media.

k. Minor Change. A modification of existing courseware, which does not significantly alter the training objectives. Minor changes to MCGs generally do not change resource requirements, but may re-proportion currently funded events.

l. Major Change. A modification of existing courseware, which requires change in skill sets or resources to such an extent that logistics support, personnel, funds, etc., are affected.

104. Continuous Training Improvement. Minor changes can be approved via the TCR process as they occur. Major changes also use the TCR process, but require in-depth study and end customer input, and are normally processed in conjunction with a curriculum review. Small-scale stage reviews or comprehensive phase reviews are held to review proposed changes. User-approved changes are then routed through the Curriculum Model Manager's (CMM) Stan Officer to CNATRA for final approval, publication, and distribution. Under this program, every user

has access to the team which manages the curriculum, and the user has ownership of their curriculum and a mechanism to improve that curriculum. The TIP continuously refines and modifies the curriculum to reflect a changing world and provides a steady state workflow for resources shared by all Training Wings (TRAWINGs) and pipelines.

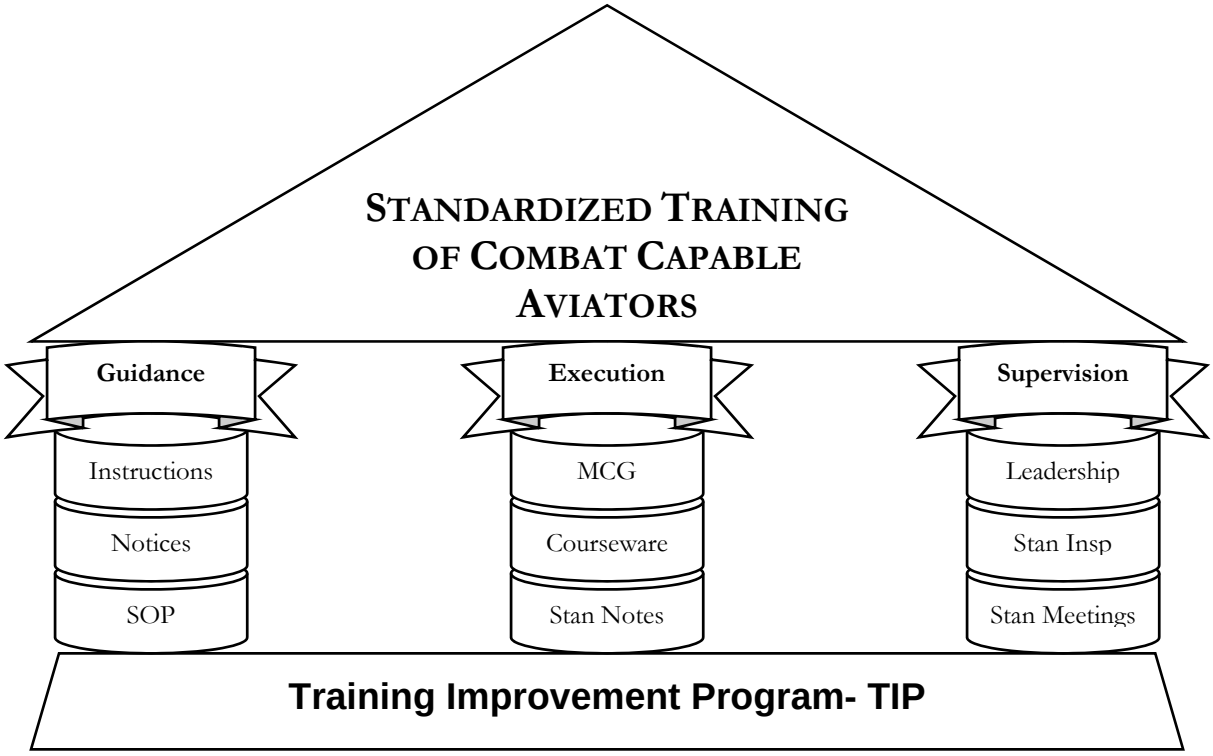
105. Relationship of Local SOP and CNATRA Instructions. Figure 1.1 illustrates the three pillars of standardized training: Guidance, Execution, and Supervision. Each of the pillars contains the official policy and methods for achieving the objective of standardized training. The TIP is the foundation that supports continuous improvement of the entire program.

a. Master Curriculum Guides (MCG) outline administrative, academic, and operational objectives required for each event. Particular to Aviation Training Publications (PAT PUBs), computer-based training (CBT), and other instructional materials are part of the CNATRA-approved courseware used to conduct aviation training. Local commanders may publish Standard Operating Procedures (SOP) to provide guidance on techniques and procedures in executing the approved curricula. Additionally, Standardization Notes may amplify CNATRA instructions and provide Best Practices.

b. Stan Notes and SOPs shall be approved by the unit commander and shall not contradict CNATRA-approved procedures. They shall neither establish new training objectives nor delete existing training objectives. Commanding Officers who discover a defect in an approved instruction shall request a waiver from CNATRA (N7) and shall immediately submit a TCR. Upon waiver approval, Commanding Officers shall issue a Stan Note or SOP change to incorporate the approved waiver.

c. Stan Notes, SOPs, instructor techniques, and procedures that are deemed Best Practices should be submitted via TCR and Curriculum Review for incorporation into CNATRA-approved instructions.

Figure 1.1



106. Flight Training Courseware and Media. The NATRACOM aviation training program is supported by configuration-controlled hardcopy and electronic courseware including instructions, training publications, training forms, electronic courses, and examinations. All changes to courseware are handled via the TCR process. Media, the methods and devices used to convey learning objectives, include some courseware as well as items not under configuration control. Thus, all instruction is delivered via some type of media, but not all instructional content is considered courseware. The following sections describe important components of courseware and media:

a. Courseware Publications and Forms

(1) CNATRA Instruction 1542 Curricula. MCGs serve as courseware in addition to other functions such as training management. MCGs are the Chief of Naval Operations' authorization to conduct courses of instruction. These instructions are required for all CNATRA curricula since they

authorize manpower and materiel expenditures. The MCG outlines the required maneuvers to be conducted on each event. It provides instructors and students with a guide to brief and fly each event. Additionally, the MCG outlines the sequence of all events for each phase of instruction. Instructors and students shall have a working copy of the MCG, and a complete MCG shall be maintained in each applicable unit standardization library. Other CNATRA training publications pertinent to a particular curriculum are derivatives of their respective MCG.

(2) E-briefs are computer-based briefing guides that are PTO-managed, N7-approved, and posted on the CNATRA website.

(3) Aviation Training Forms (ATF) are used by instructors to grade each flight. They reflect Course Training Standards (CTS) found in the MCG.

(4) Flight Training Instructions (FTI) are training publications which define maneuvers and acceptable performance standards for each maneuver the student is expected to perform. Each FTI covers one or more stages of instruction.

(5) Particular to Aviation Training Publications (PAT PUBs) are instructional materials that provide fundamental learning objectives for academic instruction and provide the baseline knowledge to complete the curriculum. FTIs are a subset of PAT PUBS.

(6) Instructor Guides (IG) are instructor outlines for blocks of academic classes and flight support lectures.

b. The following Media components are used in events conducted as classes. These names apply to both the actual training material/software (courseware) and the training lesson/method/device (media) used to convey the instructional information.

(1) Interactive Courseware (ICW) involves instruction where the student interacts solely with a computer. Learning and testing are accomplished on a computer terminal. ICW is also known as Computer Aided Instruction (CAI).

(2) Mediated Interactive Lecture (MIL) is computer-based training led by a qualified instructor in a classroom environment. The courseware is launched via TIMS and is under configuration control.

(3) Part Task Trainer (PTT) is instruction using a device with a computer screen as the primary interface, which simulates specific equipment in the aircraft. PTTs are used to develop a student's knowledge, skill, and ability to use individual aircraft systems prior to more complex training in an integrated simulator or aircraft.

c. Other Media used for classes (not courseware and not under formal configuration control).

(1) Offline MIL is computer-based training led by a qualified instructor in a classroom environment. It is maintained in an electronic folder managed by the PTO, approved by N7, and called "OFFLINE MIL." The presentation is not considered courseware because it has not gone through the formal approval process. Thus, it has similar features as a Lecture, with some measure of control, although the instructional material may vary depending on the instructor. Furthermore, the intent is that the material is moving toward becoming a configuration-controlled MIL.

(2) Lecture (LECT) is a class presented without the use of computer courseware or electronic instructional media of any kind. It can be general/administrative in nature, given by a lecturer appropriate to the topic, or academic/operational, given by a qualified instructor. It is often in a classroom environment, but may be located elsewhere.

(3) Tour takes the student out of the classroom to squadron spaces or other flight facilities to see and learn about their operations, equipment, and environment.

(4) Laboratory (LAB) is oriented toward doing instead of just watching or listening (i.e., a hands-on learning experience under the supervision of an instructor).

(5) Pen-and-Paper (P/P) involves a student writing on paper, sometimes used for exams.

(6) Self-Study (SS) is a scheduled learning period with no instructor.

d. Hardware media with supporting software (not courseware):

(1) Simulator. Fully interactive training device, consisting of flight-like hardware (e.g., stick/throttle, radio control buttons) and flight-like software. A moving, visual representation of the outside view may be presented on an external dome if part of that training device, but it is not required to be considered a simulator.

(2) Aircraft. A vehicle capable of flight.

e. Training Integration Management System (TIMS) is a comprehensive, enterprise computer-based management application used by CNATRA. Proper administration and use of TIMS is an essential element in all aspects of managing training for NATRACOM students and Instructors Under Training (IUT). TIMS is used for scheduling, student tracking, qualifications, testing, completion of grade sheets, and flight documentation (NAVFLIRS). All levels of command shall use TIMS to the fullest extent possible for management of student and instructor training, as well as instructor proficiency. Standardization of TIMS operating procedures throughout NATRACOM produces quality aviators by providing training continuity and proper execution of CNATRA curricula.

CHAPTER 2

NATRACOM TRAINING IMPROVEMENT PROGRAM (TIP) TEAM

200. Curriculum Control Authority (CCA). CNATRA is the Curriculum Control Authority and holds overall cognizance for all NATRACOM curricula.

201. CNATRA Assistant Chief of Staff for Training (N7). CNATRA N7 implements CNATRA intent, in concert with policy guidance from higher headquarters, and shall:

a. Exercise curriculum control authority over instructional programs within NATRACOM.

b. Supplement training program coordination between appropriate echelons of command to promote systematic and standardized course material within related phases of instruction.

c. Manage TIMS and provide assistance in its implementation.

d. Provide distribution of publications to all appropriate users, ensuring periodic updates of distribution lists, and minimizing waste by eliminating unnecessary recipients and converting to electronic distribution where possible.

202. CNATRA Aviation Training and Standardization Officer (N71). CNATRA N71 has overall staff cognizance on standardization and training for all phases of training. Changes to curricula are approved by the CCA, but CNATRA N71 authorizes work on specific TCRs. CNATRA N71 oversees a regular review and update process for CNATRA training instructions and also ensures consistency in policy, definitions, wording, and format throughout CNATRA publications.

203. CNATRA Pipeline Training Officers (PTO). CNATRA PTOs are NATRACOM flight instructors assigned to the CNATRA staff under the direction of N71. Each PTO must be an experienced instructor in the pipeline assigned. As the pipeline Subject Matter Expert (SME), the PTO shall administer the requirements of this instruction for their respective pipeline. Specifically, PTOs shall:

a. Serve as the focal point for the planning and development of training curricula.

b. Coordinate and process inputs from CCs and SMs.

c. Serve as approval authority for E-brief TCRs and initiate E-brief Service Requests (SR).

d. Manage curricula input for TIMS.

e. Attend curriculum reviews.

f. Maintain liaison with FRSs and other CNATRA PTOs to ensure continuity of training and consistency across pipelines.

g. Conduct periodic TRAWING and squadron informal standardization assist visits to ensure compliance with references (a) and (b).

h. Conduct regular standardization flights with Instructor Pilots, Instructor NFOs, and students at the TRAWING and squadron level to ensure standardized instruction and adherence to all training curriculum requirements.

i. Maintain qualification in all stages of training to the maximum extent possible.

j. PTOs are CNATRA's principal curriculum experts for a particular pipeline or phase of training. Flight instructors who are designated as PTOs shall maintain their qualification requirements as outlined in reference (b).

k. Ensure SMs in their pipeline are completing annual Stage reviews in accordance with this instruction.

204. Curriculum Model Managers (CMM). TRAWING Commanders are designated by CNATRA as CMMs for specific phases of training. CMMs are the focal point for implementation, management, evaluation, and improvement of assigned curricula. They shall:

a. Call and chair curriculum reviews and specify host sites as required.

(1) Phase curriculum reviews shall be held within 18 months from the last curriculum review. A phase curriculum review shall be held no later than one year after a major rewrite/revision of CNATRAINST 1542 for that phase.

(2) Approve review agendas in sufficient time to ensure distribution to attendees prior to the convening date.

(3) Ensure review conclusions, recommendations and associated TCRs are submitted to CNATRA for approval.

b. Provide nominations to CNATRA for each CC and SM assigned.

c. Ensure CC and SMs carry out their responsibilities outlined in CNATRA instructions.

d. Ensure all training courseware and media for respective phases of training are reviewed annually, or within 90 days of a new SM designation, and revised as necessary.

205. Non-CMM TRAWINGs. Commanders of TRAWINGs not assigned CMM responsibilities shall review applicable curricula and shall submit all change recommendations via TCR, provide inputs to SMs, and shall nominate and support SMs in the performance of their duties

206. Curriculum Coordinators (CC). The CC is a civilian government employee or NATRACOM flight instructor assigned to the TRAWING staff, nominated by the CMM, and designated in writing by CNATRA. CCs are responsible for the administrative details of this instruction for their phases of training. Specifically, CCs are responsible for:

a. Coordinating with the SMs and the CNATRA PTO on all issues within the phase.

b. Ensuring that all students and instructors in the TRAWINGs are briefed on the procedures for initiation and submission of SRs and TCRs.

c. Coordinating and submitting revisions and changes to all phase courseware, ensuring the format is correct and in compliance with this instruction, and recommending approval for all relevant TCRs via the TCR Tracker management system.

d. When a TCR is completed, the CC shall verify the following:

(1) The updated courseware is available, either electronically or in the publication library, and is ready for issue.

(2) Previous editions are removed and destroyed.

(3) All instructors are informed that the new revision is available.

(4) All instructors are trained on the revision.

e. Publish an annual plan for review of all training courseware and media for their respective phase of training, to be provided to the CMM, SMs, and PTO.

f. Assist the CMM with all administrative details of curriculum reviews, to include scheduling them within the correct timeline per this instruction. Formalize review conclusions and recommendations for distribution to attendees and submit final results to CNATRA for approval by the CCA.

207. Ground Training Officers (GTO). The GTO is a government employee at each TRAWING that manages the execution of the ground training portion of the curriculum and the contract personnel that support it. The GTO is also responsible for coordinating reviews of training courseware and media by contract simulator and academic instructors with SMs. The GTO is CNATRA's representative at each TRAWING for the Contract Instructional Services (CIS) contract, coordinates ground training curriculum issues with CNATRA N71, and monitors ground training schedules and quality of ground training. The GTO shall also provide specific training to all incoming personnel on the Training Change Request (TCR) process outlined in Chapter 3.

208. Curriculum and Training Content Liaison (CTCL). The CTCL is an on-site CNATRA N7 employee assigned at each TRAWING to provide direct customer support for curriculum and training content, configuration management (CM), and TCR education and support. They support the CNATRA mission, command policies, and the NATRACOM corporate training management system (TIMS). Specific duties include the following:

a. Assist the CC, SMs, and other TRAWING personnel in the preparation and tracking of TCRs. This shall include pulling TCRs off of the web and putting them into the TCR management system within the timeline set forth in the TCR business rules outlined in Chapter 3 of this instruction.

b. Provide TCR tracking lists to TRAWING personnel at least monthly.

c. Assist CC, SMs, and SMEs with courseware reviews by providing technical documentation, reports, or presentations using information extracted from TIMS Syllabus Designer or requesting authorization from CNATRA to locally reproduce copies of courseware.

d. Coordinate courseware and curricula issues between the TRAWING and CNATRA.

e. Conduct audits of the assigned TRAWING courseware and curricula on the academic server when directed by CNATRA Configuration Manager.

f. Coordinate with TRAWING departments, CC, and GTO to resolve issues associated with authorized courseware and curricula.

g. Inventory and maintain CM of all assigned courseware and curricula, including examinations.

h. Work with CNATRA, TRAWING, and squadrons to bring together the optimum CM skills that support TIMS.

209. Stage Managers (SM). A Stage Manager is a NATRACOM flight instructor assigned to a squadron or TRAWING, nominated by the TRAWING Commander, and designated in writing by CNATRA. SMs serve as the CNATRA Subject Matter Expert (SME) for their stage and related areas of expertise. Stages for each phase of training are established in the applicable MCG. CNATRA recognizes the SM as the principal expert for that stage. Flight instructors who are designated as a SM do not require an annual standardization check in the stage for which they serve as a manager, provided they maintain other qualification requirements.

a. Responsibilities. All SM tasking shall be via the appropriate CMM, CC, or PTO. SMs shall report via their chain of command for the following (detailed responsibilities are outlined in Appendix D):

(1) Coordinating with other TRAWING standardization officers and the CNATRA PTO within the phase on issues pertaining to their stage.

(2) Coordinating and submitting recommended changes to all courseware within their stage. SMs shall submit and/or review all relevant TCRs via the TCR Tracker management system. A TCR Tracker account shall be set up by CNATRA N73B during the designation letter routing. SMs will provide feedback on each TCR to the TCR submitter within 10 working days of TCR submission.

(3) Providing a comprehensive review of flight training courseware and media within their stage within 90 days of designation, annually thereafter, and revise if necessary. This includes MCGs (Student and Instructor syllabi), FTIs, CAIs, MIL/IGs, ATIs, exam question banks, and all other courseware for their stage. Provide a summary report of the review to the CMM, CC, and PTO stating that the required review has been completed and TCRs generated, if any.

(4) Serving as the CNATRA SME for development of audiovisual, ICW, academic, and flight support materials.

(5) Enhancing standardization for their stage by visiting all units (intra and inter-TRAWING,) within their pipeline to gather and exchange new ideas. These visits shall be conducted as necessary with a minimum of two visits annually. SMs shall fly with all units within their pipelines to facilitate this exchange.

(6) Attending quarterly TRAWING standardization boards.

(7) Maintaining a current turnover binder which at a minimum contains the SM appointment letter, training courseware review plan, record of last two courseware reviews conducted, record of unit standardization visits, TCRs submitted, and results of last standardization evaluation.

b. Nominations

(1) TRAWING Commanders shall nominate one flight instructor for each SM position listed in the respective MCG. All instructors must have demonstrated exceptional professional ability and motivation within their stage and should be able to serve in that position for a minimum of one year. Specific assignments by TRAWING are listed in Appendix A.

(2) SM nomination letters shall be submitted to CNATRA at least one month prior to a SM being relieved. Letters of nomination shall include nominee's rank, full name, attached unit, PRD, flight hours (total and as CNATRA instructor), instructor designations held, previous curriculum experience, and SM position to be filled. A sample nomination letter is enclosed in Appendix D.

(3) The TRAWING Commander may internally designate flight or academic instructors for block, academic class, or other specialty area support positions in order to provide assistance to the SM as desired. To prevent confusion with CNATRA designated SMs, these designations shall not be "Stage Managers."

210. TRAWING Training and Standardization Officers. TRAWING Training and Standardization Officers are responsible for ensuring course reviews by Simulator and Academic Instructors are coordinated with SMs at their TRAWINGs. They shall also:

a. Ensure academic training courses are managed and accomplish the following:

(1) Apply prescribed curriculum, instruction, and evaluation procedures to ensure quality training.

(2) Monitor and participate in all training activities and internal curriculum revision projects.

(3) Monitor and regulate the instructor certification program (Military and Contract Instructors).

(4) Monitor and regulate all internal evaluation programs.

(5) Monitor classroom practices and instructional methods.

(6) Serve as principal liaison and coordinator for curriculum development and training appraisal.

b. Coordinate and assist the review and development of PAT PUBs/IGs assigned to their TRAWING with assigned SMs. This review shall be completed prior to the phase curriculum review.

c. Coordinate development, implementation, and evaluation of simulator training curricula.

d. Provide training to all incoming instructors on the TCR process; maintain a procedure for all students and instructors to submit TCRs into the TCR Tracker system.

e. Review TCR inputs for the CMM.

211. All Flight Instructors and Students. All CNATRA personnel are part of the NATRACOM TIP Team, and should provide suggestions to improve each course of instruction when necessary. The input from each instructor and student involved with the day-to-day execution of Naval Aviation training will ensure the NATRACOM continues to train aviators based on lessons learned and known best practices.

CHAPTER 3

TRAINING IMPROVEMENT PROGRAM PROCESS

300. Purpose. The Training Improvement Program (TIP) process is the administrative sequence required to revise NATRACOM aviation training courseware and curriculum. The intent is to provide timely changes and to review and update each curriculum.

301. Change Request Paths

a. Issues with training system hardware or computer administration such as accounts, login, and passwords, should be resolved using a Service Request (SR) per Figure 3.1.

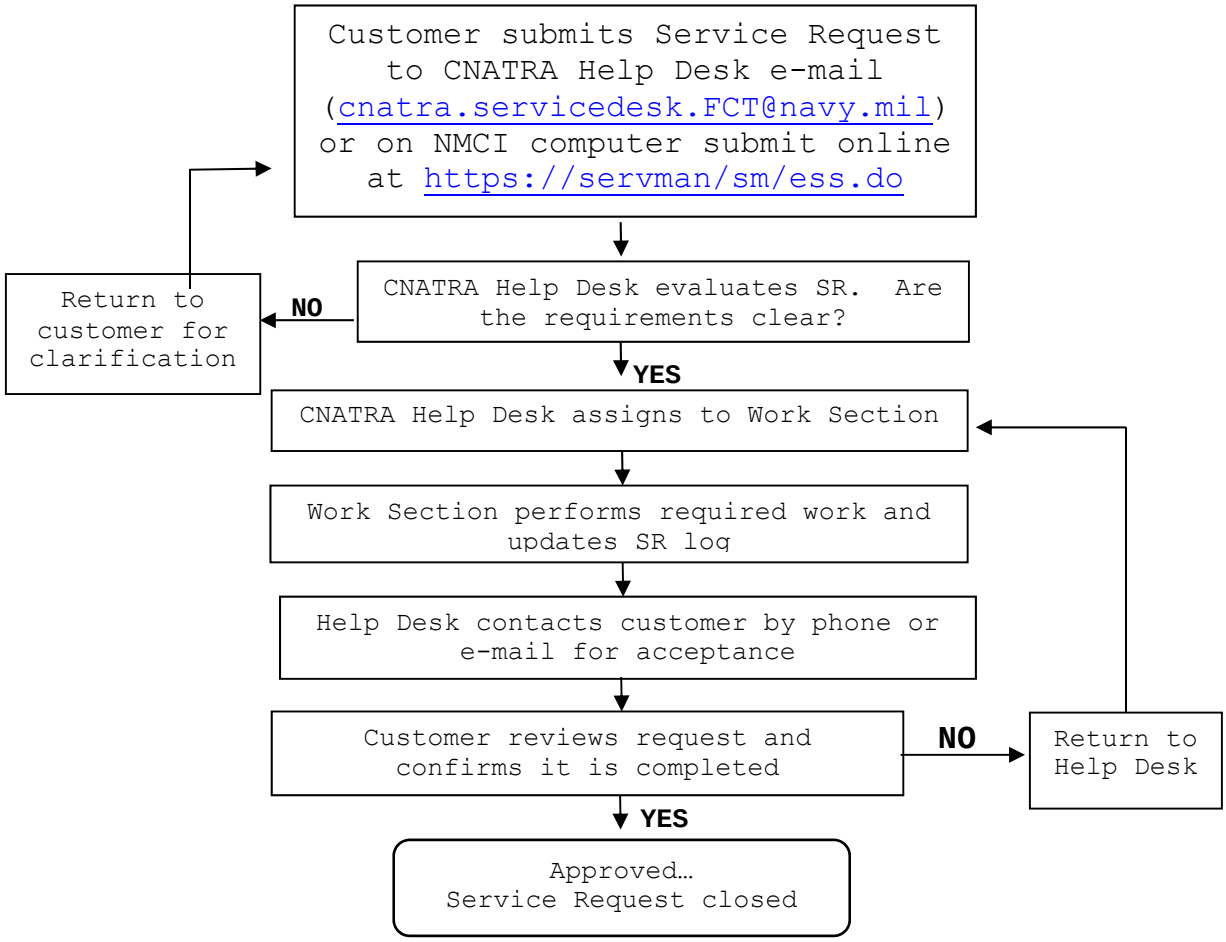


Figure 3.1

b. Issues which involve a change to curriculum or courseware require submission of a TCR. The TCR Tracker system provides NATRACOM with the means to formally approve the TCR, prioritize the work, and track its completion and implementation. All TCRs will undergo administrative review and approval by N7 before incorporation. Minor revisions to curricula in which resource requirements are not changed are usually incorporated with a change transmittal. Revisions involving changes to resources are implemented via an interim change or a new version of the instruction.

302. Training Change Request (TCR) Products. Figure 3.2 describes the products that may be modified via the TCR process.

Product		Notes
CAI/ICW	Computer Aided Instruction/Interactive Courseware	Student-run computer lesson. May include questions and answers. Includes TIMS testing and integration problems.
MIL	Mediated Interactive Lecture	Instructor-led computer lesson. Includes TIMS testing and integration problems.
IG	Instructor Guide	Computer-based lesson notes that accompany a MIL.
MIL/IG		Submit this product when a change affects both the MIL and IG.
MCG	Master Curriculum Guide	Changes to the published MCG. May require additional TCRs for related products.
FTI/PAT PUB	Flight Training Instruction/Particular to Aviation Training Publication	Proposed changes to the published FTI as well as revisions.
EXAM		Stand-alone graded online or written exam. Does not include intermediate Q&A during a CAI or MIL lesson.
TIMS	Training Integration Management System	Non-courseware changes to TIMS syllabi, including changes to prerequisites, grade sheets, event resource requirements, qualifications, etc.
Lesson Guide / Workbook		Paper products.
Poster Graphic		Large scale graphics not part of another product.

Figure 3.2

a. A problem concerning TIMS integration within courseware is considered part of the courseware product (e.g. CAI, MIL), not a TIMS syllabus product.

b. TIMS TCRs are for modification of data previously entered via the TIMS syllabus management tools (e.g., prerequisites, course flow, grade sheets, repoint events to new versions of courseware, update qualification requirements) or for entry of new or revised curricula, resources, or qualifications.

303. TCR Initiation. TCRs may be generated in two ways: directly into the TCR Tracker system or via the web. Direct entry is reserved for those with direct access to the TCR Tracker System (SMs, CCs, PTOs). All others shall use the web-based TCR input process outlined in paragraph 304. The TCR Tracker database provides NATRACOM with the means to formally approve the TCR, prioritize the work, and track its completion and implementation.

a. Squadron and TRAWING Training/Standardization Officers, CCs, SMs, and PTOs are responsible for tracking submitted TCRs and ensuring the information is accurately entered into the TCR Tracker.

b. All personnel identified in Chapter 2 as part of the TIP team shall have a TCR Tracker account. Additionally, all leaders are encouraged to have an account to maintain visibility on TCRs in their phase of training. Contact CNATRA N73B to establish an account.

c. GTOs are responsible for ensuring all personnel (instructors, students, CSIs etc.) are trained on how to submit requests for changes.

304. Web-based TCR Input Process

a. The Web-based TCR input process is a CNATRA enterprise-wide capability, whereby ANY member of the Naval Air Training Command can recommend changes, improvements, and corrections to syllabi, courseware, exams, FTIs, workbooks, lectures, instructor guides, etc.

b. Originator submits TCR using the submission form found at www.cnatra.navy.mil under the "Resources" dropdown menu, selecting "Training Improvement Program (TIP)." The submission link is CAC-enabled.

c. Upon submission, the TRAWING CTCL and TRAWING CC will receive an auto-generated e-mail with originator contact information and the requested change.

d. The originator will receive a confirmation email that includes the recipients' email addresses (CTCL and CC), along with a summary of the TCR information.

e. The CTCL shall input all submitted TCRs into the TCR Tracker, without exception, ***including*** known duplicate submissions. Each submission will be copied directly as written into the TCR Tracker. All submissions shall normally be entered into the TCR Tracker within 2 working days.

f. If the CTCL has questions or requires additional documentation, he/she will contact the originator for more information or clarification. This same guidance applies for all reviewers in the chain. NOTE: the submission form also contains an option for the submitter to request contact, so that they can provide additional documentation.

g. Upon submission of the TCR into the TCR Tracker system, the CTCL will send the originator the following e-mail: "Your TCR (number) has been created in the TCR tracker. You may view this TCR and its current status at the CNATRA web site. TCR status is updated on the web site every Wednesday at 0900."

h. Feedback to TCR submitters is critical to maintaining the credibility of the process across CNATRA. Upon receipt and review of a TCR by the CNATRA SM, the SM will provide verbal or written feedback to the originator on the SM's recommendation for the TCR. The SM shall note in the "Justification" section under the "General" tab that this was completed, along with how and when the feedback was provided. For example: "SM recommendation feedback provided to originator via phone call on 26May16." The goal for this feedback is 10 working days from original submission; the SM's staffing of the TCR does not need

to be complete by this point, but the SM should at least be able to provide the originator with the SM's most likely recommendation and plan for the TCR.

i. All reviewers throughout the TCR processing chain will provide written recommendations as the TCR moves through the system, in the comments field under the "Disposition" tab. Recommendations may include immediate approval, holding for next curriculum review, or rejection. If recommending rejection, a reason must be included. Some examples of reasons include: "duplicate TCR, already part of TCR#000xxxx," "not enough information provided, attempted to contact originator on 26May16 via e-mail to clarify with no response," "incorrect recommendation," etc.

j. Every TCR, including duplicates and those recommended for rejection, will be processed through the entire system to CNATRA N71 and/or CNATRA N7. Only CNATRA N71 or CNATRA N7 may reject a TCR. This requirement ensures full visibility of every TCR through the entire processing chain.

k. Unprofessional TCR submissions will be reported by the CTCL to the TRAWING CC. The CC will work with TRAWING leadership to take appropriate action as deemed necessary.

l. Questions should be directed to each TRAWING CTCL. As a member of the CNATRA N73 TIMS Site Support Team, each CTCL has direct connectivity to CNATRA TCR Tracker administrators and the rest of the N7 staff.

305. TCR Tracker Data Entry

a. Prior to entry in the TCR Tracker, the SM shall verify a TCR requesting the same changes does not exist. The "affected publications" and "Find duplicate PAT PUB" queries in the TCR Tracker can aid with this task. If a similar TCR is already in the TCR Tracker, the respective PTO shall be contacted for guidance.

b. Priority. SMs shall assign a priority of Safety of Flight (SOF), Urgent, or Routine to the TCR.

(1) Safety of Flight (SOF). Used to correct a policy or procedure that violates NATOPS or may result in injury or death if not corrected. It is not a recommendation for change, but a correction of an obvious error in a piece of courseware. SOF TCRs shall include a Risk Assessment Code (RAC) and shall be entered into the TCR Tracker and routed within 24 hours (RAC 1 - Critical), two working days (RAC 2 - Serious), or three working days (RAC 3 - Moderate). The CC shall notify the PTO immediately of any SOF TCR.

(2) Urgent. Used to correct a policy or procedure which negatively impacts training. Urgent TCRs should be incorporated before the next scheduled curriculum review.

(3) Routine. Used to improve the clarity and instructional value of courseware. Changes associated with Routine TCRs may be deferred until the next curriculum review.

c. Subject. The subject line shall contain the affected platform, product type and number, pipeline, and the short title.

d. Attachment Tab. MCGs and PAT PUBs will have a Summary of Changes as an attachment.

306. TCRs Affecting Multiple Products. If a change affects multiple product types, separate TCRs shall be written individually for those different products (e.g., a NATOPS change which may affect a CAI, MIL, and FTI would require three TCRs). When the change affects more than one product and there is a dependency between the products where they must be deployed together, annotations shall be made in the remarks of the TCR noting the dependent product and corresponding TCR number of the other product (e.g. TCR # TCR00018726 INAV01 MIL requires deployment of INAV04 CAI TCR00018730).

307. TCR Routing

a. TRAWING Stan Officer and SM comments should be included in the TCR Tracker. Submission of all ideas is encouraged to stimulate further thought; even rejected ideas may ultimately result in improvements to training. **Only** CNATRA N7 or N71 may reject and close out a TCR.

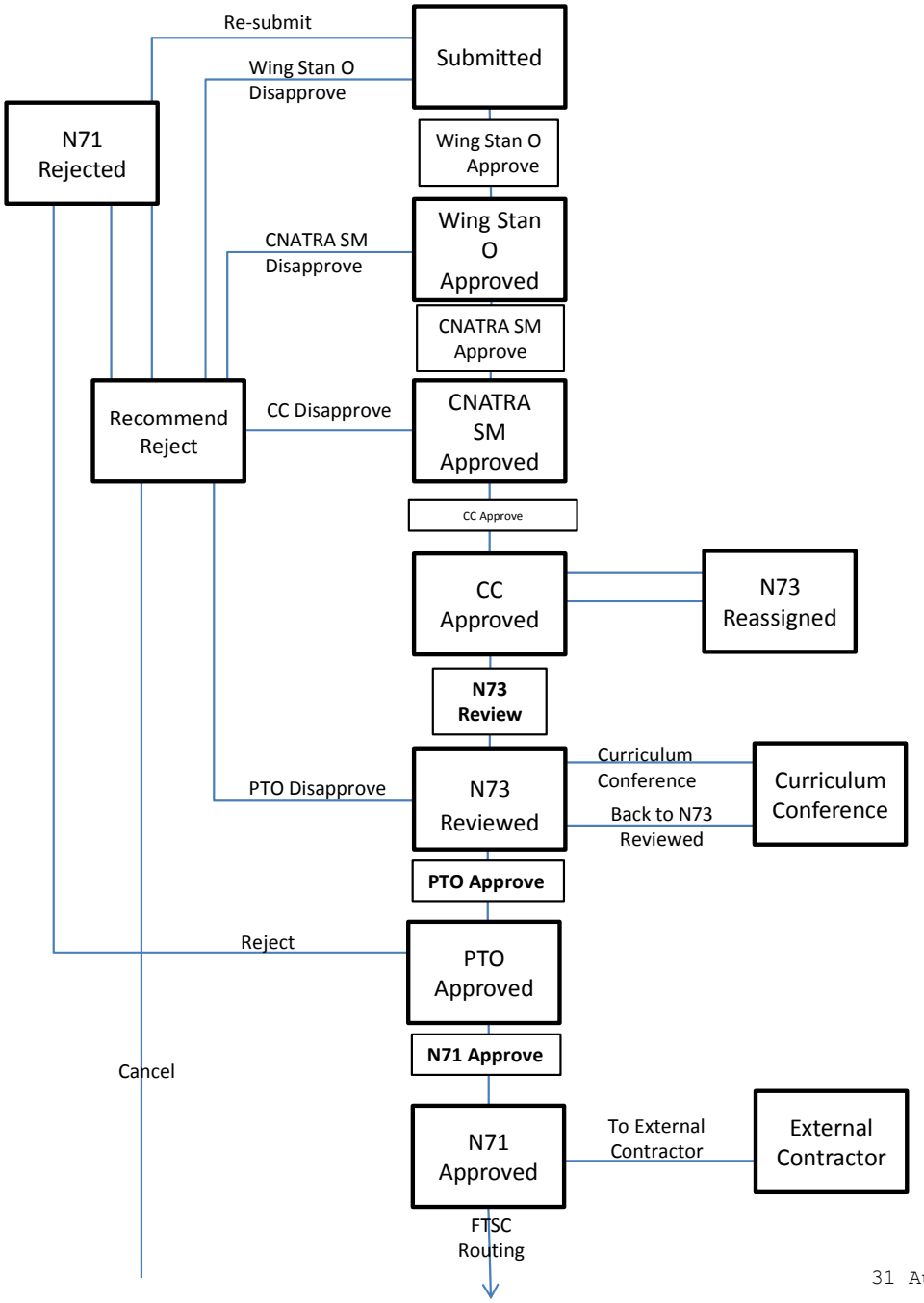
b. The CC reviews and confirms the list of affected publications and courseware. The CC is to ensure coordination with other CNATRA units has been completed (if required), review publications to ensure format complies with this instruction, and forwards the TCR with comments. The CC is not responsible for content review of TCRs, and should not delay their routing.

c. The appropriate PTO will evaluate each TCR to determine if the change is desired and whether it should be categorized as Safety of Flight, an interim change, or may be deferred until the next curriculum review. TCR prioritization and management is at the discretion of each PTO and CNATRA N71.

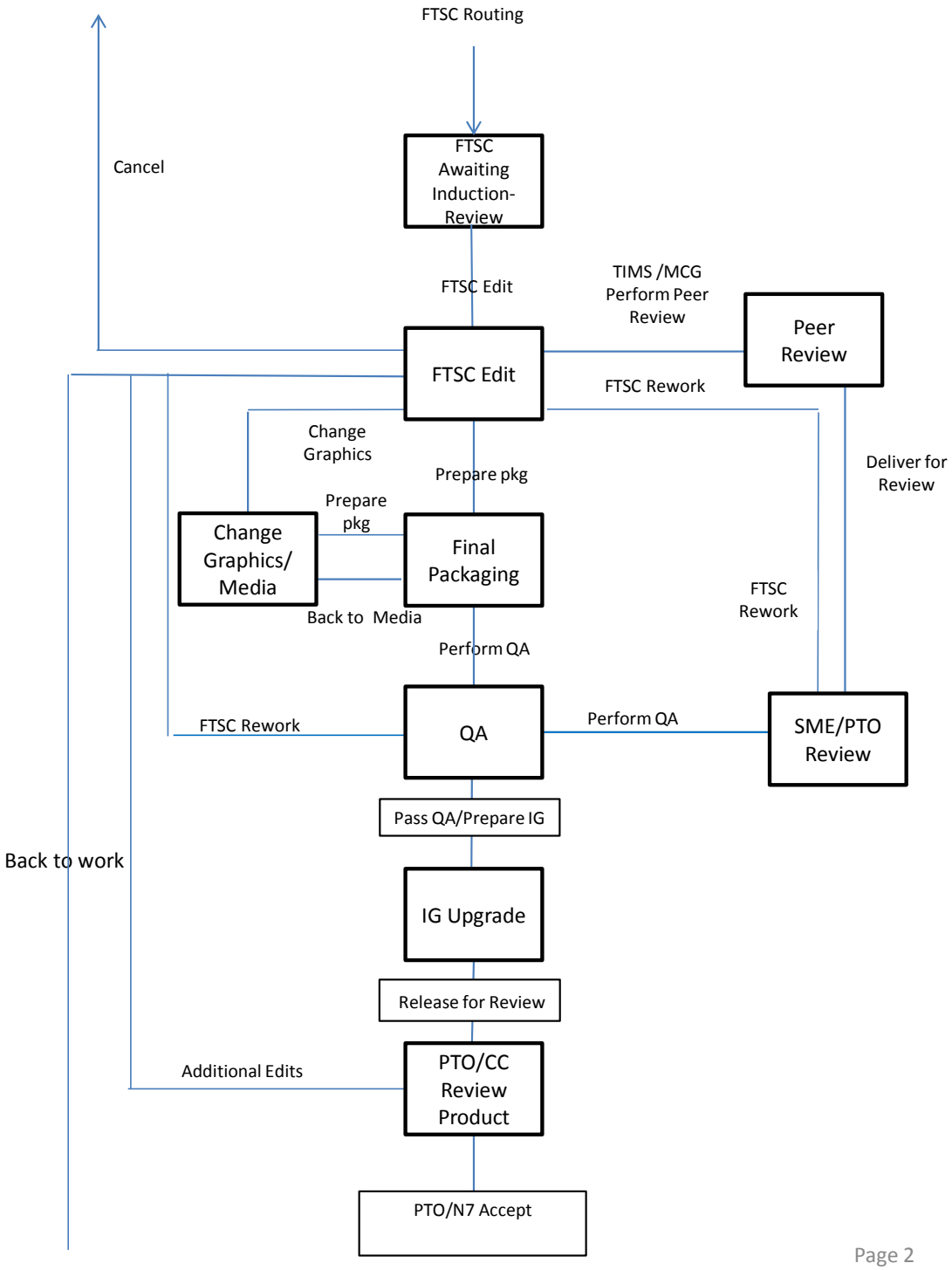
d. Feedback to the originator remains a critical part of the process. If a TCR is rejected by either CNATRA N7 or N71, the PTO shall notify the appropriate CC and articulate the reason for rejection. Additionally, when a TCR-initiated change has been implemented, the CC shall provide feedback to the originator of the TCR.

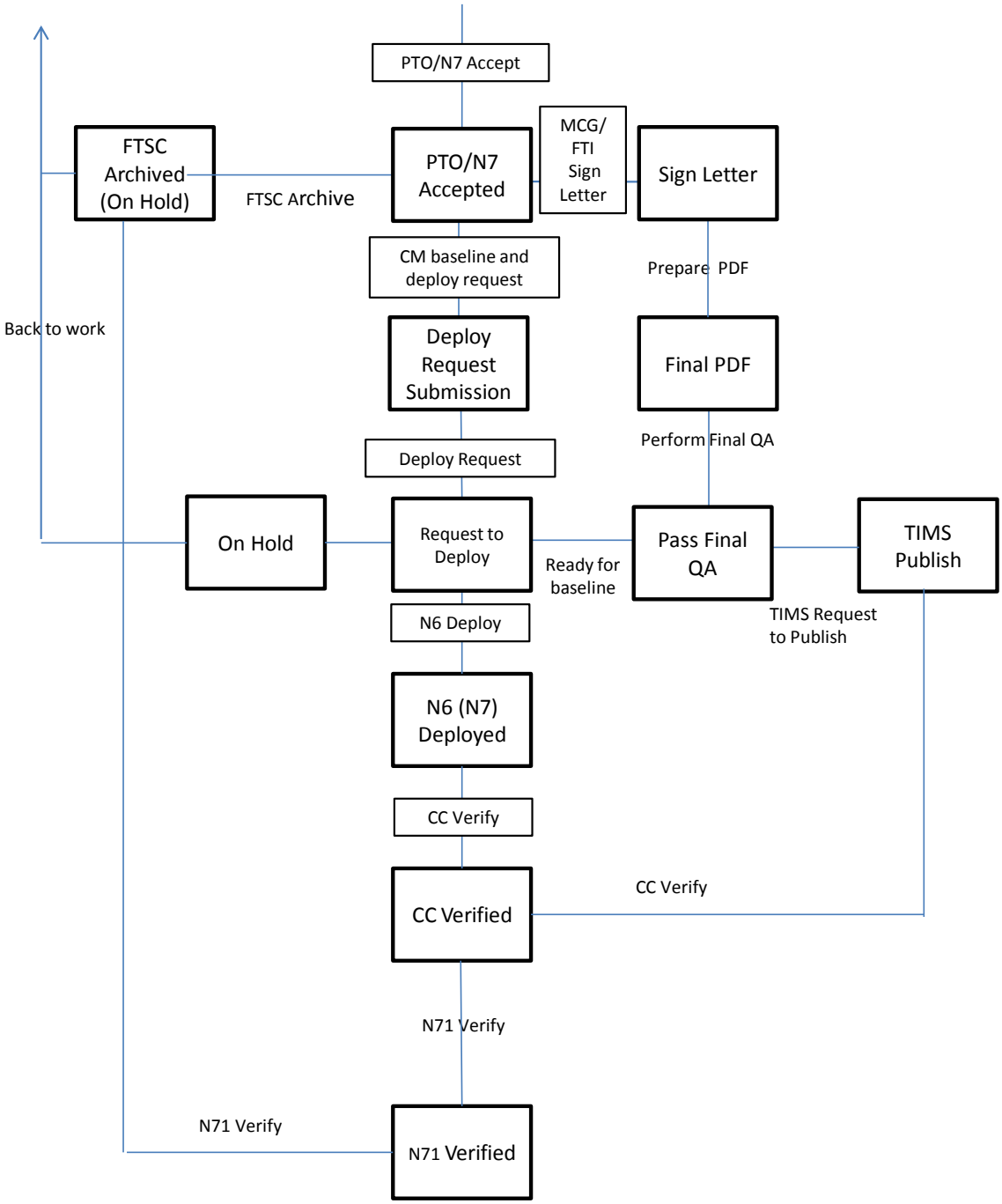
e. Figure 3.3 outlines the specific steps of TCR routing and process flow.

Courseware Curriculum Change Process



31 Aug 16


FTSC Routing
Cancel
FTSC Awaiting Induction-Review
FTSC Edit
TIMS /MCG Perform Peer Review
Peer Review
FTSC Edit
FTSC Rework
Change Graphics
Prepare pkg
Deliver for Review
Prepare pkg
Change Graphics/ Media
Final Packaging
FTSC Rework
Back to Media
Perform QA
FTSC Rework
QA
Perform QA
SME/PTO Review
Pass QA/Prepare IG
Back to work
IG Upgrade
Release for Review
Additional Edits
PTO/CC Review Product
PTO/N7 Accept


PTO/N7 Accept
FTSC Archived (On Hold)
FTSC Archive
PTO/N7 Accepted
MCG/ FTI Sign Letter
Sign Letter
CM baseline and deploy request
Prepare PDF
Back to work
Deploy Request Submission
Final PDF
Perform Final QA
Deploy Request
On Hold
Request to Deploy
Ready for baseline
Pass Final QA
TIMS Publish
TIMS Request to Publish
N6 Deploy
N6 (N7) Deployed
CC Verify
CC Verified
CC Verify
N71 Verify
N71 Verify
N71 Verified

308. Proposed Flight Curriculum Validation. Validation of flight training programs is significantly different than validating classroom training. The following methods of validation shall be employed for existing and developmental flight curricula.

a. The current programs of Aviation Safety, Naval Air Training and Operating Procedures Standardization (NATOPS), periodic All Officer/Instructor Meetings (AOM/AIM) and Safety Stand-downs, as well as the requirements of this instruction, serve to validate approved curricula.

b. Developmental flight curricula require close supervision for obvious safety and quality reasons. Prior to changing a curriculum flight training event, a flight validation program to assess the desired effect, ability to be taught, and flight safety shall be conducted. The validation process requires written CNATRA N7 approval prior to initiation. The validation steps will normally consist of:

(1) A robust risk assessment shall be completed for all test flights in general, and shall specifically include the risks and risk mitigation of new or revised maneuvers. Commodore approval of the risk assessment is required. The risk assessment shall be submitted to CNATRA N7.

(2) Test flights, using standardization instructors and stage complete students. For simulators, one stage complete student should fly the device with a standardization instructor monitoring CSI's console.

(3) The validation results shall be routed to CNATRA N7 for review via the appropriate Stage Manager.

c. Unsatisfactory student performance attributable directly to the proposed flight modifications shall not count as an unsatisfactory event and any appropriate remedial training shall be provided.

309. Curriculum Reviews

a. A curriculum review is the formal process to conduct in-depth evaluation of phase curricula and ensure capitalization of the latest available technologies, procedures, and fleet requirements.

(1) Curriculum reviews can range in focus from one stage or one phase, to an entire pipeline.

(2) Curriculum reviews shall adhere to the procedures outlined in Appendix C.

(3) The CMM will call and chair curriculum reviews. Attendees shall include, at a minimum, the appropriate CNATRA PTO, CC, TRAWING Standardization Officer, appropriate SMs, and an FTSC representative. FRS representation is strongly desired.

b. Stage reviews can be called when a TCR has been submitted that the PTO has designated Urgent and the Stage Manager feels a review is required to finalize a suitable response.

CHAPTER 4

MASTER CURRICULUM GUIDES

400. General. Each CNATRA Master Curriculum Guide (MCG) outlines the means for providing standardized instruction to students in a specific NATRACOM flight training phase.

401. Description. The MCG contains a list of stages with guidelines explaining the sequence of instruction, scheduling, standardization, administration, training forms, jacket reviews, flight/simulator interchangeability, attrition process, performance measurement, and required standards. Additionally, the MCG addresses brief/debrief time, solo restrictions (if applicable), warm-up policy, flight waivers, accelerated progression, incomplete events, weather/safety pilots (if applicable), emergency procedures, training and grading definitions, academic periods, and flight support periods. MCG stages are divided into blocks, which consist of events (ground training, flight support, simulator, or flight). Simulator and flight events are further subdivided into tasks/items which specify the training to be conducted for the training period. Ground Training and Flight Support events are not subdivided but stand alone, identifying the specific training to be conducted. All events are arranged in a logical sequence for instruction, with the interdependencies and prerequisites shown in a Course Flow diagram and detailed in the block descriptions. Tasks/items are graded via the Course Training Standards (CTS) in the MCG, which define the level of proficiency required.

402. MCG Outline. Student MCGs are built with a common set of sections and chapters; Chapters 2 through 8 normally correspond to a formal stage of training. The intent is to have only these sections and chapters, and that any event should fit into one of them. Exceptions where multiple stages are included within chapters or extra chapters are added, shall be reviewed by CNATRA N7 and approved only if absolutely necessary. Details, examples, and formatting directions are provided in Appendices F and G. While the titles of chapters shall be maintained as specified, general descriptions regarding chapter content are provided as guidance only, and it is ultimately a decision for the MCG developer based on the logical divisions and sequencing of events in a particular curriculum.

a. Summary of Changes

b. Course Data

c. Abbreviations

d. Glossary

e. Chapter 1: General Instructions. Much of the material in this chapter is derived or copied from the Naval Flight Student Training Administration (TA) Manual, reference (a). Special attention should be paid during update cycles to ensure the two documents match.

f. Chapter 2: Ground Training. Administrative, operational, and academic classes that prepare the foundation for flight (e.g., safety, weather, communication, crew resource management, and aircraft systems). Other lessons outside the classroom such as facility tours, seat briefs, and aircraft walk-arounds may also be included. Classes relevant to later stages shall be located in the appropriate chapters and are not to be confused with the ground stage, which is conducted "on the ground." PTOs, with N7 approval, shall determine how the different lessons will fit within a specific stage.

g. Chapter 3: NATOPS Training. This chapter only applies to IUT curricula. NFS curricula shall indicate "does not apply" per Appendix F.

h. Chapter 4: Contact Training. Day and night familiarization, VFR flight, aerobatic maneuvers, out-of-control flight procedures, and landing patterns are examples of common topics.

i. Chapter 5: Instrument Training. The focus of this chapter is how to interpret aircraft instruments for use in controlling the aircraft, monitoring aircraft systems, and basic airways navigation.

j. Chapter 6: Navigation Training. In general, any type of navigation that does not rely primarily on instruments can be covered in this chapter. Operational examples include low-levels and overwater navigation. If applicable, advanced airways navigation may also be covered in this chapter.

k. Chapter 7: Formation Training.

l. Chapter 8: Tactical Training. This chapter consists of tactical applications of naval aircraft, including weapons, carrier operations, and maneuvering. Since Chapters 5 and 6 could also be considered tactical, events that overlap Stage topics may be placed in the chapter that fits best with the flow.

m. Chapter 9: Course Training Standards.

n. Chapter 10: Master Materials Forms.

403. Time to Train. Calculations shall be made using Figures 4.1 and 4.2. These figures are not intended for publication in the MCG. They are a template for use by CNATRA N3 to make the calculations and retain them on file, updating as necessary. The results of the calculations shall be presented in the Course Data section of the MCG. If exceptions are approved, they shall be noted in the Course Data section with rationale.

Figure 4.1

TIME-TO-TRAIN SUMMARY OF ABBREVIATIONS

TDf = Training Days for Flight (1 flight event per day, or per applicable MCG)	Tc = Training days corrected for weather, maintenance, and ops
TDs = Training Days for simulator (1 sim event per day, or per applicable MCG) [1]	Tf = Training days required (Flight)
Wx = Weather factor [2]	Ts = Training days Required (Sim)
Ox = Operations Loss Factor [2]	Mx = Maintenance Overhead [2]
So = Student overhead [2]	Ch = Curriculum hours (per MCG)
Tt = Training days required (Total)	Ta = Training days required (Academics)

Notes: (1) All strike syllabi will use two (2) simulator events per day.

(2) 5 year average of reported data located at CNATRA N3.

Figure 4.2

TIME-TO-TRAIN CALCULATIONS

1. Days for Flight Events (Tf): $\frac{TDf}{Wx + Mx + Ox} = Tc$ Tc X (1+So) = Tf

2. Days for Simulator Events (Ts): TDs X (1+So) = Ts

3. Days for Flight Support/Academics (Ta): $\frac{Ch}{8} = Ta^2$

4. Total Training Days Required (Tt): Tf + Ts + Ta = Tt

5. Calendar Days: Tt/(235/365)= Calendar Days

6. Production Days: Tt/(245/365)= Production Days

7. Calendar Weeks: $\frac{\text{Calendar Days}}{7 \text{ days}}$ = Calendar Weeks

8. Production Weeks: $\frac{\text{Production Days}}{5 \text{ days}}$ = Production Weeks

Notes: (1) TTT is expressed in calendar weeks and production weeks. Annual TTT entitlement uses Calendar Weeks and applies to the syllabus. Production Weeks are used for individual students for greater accuracy in production planning.
(2) Ta includes a factor for time waiting winging or selection, derived from a 5 year average of available data located at CNATRA N3.

404. Definitions. Many terms are defined in the sample Glossary of Appendix E at a level appropriate for MCG users. Detailed explanations of terms important to understanding the MCG and its construction are discussed in Chapter 1 and in the following:

a. Training. All training falls into one of four general areas, which correspond to the division of charts for course training subjects found in Chapter 1 of the MCGs:

Training area	MCG location	Media Code	Examples
1. Administration	Chapter 2: Ground Stage	0	Welcome Aboard, Check-In, Paraloft
2. Foundation		0 or 1	Crew Resource Management, Seat Brief, Aircraft/Facility Tour
3. Flight Support			Instrument Flight Preparation
4. Flight Training	Chapters 3-8: Flight Stages	2	Cockpit procedures sim, EP sim
		3	Instrument Navigation sim
		4	Initial Contact Solo Flight

(1) Administration. Classes that support organizational and logistical requirements.

(2) Foundation. Academic and operational classes that build the background knowledge needed for all flight training in this curriculum.

(3) Flight Support. Academic and operational classes that directly prepare for the conduct and execution of a particular flight stage.

(4) Flight Training. Graded simulator events and aircraft flights.

b. Block Descriptions. Comprised of several parts, allocated per the page layouts in Appendix F depending on the type of training. Some or all of the following components apply to each block (or related blocks):

(1) Prerequisites. All units of instruction (blocks and/or events) that must be complete before starting the current block.

(2) Events. Each ground training or flight support event is listed on a line that contains the block number, specific media, title, number of events, hours, and block name (unless the block name listed in the title header is applicable to the whole page).

(3) Syllabus Notes. Any information not covered elsewhere for the block may be listed here. Examples include resources/locations that are not specified by the media code, any comments on course flow and event sequencing beyond prerequisites, front or rear cockpit, and instructor requirements such as on-wing.

(4) Special Syllabus Requirements (SSR). One time, ungraded demonstration item(s). Required in TIMS either on a specific event or by the end of the block in which it resides. Exposure to SSR must be noted in TIMS gradebook and the item must be graded with a "1" on the applicable event.

(5) Discuss Items. Potential topics to cover during the flight support class, simulator, or flight, listed separately by event. The student is responsible for studying and becoming familiar with all procedures, systems, and maneuvers prior to the event brief. For academic flight support classes, Discuss Items may not apply, indicated by "None."

(6) Block MIF (Maneuver Item File). A chart listing the required maneuvers and associated proficiency levels for a particular block of flight training.

c. Event Identification. In TIMS, a model event is created with all the resources needed for managers and schedulers. In the MCG, each event is uniquely named by a word title and a corresponding code called a Lesson Designator. The example glossary in Appendix E shows a chart with the format for the Lesson Designator.

(1) Stage or Block. The first set of characters of the code consists of one to three letters identifying the stage or block name. If possible, using one letter (corresponding to the first letter of the stage) is optimal and will match most MCGs. If necessary, due to the very large number of events in a

particular curriculum, multiple letters (representing the block name) may be used.

(2) Media and Media Codes. Media, in MCGs, refers to the methods and materials used to convey learning objectives, and may indicate courseware, environment, and/or training device type used to conduct an event. A media code is a number from 0 to 4 that identifies a general group: classes (0 or 1), simulators (2 or 3), and aircraft (4). There are four event types hard-coded into TIMS (Online, Offline, Device, and Flight), thus the "types" are essentially defined by media. These correspond with MCG media classifications in the following manner: Online and Offline apply to classes, Device is used for simulators, and Flight refers to aircraft. The specific media should be listed for each event as described in Appendix F.

(a) 0 or 1. Used for classes in ground training and flight support. May be optionally distinguished by labels or considered broadly as "Classes." Admin classes for both stage and block modes of organization, are always 0.

1. For Stage mode, the labels may be 0-Operations and 1-Academics. These terms may not have obvious lines of distinction, in that the purpose of the Academics is ultimately to prepare for flight-related Operations and some topics could easily fall into either group. Instrument flight, for example, may be represented in Academics during a series of lessons focused on how to interpret aircraft instruments to accomplish airways navigation and approaches. Later, there may be an Operations block of instrument flight focusing on scan, procedures, and techniques. In an effort to provide some clarification, the following general descriptions apply. Operations can be considered to include ground facilities, general flight preparation, and admin functions. Academics usually consist of a comprehensive series of related lessons on a topic requiring extensive training before moving on to its operational application. If the block has a test, it is likely to fit into Academics. Academics are often conducted in a classroom as a MIL or LECT, although CAI, LAB, and other media may apply as well. Academics would be used for topics such as aircraft systems and basic instrument navigation. Operations would be used for topics such as admin/welcome aboard, safety, VFR comm, and seat brief.

2. For lesson designators using the Block mode, another valid choice is 0-Ground Training and 1-Flight Support. This arrangement is not used in the stage mode since it would be redundant information (Ground Training is already indicated by "G", and an event with any other Stage prefix letter and a 0 or 1 for the media code is already identified as Flight Support).

3. Overall, it is up to the MCG developer to decide how the events are classified, i.e., which best fits the particular curriculum and event number sequencing guidelines. Simply using the definition as 0 or 1 without further distinction is also a viable option that simplifies the event numbering process.

4. The events in the 0 or 1 group could conceptually be subdivided in many other (often overlapping) ways. For instance, the group includes events presented in a classroom-type environment as well as squadron operational spaces. Classes may also be led or moderated by a qualified instructor or a presenter appropriate to the topic, or self-led. The TIMS Event Types Online and Offline both apply, with Online referring to events that are launched through TIMS and have standardized, controlled courseware. TIMS subtypes are the more specific media, which fit multiple classifications. See Chapter 1 for courseware and media definitions. The specific media pertinent to classes in MCGs shall be selected from the following:

Media for CLASSES**	**On/Off line**	**Led By**	**Examples**
MIL	On	Inst	
OFFLINE MIL	Off	Inst	
CAI	On	Self	
CAI TEST	On	Self	
PTT	Off	Inst	
LECT	Off	Inst	Welcome Aboard, Instrument Review
TOUR	Off	Inst	Flight line tour, Tower visit
LAB	Off	Inst	Flight Planning Practical Problems, Aerodynamics Lab
P/P	Off	Inst	Emergency Procedures Exam
SS	Off	Self	Scheduled Chart Prep session

**Other terms for CLASS Media shall be added only if absolutely necessary, and with approval of CNATRA N7. Terms that overlap functionality with existing Media should be avoided.

**The name of the particular PTT, such as 2B47 or RIOT, should be used in the Event lines of block descriptions and included in the Glossary.

5. An important issue to consider when deciding how to define 0 and 1 for a particular MCG is the overall sequence of events, how they are arranged into blocks and stages, and their appearance in the course flow diagram. Events are sometimes grouped together and referred to as the G14 block, for instance. Within this block, all events must have the same Media code in order to keep this reference (thus keeping the first digit constant), due to TIMS requirements. For example, if the block is aircraft systems, specific media may include MIL, CAI, PTT, and TOUR. Therefore, the Media codes 0 and 1 cannot be distinguished by instructor/self-led, classroom/squadron spaces, or online/offline because all of these are used within one block. Using Operations/Academics as recommended will work, but may not facilitate numbering events in a strictly sequential manner relative to order of execution. Using one general class group may improve this presentation, but since most course flow charts have many interdependencies and the events are rarely sequenced serially, it may not make much difference. Another possible advantage of keeping 0 and 1 together allows them to both be used when a Stage/Media combination might have more than nine logical groupings and would run out of numbering options using the block code alone. This potential problem may also be alleviated by using block as the first part of the lesson designator, as previously described.

(b) 2 and 3: Sim. A graded event in a fully interactive simulator. In general, 2 is intended for use with lessons that are focused on cockpit fams or particular procedures, while 3 is for integrated, flight-profile sims. The appropriate title for 2 may vary depending on the curriculum, such as CPT or EP sim. Specific types of simulators and example TIMS device codes (which may be listed as specific media in MCGs) include:

Media for sims		Examples		
		Code	**aircraft**	**comments**
OFT	Operational Flight Trainer	2F138	T-45	With visuals
IFT	Instrument Flight Trainer	2F137	T-45	No visuals
UTD	Unit Training Device			

(c) 4: Aircraft. A graded event consisting of a flight in an aircraft (e.g., T-6B, TH-57C, T-45C). The intention is for all flights to use a code of 4. Exceptions to this practice where additional numbers are used to distinguish various types of flights (e.g., NFS vs. IUT, Primary vs. Intermediate) should be avoided. If absolutely necessary and justified, they may be approved by CNATRA N71. Historical incorrect usage shall not constitute justification.

(d) Media may not necessarily indicate all the resources needed for the event. Resources are entered by TIMS managers into the database for use by schedulers. If the resources for an event are not clearly indicated by media and/or event title (e.g., MIL, by definition, needs a classroom capable of computer projection), more words should be supplied in syllabus notes. While it may be helpful for the student to see this additional information on resources, it is essential to the TIMS manager that would otherwise be constantly delayed in the MCG data entry process by having to track down the PTO for more information and clarification. For example, an aircraft tour included during initial systems training could have LECT in the Media column, but a note could be added specifying that the event will occur on the flight line with the (specific) aircraft. (The aircraft cannot be listed as the Media here because that is reserved for actual flights). Another resource could be an instructor with particular qualifications or designations.

(3) Block. The Block code is part of the lesson designator, a digit from 1 to 9. There may be one or multiple blocks in a TIMS category. The closest operational equivalent to TIMS category is Block Name. A category is always made up of words or an abbreviation (e.g., Crew Resource Management, CRM). The term “block” itself can be used alongside in a word format (the Basic Instrument block), or in number format to refer to an

abbreviated lesson designator, up to the block code digit (the G14 block). A block can be uniquely identified by this block number, e.g., F41, G01, BI12, C22, MET01.

(4) Event Code. Specific event check/identifier codes make up the last two digits of the lesson designator, as detailed in the Glossary of Appendix E.

d. Event Sequencing. The order of chapters does not imply that they are completed in sequence. The presentation order of blocks within chapters also does not necessarily indicate sequence of execution. This information can best be obtained from the Course Flow diagram. Words describing the interdependencies among events are also provided in the Prerequisites and Syllabus Notes sections. As much as possible, however, block and event numbering should be presented in numerical order on the pages of the Stage chapters, with consideration also for intended order of execution. One consequence of this philosophy is that the exact same lesson, using the same courseware, may be numbered differently in another MCG.

e. Grading. All grading will be based on CTS with the minimum completion standards listed in the Maneuver Item File (MIF). Per the TA manual, reference (a), the grading scale consists of:

(1) Demonstrated (NG/1 Level)

(2) Unable (U/2 Level)

(3) Fair (F/3 Level)

(4) Good (G/4 Level)

(5) Excellent (E/5 Level)

f. NATOPS Event Grading. Overall event grading for the NATOPS Check Flight in IUT syllabi will be:

(1) Unqualified (UQ/1 Level)

(2) Conditionally Qualified (CQ/2 Level)

(3) Qualified (Q/3 Level)

g. NATOPS Maneuver Item Grading scale (IUT syllabi only) consists of:

(1) Demonstrated (D/1 Level)

(2) Unqualified (UQ/2 Level)

(3) Conditionally Qualified (CQ/3 Level)

(4) Qualified (Q/4 Level)

CHAPTER 5

AVIATION TRAINING FORMS

500. ATF Procedures. Specific guidance for completing Aviation Training Forms (ATF) is found in CNATRAINST 1500.4 series. ATFs are generated by TIMS for each event. Revision of ATFs will be made as an MCG change through the TCR process.

501. Change Recommendations. Any instructor or student involved with flight training may submit a recommended change to an existing ATF using a TCR. Procedures for changing an ATF are as follows:

a. If the change is simple, cross out the items you want to change on the present form, make the proposed corrections, then submit a TCR describing background and reason for change.

b. If the proposed change is complicated, redraw the form with the suggested changes on a separate piece of paper and attach it to the current form. Submit a TCR with a description and reason for the change.

CHAPTER 6

FLIGHT TRAINING INSTRUCTIONS (FTI)

600. General

a. FTIs are an authoritative and descriptive narrative of all maneuvers and procedures required by the MCG.

601. FTI Content. The FTI is the primary resource for all maneuvers and procedures required by the MCG. The goal of an FTI is to equip the undergraduate aviator with the knowledge and skills required to decipher and apply NATOPS publications, the instrument flight manual, or any other reference used by designated aviators. The emphasis in latter phases should be on cultivating independence from the training instruction and reliance on the publications, which the student will use throughout their aviation career.

a. FTIs should not duplicate existing publications (e.g., NATOPS, IFM), but should expand on concepts and address specific applications of the referenced materials.

b. FTIs should include or reference all information needed to complete the applicable stage or phase of training. FTIs should be considered building blocks. Previously introduced material from other FTIs may be referenced in a subsequent FTI, but no reference should be made in an FTI to a stage that follows it.

c. Although FTIs present all basic information required prior to flight, it is the instructor's responsibility to ensure comprehension of subject matter by the student. The descriptions of maneuvers or procedures should be lucid and concise; there should be no need to interpret the instruction. Conversely, the descriptions of maneuvers may allow sufficient latitude for instructor technique. The determining considerations should be the effectiveness and standardization of training.

602. FTI Format. A standardized format ensures completeness within a learning objective area and facilitates revision. The format requirements are general enough to allow an appealing and

congenial presentation of the subject matter. The structure gives the author a logical framework, keeping the material focused and concise. See Appendix I. The FTSC maintains a style guide with specific style and format information not covered by this instruction.

a. Each chapter or section should be organized in the following order and should include:

(1) Introduction.

(2) A complete and precise presentation of the subject matter. Context-specific information may include the use of standard terminology; however, all new terms must be defined in the glossary. Use of non-standard terminology is inappropriate.

b. Innovation is encouraged when writing an FTI, but the following guidelines apply:

(1) The style of writing should be professional but informal. Learning and enabling objectives should be clearly stated within the body of the text.

(2) Active voice must be used. Good grammar and a professional tone are very important.

(3) Levity is not discouraged, but must reinforce the topic being presented and must be of unimpeachable taste.

(4) Only major sections will be numbered. Titles of major paragraphs correspond to items listed in the FTI.

(5) Minor paragraph headers are discouraged except when presenting a logical sequence within a specific major header.

(6) Each discussion item will include standards that are also the training objectives.

(7) Lists, notes, warnings, and cautions will be clearly offset from text body. All notes, warnings, and cautions taken verbatim from the NATOPS shall be italicized, although quoting from NATOPS is discouraged due to the potential for inconsistencies following NATOPS changes.

(8) Tables, figures, photos, and videos must be of professional quality and easily understood by FTSC. Sketches or poor quality snapshots are inappropriate.

(9) Major titles will immediately precede the first paragraph of a new section and will be the only text numbered and in all caps. No stylized text will be used anywhere within the document. Paragraphs will not be numbered.

603. FTI Changes. As custodian for all master documents, CNATRA will retain a master copy for each document, as well as the master electronic file.

a. SMs will review, revise, and submit changes to the FTI via TCR with particular emphasis placed on content, correctness, and completeness. Corrections and changes shall then follow the appropriate TCR process as outlined in this instruction.

b. The CC will review proposed changes with regard to technical, grammatical, and clerical correctness and completeness.

c. The CNATRA PTO will review proposed changes and submit approved changes to the Flight Training Support Center (FTSC) for inclusion in the source document.

d. The FTSC will incorporate the changes and provide an electronic copy of the revised FTI to the PTO for final review by the CC and SM. In cases where more than one TRAWING is affected by the changes, the Training Officer for the non-CMM TRAWING will also receive an information copy for review.

e. The final draft copy will then be routed for N7 signature.

604. Electronic Classroom and Computer Assisted Instruction. CMMs and SMs are responsible for ensuring all electronic classroom and CAI software is updated and remains current. Required changes should be submitted via the TCR process.

CHAPTER 7

DRAFTING AN ACADEMIC TRAINING INSTRUCTION OR INSTRUCTOR GUIDE

700. Purpose. To establish policies and guidance for the planning, analysis, design, development, implementation, and control of academic training instructions.

701. Background.

a. Academic Training Instructions (ATI) consist of student guides, lesson guides, and workbooks. Student guides, lesson guides, and workbooks are a series of instruction sheets that collectively provide the student with the supplementary material needed for successful completion of a course of study. They are prepared in coordination with the course Instructor Guide (IG). Instruction sheets contain pages such as note-taking guides, reading assignments, homework study questions, problem analysis exercises, diagram sheets, and other special units of additional or amplifying information. The student guide, lesson guide, and workbook consist of all front matter and instruction sheets assembled into a binder. They should not duplicate existing documents and manuals. They are designed to be used in conjunction with existing manuals or software training materials for a course. At times, however, it is more efficient to duplicate a few pages from an existing manual if the manual is very large.

b. IGs are publications the instructor uses to teach a given academic course. The IG consists of three parts: Front Matter, Lesson Plan, and Outline of Instruction. The IG provides specific definition and direction to the instructor by providing information concerning learning objectives, equipment, media, and the conduct of the course. It should be sufficiently detailed to ensure consistency of instruction provided by different instructors yet allow each instructor to interject their own experience and knowledge into the course.

702. Policy

a. NAVEDTRA 130 Series is the curriculum development guide for producing NATRACOM training materials. The manual is divided into six phases to match the Instructional System Design (ISD) model. Phase I is titled Plan; Phase II-Analyze; Phase III- Design; Phase IV-Develop; Phase V-Implement; and Phase VI-Evaluate.

b. During Phase II, the developer will examine and analyze all available documents and data including courses of instruction from other services for applicability in the current setting. These documents can be used to find previously developed curriculum materials that can be adapted to current training requirements. Phase III-Design, and Phase IV-Develop, describe in detail the process of building new curricula or revising existing materials. Phases V-Implement, and VI-Evaluate, form the basis for a training supervisor's management techniques and are described in NAVEDTRA 135C, NAVY SCHOOL MANAGEMENT MANUAL.

703. Changes. Recommended changes to curriculum materials may be submitted via TCR.

704. Instructional Systems Design (ISD) Process. The first step in the ISD process is to determine, statistically if possible, whether development or revision is actually necessary. After the need to revise or develop a course has been verified and specific requirements have been identified, confirm there are no existing training materials or portions thereof that will satisfy the requirement; evaluate existing instructional materials to determine if some or all of their content is usable. Use as much existing material as possible. Next, proceed with the ISD process by using the following steps:

a. Conduct a Job Task Analysis. Note that in some instances you may be able to leverage existing job task analysis information if it is currently available, adequately covers the performance domain, and provides an appropriate level of detail. The job task analysis should at a minimum provide the following information:

(1) Required job tasks.

(2) Task sequencing information.

(3) Knowledge and skills required to perform job tasks.

b. Develop Terminal and Enabling Objectives. This is a mandatory step for developing new materials. It is optional for course revisions but careful scrutiny of existing objectives should be accomplished to ensure applicability and also ensure that all existing objectives are still necessary. Refer to NAVEDTRA 130 Chapter 4, for guidelines on terminal and learning objectives, along with planning, analyzing, designing, and developing training materials.

c. Develop Test Items. All instruction is designed to produce a desired behavior, so it is important that test items be designed to evaluate whether or not the student is capable of producing the desired behavior. Test items might require the student to answer a knowledge-based question, solve a problem requiring application of knowledge and skills, or perform a task. Each test item should be identified by the terminal/enabling objective number that it is designed to test. This helps to provide an audit trail and assists in the validation process. Refer to NAVEDTRA 130, Chapter 8, Develop Phase, for detailed directions on developing test items.

d. Develop the IG. A well-designed IG ensures each student has the same opportunity to receive the same instruction as every other student. The IG consists of three parts: Front Matter, Lesson Plan, and Outline of Instruction. Specific information concerning contents of the IG is found in Appendix L of this instruction and Lesson Plan development in NAVEDTRA 130 Chapter 6; however, the following should help the beginning developer to get started:

(1) The IG is written in two columns, landscape or horizontal on the page. Front Matter consists of general or administrative information. Notable among the Front Matter pages are the Instructor Guide Topic page and the Safety page. The date on the Instructor Guide Topic page determines the effective date of the IG and enables the instructor to determine the latest revision. Even if there are no hazards in a particular course, that fact must be so stated on the Safety page. The content of the other Front Matter pages is self-explanatory from the title.

(2) The Instructor Guide Topic page(s) contains special information about the individual lessons in the course. Instructor Guide Topic pages contain the scheduled length of time for the lesson, lists of training aids, training materials, references, and, most importantly, the terminal objective and enabling objective(s). Enabling Objectives are listed in the order in which they are taught.

(3) The left column of the Outline of Instruction pages are actually titled Outline of Instruction while the right column is titled Instructor Activity. The Outline of Instruction contains six elements: I. Introduction, II. Presentation, III. Summary, IV. Application, V. Evaluation (Questions and Answers), and VI. Assignment. It is a good idea to note at the end of a teaching point where the requirements of an Enabling Objective have been met (e.g., E.O. #1, #2). Place these notations on a separate line so that an instructor will have no difficulty locating the information for test reviews. The Instructor Activity column is used to direct the instructor to show a video, display a chart, or use a certain explanation. It is also used for instructor personalization by adding the instructor's own notes. Appendix K shows formats and examples of the IG.

e. Develop the Student Guide/Lesson Guide/Workbook

(1) Not all courses will require an extensive student guide/lesson guide/workbook. However, each course should have, as a minimum, a guide that provides a list of the objectives for each lesson. Normally, the objectives are listed in information sheet format. Objectives are provided in teaching order so that they provide a rough outline of the instruction, which has been presented. They also serve as study guides for the End of Course Examinations.

(2) Student guide and lesson guide page identification can be somewhat confusing without an explanation. The various instructional sheets are identified on the first line by type and number within each instructional chapter (e.g., the first Instruction Sheet in the first chapter is identified as instruction sheet 1-1). The first note-taking sheet or the first assignment sheet in the first chapter is identified as Note Taking Sheet 1-1 or Assignment Sheet 1-1. Then in the

second chapter, they are identified as 2-1, 2-2, 2-3, etc. Chapter page numbers are inserted at the bottom center of each page and are numbered consecutively within the chapter: 1-1, 1-2, 1-3, 1-4, then 2-1, 2-2, 2-3, 2-4, etc. Appendix J shows formats and examples of Student Guide/Workbooks.

f. Develop the Validation Plan. Each newly designed academic course or major revision of an academic publication should be validated. Details on validation of classroom training are contained in Appendix B (Training Analysis Checklist) of NAVEDTRA 135C.

CHAPTER 8

EXAM MANAGEMENT

800. Purpose. To ensure exam integrity, standardization, and content and statistical validity for tests and test items.

801. Background. Tests are the primary tool for determining trainee attainment of the Terminal Learning Objectives (LOs)/Enabling LOs and/or major focus areas and therefore, a student's relative success. Critical LOs and/or major focus areas are always formally tested. Less critical LOs may be formally tested or be informally measured by quizzes or practical work.

802. Scope and Content. All academic online and offline (paper-based) exams will comply with reference (a) and with the guidelines set forth in this section.

803. Exam Process. All existing curricula and those under development shall use exam question banks with questions linked to LOs and/or major focus areas. A minimum of two test questions will be created for each LO and/or major focus area. All tests shall be proctored and administered in a designated secure test center using the CNATRA approved electronic examination system titled "Nimbus." Nimbus is accessed via TIMs.

804. Nimbus. Nimbus is an electronic examination system that consists of an editor and viewer. Exams are created and maintained in the editor and launched in TIMS via the viewer. Nimbus provides flexibility in how questions and distractors are presented.

a. Questions can be in a fixed order or randomized.

b. Distractors can be in a fixed order or randomized.

c. All questions from the test bank can be presented or a specified number of questions may be presented.

d. Questions can be randomly selected from the test bank. Nimbus attempts to equalize the questions by LO and/or major focus area as best as possible given the distribution of LOs and major focus area.

e. A mixture of random questions pulled from the test bank and a set number of fixed questions.

805. Roles and Responsibilities

a. CNATRA Flight Training Support Center (FTSC) is the centralized baseline repository and maintenance arm for all student CAI exams. CNATRA FTSC maintains the baseline of question banks for each CAI test, performs revision and maintenance, and works with CNATRA N6 to deploy online exams to TRAWING academic servers.

b. CMMs are responsible, through applicable SMs, for generating, reviewing, performing exam analysis, and requesting changes to FTSC-maintained question banks on an annual cycle at a minimum. CCs may also request copies of applicable question banks via CNATRA N7 at any time.

c. CNATRA N6 is responsible for deploying CAI tests to each TRAWING's academic server upon direction from CNATRA N7.

806. Test Analysis. Test items and tests are reviewed for content validity during development and revision. Content validity is defined as the extent to which a test measures the LOs. In order to determine if they have statistical validity, test and test item analysis techniques are needed. The techniques used for analyzing test items include difficulty index, measures of central tendency, and effectiveness of alternatives. These techniques are described in greater detail in NAVEDTRA 135. Nimbus contains a data capture and analytical tool that is operated by CNATRA N733 with results provided to the appropriate CC as requested. The data capture and analytical tool aids in test analysis by providing the following information:

a. Number of questions answered correctly/incorrectly.

b. Student responses.

c. Date questions were created.

d. Mean test grade.

807. Test Operations. The activity hosting the TIMS online testing system shall provide a proctor to properly administer the exams. All online exams will reside on the TRAWING's academic server; it is the shared responsibility of the local academic support staff and IT support personnel to ensure proper access to the online testing system and availability of exams.

808. Offline Exam Handling. The use of paper exams shall be minimized and normally used only in the event of a network outage. In this event, paper exams will be handled per reference (a). The security of individual paper exams is the responsibility of the unit administering the curricula.

809. Computer-Based Training System (CBTS) Security. Physical, hardware, electronic, and software security and maintenance used for the exam support function is the responsibility of CNATRA N6. CNATRA N6 must ensure that the TIMS equipment physically located at all NATRACOM training sites is covered within the CNATRA ADP security plan.

810. Liaison. CNATRA (N733) is the point of contact for all Nimbus administration issues.

CHAPTER 9

DISTRIBUTION AND ORDERING OF TRAINING MATERIALS

900. Purpose. To establish policies for the distribution of training materials including PAT PUBs and MCGs. The effective, efficient, and economical production and distribution of training materials is the primary requisite in the management of these resources.

901. Policy for PAT PUBs, MCGs, and ATFs

a. TRAWING Representative. Each TRAWING shall designate a PAT PUBs/ATF Coordinator and submit the name and phone number to CNATRA (N73B). All training material ordering correspondence between the TRAWINGs and CNATRA will be conducted through the designated representatives. CNATRA (N73B) is the point of contact for all PAT PUBs.

b. Distribution. PAT PUBs shall be picked up from the local Defense Automation and Production Service (DAPS) unless other arrangements are made with CNATRA.

c. PAT PUB Inventory Forms (CNATRA 1550/20). Each TRAWING shall submit inventory forms to CNATRA (N73B) quarterly. This form is to be used as a tracking guide, not a reprint request.

d. Pub numbers for new publications will be assigned in advance by CNATRA (N73B).

902. Specific Publication Requirements

a. Stocking, Ordering, and Distribution Requirements

(1) Production and distribution of PAT PUBs and MCGs are based upon the needs of instructors, contractors, IUTs, and students. An additional five percent should be added to the total requirement. The CC will ensure the distribution and number of publications ordered is accurate. The TRAWING representative will forward the print requisition form to CNATRA (N73B) for approval. CNATRA (N73B) shall use the N3 Integrated Production Planning (IPP) requirements to validate the requested number of publications. This allows PAT PUBs to be modified or changed without excessive cost from wasted publication reprints.

(2) Distribution to organizations outside of the NATRACOM will be made only with written approval of CNATRA. All requests received by NATRACOM activities will be forwarded to CNATRA (N73B) for action. Requests from other government agencies will be approved if sufficient stocks exist. Requests from private organizations or individuals will be considered on an individual basis, subject to Freedom of Information Act guidelines.

(3) Due to funding constraints, it may be necessary to reduce normal distribution on some publications and require students to return publications at the end of each course for reissue.

903. Print Requests

a. Print requests shall be identified as reprints, changes, revisions, or new publications. Requests may be submitted in hard copy, disk format, or e-mail.

b. Print requests for PAT PUBs will be reviewed by CNATRA (N73B) and sent to CNATRA (N115) for printing and dissemination to DAPS.

c. End of fiscal year print requests shall be submitted no later than 15 September, allowing CNATRA (N8) to close out the fiscal year print budget and maintain consistent TRAWING support of training materials.

APPENDIX A

ASSIGNMENT OF CURRICULUM MODEL MANAGERS, CURRICULUM COORDINATORS, AND STAGE MANAGERS

1. Curriculum Model Manager (CMM) Assignments. The phases of NATRACOM Instruction and CNATRA CMM assignments for each phase are shown below. This list includes both the student and Instructor Under Training syllabi.

PHASE	CMM	CNATRA 1542 ASSIGNMENTS FOR CMM
PRIMARY (T-6B)	TRAWING FIVE	1542.165; 1542.166
INTERMEDIATE JET	TRAWING TWO	1542.167
ADVANCED STRIKE	TRAWING TWO	1542.167; 1542.169 1542.177; 1542.150
ADVANCED E-2/C-2	TRAWING TWO	1542.176
INTERMEDIATE TILTROTOR	TRAWING FIVE	1542.161
ADVANCED HELICOPTER	TRAWING FIVE	1542.91; 1542.156; 1542.41; 1542.53
ADVANCED MULTI-ENGINE	TRAWING FOUR	1542.147; 1542.153; 1542.168; 1542.170
INTERMEDIATE E-2/C-2	TRAWING FOUR	1542.175
NFO PRIMARY T-6A	TRAWING SIX	1542.154; 1542.162
NFO INTERMEDIATE T-6A	TRAWING SIX	1542.163
NFO ADV STK/FTR	TRAWING SIX	1542.164; 1542.174
NFO ADV MARITIME	TRAWING SIX	1542.171; 1542.173
NIFE	API	1542.178

2. SM Assignments. Each of the phases described above is further divided into stages. The following are the CNATRA Stage Manager assignments for each stage of instruction.

a. PRIMARY

TITLE	SM	STAGES
CONTACT	TW-5	DCON, NCON, OCF
INSTRUMENT NAVIGATION	TW-4	BI, RI
FORMATION	TW-5	FORM, CFORM
VISUAL NAVIGATION	TW-5	VNAV, NVNAV

b. INTERMEDIATE JET AND ADVANCED STRIKE

TITLE	SM	STAGES
INSTRUMENT	TW-2	BI, RI, AN, IR
OPERATIONAL NAVIGATION	TW-1	ON, RR, SLL
STRIKE	TW-2	STK
CARRIER QUALIFICATION	TW-2	CQ, FCL
FAMILIARIZATION	TW-2	FAM, NFAM, NCHASE
FORMATION	TW-1	FRM, DIV, NFRM
ACADEMICS	TW-2	ENG, AERO, MET, NAV
BFM / SEM / OCF / TAC	TW-2	BFM, SEM, OCF, TAC

c. ADVANCED MULTI-ENGINE

TITLE	SM	STAGES
CONTACT	TW-4	CON
INSTRUMENT	TW-4	INST
OPERATIONAL NAVIGATION	TW-4	ONAV
TACTICAL FORMATION	TW-4	TACFORM
ARIAL REFUELING	TW-4	A/R
GROUND	TW-4	SYS, AERO, CRM, IFR

d. ROTARY

TITLE	SM	STAGES
CONTACT	TW-5	CON
TACTICAL	TW-5	TAC
INSTRUMENT	TW-5	INST
NAVIGATION	TW-5	NAV
FORMATION	TW-5	FORM
NIGHT VISION DEVICE	TW-5	NVD
SHIP/SAR	TW-5	SHIP/SAR
GROUND	TW-5	AERO

e. NFO

TITLE	SM	STAGES
CONTACT	TW-6	CON
VISUAL NAVIGATION	TW-6	VNAV
FORMATION	TW-6	FORM
INSTRUMENT NAVIGATION	TW-6	INAV
MPR	TW-6	MPR
CORE / NAV	TW-6	CORE
E-6	TW-6	E-6
E-2	TW-6	E-2
CLOSE AIR SUPPORT	TW-6	CAS
ALL WEATHER INTERCEPT	TW-6	AWI
FAMILIARIZATION	TW-6	FAM
BFM	TW-6	BFM
STRIKE	TW-6	STK

APPENDIX B`

CHECKLISTS FOR CONDUCTING PHASE CURRICULUM REVIEWS

1. A phase curriculum review differs from a stage review primarily in that the whole curriculum is reviewed and not just one or two stages. Additionally, MCG revisions, vice change transmittals, are the normal outcome of a phase review. The phase review requires a review of five separate areas, instructions, and/or publications:

a. Appropriate CNATRAINST 1542 MCG.

b. Flight Training Instructions, Computer Assisted Instruction, and Mediated Interactive Lecture academic lessons.

c. Aviation Training Forms.

d. Academic Training Instructions and Instructor Guides (IG).

e. Appropriate TIMS curriculum.

2. Phase reviews shall be held a minimum of every two years and no later than 12 months after the publication date of the CNATRAINST 1542 for that phase.

3. To leverage the benefits of the integrated learning environment, and ensure standardization and compliance with applicable directives, the phase review will normally include the following personnel/representatives:

a. Curriculum Model Manager

b. CNATRA Pipeline Training Officer

c. Curriculum Coordinator

d. Stage Managers

e. TRAWING Training Officer(s)

f. Squadron Standardization/NATOPS Program Officers

g. Fleet Replacement Squadron Representatives (for Advanced syllabi)

h. Contract Instruction Support

i. Other Services (e.g., Marine Corps, Coast Guard) as required.

j. CNATRA TIMS Operations Manager and TRAWING TIMS Functional Administrator.

k. FTSC Curriculum Specialist

4. To assist the CC with this effort the following checklists should be used (**Figures B.1 and B.2**):

Figure B.1

MONTHS BEFORE PHASE REVIEW	REQUIRED ACTION
4	The CC announces the date and location of upcoming planning and phase reviews and requests SMs conduct review of their publications.
3	The CC solicits proposed changes from the SMs to present at the phase review. Proposed changes will be distributed to all affected units.
2	The CNATRA PTO meets with CNATRA N731/N732 TIMS Operations, TW TFA, and CNATRA N735 Curriculum Specialist(s) to provide projected operational data research requirements and projected curriculum research requirements.
1	The CNATRA PTO meets with CNATRA N731/N732 TIMS Operations, TW TFA, and CNATRA N735 Curriculum Specialist(s) to finalize and discuss data/artifacts generated at the 2-month period. At this time the PTO will determine whether these representatives' attendance is required and if so delineate the itemized tasks/discussion points and the time they are needed during the curriculum review.
0	CMM hosts Curriculum Review while the CC and PTO chairs the overall review. Each SM is expected to chair their specific portion.

Figure B.2

MONTHS AFTER PHASE REVIEW	REQUIRED ACTION
1	CC tasks SMs with specific review-approved revisions.
2-3	SMs and CC work revisions, generating and consolidating applicable TCRs.
4	CC ensures all TCRs have been submitted. CNATRA approves instructions and publications.
6	CNATRA publishes new instructions and publications.

APPENDIX C

CNATRA STAGE MANAGERS GUIDE

1. Objective. This Appendix provides general guidance on the duties of a SM and how they shall be performed. This appendix applies to all CNATRA SMs.

2. References

a. OPNAVINST 1500.51 series: TOTAL FORCE TRAINING STRATEGY.

b. NAVEDTRA 130 series: TASK BASED CURRICULUM DEVELOPMENT MANUAL.

c. NAVEDTRA 135 series: NAVY SCHOOL MANAGEMENT MANUAL.

d. CNATRAINST 1500.4 series: NFS TRAINING ADMINISTRATION MANUAL.

e. CNATRAINST 1550.6 series: TRAINING IMPROVEMENT PROGRAM.

f. CNATRAINST 3710.13 series: FLIGHT INSTRUCTOR STANDARDIZATION AND TRAINING PROGRAM.

g. PAT PUBs, CAIs, MILs, IGs, exams and all other stage courseware.

h. All associated MCGs.

3. Stage Manager Designation

a. Letter of Nomination. The TRAWING CMM shall submit a letter of nomination for curriculum SMs to CNATRA per this instruction. One month prior to a SM being relieved, a letter of nomination for replacement shall be sent to CNATRA for review and designation. The format for this letter is shown in Figure D.1.

Figure C.1

1550
XX/

From: Commander, Training Air Wing XX
To: Chief of Naval Air Training (N7)

Subj: CNATRA STAGE MANAGER NOMINATION

Ref: (a) CNATRAINST 1550.6F

1. Per reference (a), the following instructor is nominated for the position of CNATRA [pipeline phase ie Primary (T-6B)] [syllabus stage within phase ie Contact] Stage Manager:

a. Rank/Name/Service/Desig: LT John H. Doe, USN, 1310

b. Unit Assigned: Training Squadron XX

c. Date of Turnover: 18 Apr 16

d. PRD: 11/17 [yr/mo - should be able to serve 1 yr min. provide justification if less than 12 months]

e. Instructor Designations Held: Contact STAN, Instrument STAN, Formation STAN, OCF STAN, FITU Instructor (NATOPS, Instrument, Contact, and Night Contact blocks; NATOPS Instructor, NATOPS Officer, NATOPS Instrument Check, Crew Resource Management (CRM) Facilitator.

f. Previous Curriculum Experience: CNATRA Primary (T-6B) Formation Stage Manager [N/A if none].

2. Training Squadron XX Point of Contact is LT J. H. Doe at DSN XXX-XXXX.

I. M. PILOT

Copy to:
LT Doe

b. Nomination Requirements. The SM nominee must be the technical subject matter expert of the stage. Additionally, the individual should be able to serve in this position for a minimum of one year.

c. Letter of Designation. Once nominated and approved, the SM will be designated in writing by CNATRA.

d. Training. At a minimum, a SM should complete in-service, on-site training in course development and revision, course surveillance, and formal course review if available locally. This training should be provided by the local CC.

4. Stage Manager Responsibilities

a. General. The SM is a vital link in maintaining quality training which equates to a high standard of fleet readiness. The overall job is to ensure training concurs with fleet feasibility and that instruction simulates fleet experience. By remaining attached to their units, SMs are able to witness the credibility and deficiencies of instruction in the actual flying environment while occupying a position to encourage and promote improvements.

b. Responsibilities. While remaining attached to their assigned units, the SM shall:

(1) Assist in the development and/or revision of curriculum by working directly with the CC and other instructors within their stage and encouraging the creation of TCRs via the TIP process.

(2) Within 90 days of designation and annually thereafter, complete a comprehensive courseware review. This includes MCGs (Student and Instructor syllabi), FTIs, CAIs, MIL/IGs, ATIs, exam question banks, and all other courseware for their stage. Provide a summary report of the review to the CMM, CC, and PTO stating that the required review has been completed and TCRs generated, if any.

(3) Ensure exam question banks contain a minimum of two questions per learning objective.

(4) Coordinate all projects relating to their stage.

(5) Review all publications prior to a phase review and attend phase reviews to provide stage oversight while chairing the specific portion for their stage.

(6) Enhance inter/intra-TRAWING standardization by visiting other units and exchanging new ideas. These visits shall be conducted as required with a minimum of two per year.

(7) During inter/intra-TRAWING standardization visits spot check applicable stage ATFs with emphasis on content, correctness, completeness, and standardization.

(8) Maintain close communications with the appropriate CC, PTO, and TRAWING Standardization Officers.

c. Stage Manager as Subject Matter Expert. CNATRA SM duties include development, revision, and evaluation of their stage. Therefore, the SM is the SME responsible for developing, writing, assembling, and assuring the quality of training materials as well as monitoring the quality of training associated with flight events, simulator events, and lectures within their stages.

5. Overview and References

a. General. The sole purpose of this Appendix is to provide a specific reference section for the SMs in the performance of their duties in course revision/development, exam management, IG review/development, FTI review/development, training improvement, PAT PUB, CAI, and instructional media materials management, inclusive of flight events, simulator events, and lectures.

b. Curriculum Revision and Development. It is important that each SM recognizes the significance of their part in the curriculum development and revision process along with a full comprehension that it is a continual process within the stage. This management function is divided into six phases: planning, analyzing, designing, developing, implementing, and evaluating.

c. Exam Review and Management. The SM is responsible for creating, reviewing, and maintaining assigned examination question banks, which shall be reviewed annually for accuracy and relevance. A minimum of two questions per learning objective is required.

d. IG Review and Management. As exams and questions are updated periodically, the SM must also review ATIs relevant to that stage. They will ensure all IGs are reviewed and updated within the stage.

e. FTI Review and Management. Another primary responsibility of the SM is to review, revise, and submit FTIs. The SM must ensure that each FTI has proper content, correct format, and complete objective goals.

f. The Training Improvement Program. In the TIP process, the SM is the action officer coordinating between the CC and units affected by a TCR. If a TCR is received from an FRS or other non-CNATRA organization, the PTO will route the TCR through the affected SM. The SM is also responsible for the representation of the TCR at phase reviews and/or its implementation, depending on the currency of the TCR.

g. Instructional Media Materials. The SM must also review all audiovisual materials used in their respective stage for accuracy and relevance. It is important that these materials are documented appropriately for development standardization. This includes transparencies, training aids, graphic arts materials, photo services, video productions, and CAIs. All facets of instructions--FTIs, CAIs, IGs, and examinations as well as visual information--should be updated as curriculum revision and/or development takes place. This ensures all phases of instruction are current and credible not only within the TRAWING, but also within the fleet.

h. Standardization. SMs shall fly with all units within their pipelines to ensure standardization among squadrons. SMs shall visit each subject unit twice per year, at a minimum.

APPENDIX D

MCG STANDARDS FOR ABBREVIATIONS AND GLOSSARY

The Abbreviations section should start on an odd-numbered page and follow the Course Data section. Abbreviations should include most of the acronyms used in the MCG and do not need to be redefined within the document on the pages following this list. Acronyms or abbreviations not included in this list should be defined the first time they are used within the document. The following sample abbreviations are not inclusive and represent only one syllabus. They will be listed in the following sample tabular format.

SAMPLE ABBREVIATIONS

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

A-STK	-	Advanced Strike
A/G	-	Air-to-Ground
ACP	-	Armament Control Panel
ADC	-	Air Data Computer
ADI	-	Attitude Director Indicator
AGL	-	Above Ground Level
AOA	-	Angle of Attack
AS	-	Airspeed
ASR	-	Airport Surveillance Radar
ATC	-	Air Traffic Control
ATF	-	Aviation Training Form
ATJ	-	Aviation Training Jacket
ATS	-	Aviation Training Summary
AW	-	Attack Window
AWE	-	Attack Window Entry
BFM	-	Basic Fighter Maneuvering

BTX	-	Blown Tire Exercise
BVR	-	Beyond Visual Range
CAI	-	Computer-Assisted Instruction
CC	-	Curriculum Coordinator
CCIP	-	Continuously Computed Impact Point
CDI	-	Course Deviation Indicator
CEP	-	Circular Error Probability
CNI	-	Communication, Navigation, and Identification
CO	-	Commanding Officer
CONTR AUG	-	Control Augmentation
CQL	-	Carrier Qualification Landing
CRM	-	Crew Resource Management
CTS	-	Course Training Standard
CV	-	Carrier
CWS	-	Centralized Warning System
DACM	-	Defensive Air Combat Maneuver
DBFM	-	Defensive Basic Fighter Maneuvering
DBT	-	Defensive Break Turn
DEU	-	Display Electronics Unit
DF	-	Direction Finder
DME	-	Distance Measuring Equipment
DP	-	Departure Procedure (Instrument)
DR	-	Dead Reckoning
ECA	-	Engine Control Amplifier
ECS	-	Environmental Control System
EDP	-	Engine-Driven Pump

EMER	-	Emergency
EOB	-	End of Block
EP	-	Emergency Procedure
ET	-	Extra Training
FC	-	Front Cockpit
FCLP	-	Field Carrier Landing Practice
FLOLS	-	Fresnel Lens Optical Landing System
FP	-	Flight Procedures
FPC	-	Final Progress Check
FSL	-	Front-Seat Landing
FTI	-	Flight Training Instruction
FWD	-	Forward
GCA	-	Ground-Controlled Approach
GINA	-	GPS/Inertial Navigation Assembly
GLOC	-	“G” Induced Loss of Consciousness
GPS	-	Global Positioning System
GTS	-	Gas Turbine Starter
Guns D	-	Guns Defense
H	-	Hooded
HA BFM	-	High-Aspect Basic Fighter Maneuvering
HSI	-	Horizontal Situation Indicator
HUD	-	Head-Up Display
HYD	-	Hydraulics
IFF	-	Identification Friend or Foe
IFLOLS	-	Improved Fresnel Lens Optical Landing System
IFR	-	Instrument Flight Rules

IFT	-	Instrument Flight Trainer (2F137 – non-visual)
I-Jet	-	Intermediate Jet
ILS	-	Instrument Landing System
IMC	-	Instrument Meteorological Conditions
IMS	-	International Military Student
IMSO	-	International Military Student Officer
IP	-	Instructor Pilot
IPC	-	Initial Progress Check
IROK	-	Inspect/Inflate, Release, Options, Koch Fittings
ITO	-	Instrument Takeoff
LAB	-	Laboratory/Practical Problem
LAR	-	Launch Acceptability Region
LECT	-	Lecture
LOC	-	Localizer
LP	-	Low Pressure
LSO	-	Landing Signal Officer
MFD	-	Multifunction Display
MIF	-	Maneuver Item File
MIL	-	Mediated Interactive Lecture
MPTS	-	Multi-Service Pilot Training System
NACES	-	Navy Aircrew Common Ejection Seat
NATOPS	-	Naval Air Training and Operating Procedures Standardization
NAVAIDS	-	Navigational Aids
NIFM	-	NATOPS Instrument Flight Manual
NORDO	-	No Radio

NWS	-	Nose Wheel Steering
OBOGS	-	On-Board Oxygen Generating System
OBT	-	Offensive Break Turn
OFT	-	Operational Flight Trainer (2F138 - visual)
OLS	-	Optical Landing System
OPAREA	-	Operations Area
OPLAN	-	Operations Plan
OPS	-	Operations
P/P	-	Partial Panel; or Pen/Paper (Non-CAI Administered Examination)
PA	-	Precautionary Approach
PADS	-	Position, Altitude, Distance, and Speed
PAR	-	Precision Approach Radar
PAS	-	Phase Aggregate Score
QOD	-	Question of the Day
QTR	-	Quarter
RAT	-	Ram Air Turbine
RC	-	Rear Cockpit
RECCE	-	Reconnaissance
ROE	-	Rules of Engagement
RRU	-	Ready Room UNSAT
RTB	-	Return to Base
S/B	-	Speed Brakes
SA	-	Situational Awareness
SAR	-	Search and Rescue
SIF	-	Selected Identification Features
SIM	-	Simulator

SIMO	-	Simultaneous Tracking
SMS	-	Student Monitoring Status
SNA	-	Student Naval Aviator (includes IMS)
Solo	-	Flight without a qualified flight instructor
SRT	-	Standard Rate Turn
SSR	-	Special Syllabus Requirement
TACAN	-	Tactical Air Navigation
TRB	-	Training Review Board
TTC	-	Tap-the-Cap
UHF	-	Ultra High Frequency
UNSAT	-	Unsatisfactory
VASI	-	Visual Approach Slope Indicator
VFQ	-	Visual Forward-Quarter
VFR	-	Visual Flight Rules
VHF	-	Very High Frequency
VMC	-	Visual Meteorological Conditions
VOR	-	VHF Omnidirectional Range
WEZ	-	Weapons Engagement Zone
WKBK	-	Workbook
WU	-	Warmup
WX	-	Weather

The Glossary follows the Abbreviations section. Redefining the acronym for terms defined in the Abbreviations section is not necessary. Glossary items are numbered and in alphabetical order. With only a few exceptions, the items and verbiage are standardized and are the same in all the MCGs. An item may be added/deleted as applicable. The following sample glossary is not inclusive and represents only one syllabus. The Glossary section will follow the sample format.

SAMPLE 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. A grade sheet documenting student performance for all categories of training regardless of media, phase, or stage.

3. Aviation Training Jacket. The ATJ is the student's training record. It contains ATFs, calendar cards, grade reports, and all other associated training information. It is filed in Student Control and follows the student through all phases of training.

4. Aviation Training Summary. A tabular sheet listing the MIF and maneuver grades within a training stage.

5. Block of Training. A sequential series of lessons within a training stage sharing an identical MIF. The second number in the lesson designator identifies a block.

6. Blue ATF. A standard or supplemental ATF that is printed on blue paper. The blue ATF is used to denote a Marginal event and the blue supplemental ATF is used to track students on SMS.

7. Check Ride (SXX90). A flight check in any stage of training.

8. Class Advisor Program. An Instructor Pilot assigned to provide counseling and guidance to a specific student pilot or pilots throughout the applicable syllabus.

9. Course of Training. The entire program of preflight, flight, simulation, academics, and officer development conducted in all media during the programmed training days.

10. Course Training Standard (CTS). A description of required behaviors and standards of performance for a specific maneuver. These standards are in Chapter IX.

11. Courseware. The technical data, FTIs, audio, video, film, CAI, instructor guides, student study guides, and other training material developed to support and implement the syllabus of instruction.

12. Critical 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.

13. Deliverables. A CNATRA 1542/1827 TRB Summary Form, generated by the TRB, which summarizes a specific student's progress in a given syllabus and provides detailed information on the application of MPTS training for that student. Deliverables indicate whether the quality and continuity of training provided was IAW the MCG and CNATRAINST 1500.4H.

14. End of Block. Last event in block. In order to progress past EOB, the SNA must meet or exceed MIF on all critical items and all optional items attempted, by the end of the block. Flight shall consist of a cross-section of critical items; however, all critical items do not have to be accomplished on the last flight in block as long as MIF had been previously met.

15. Emergency Procedure. Any degradation of aircraft systems or flight conditions requiring pilot action or intervention.

16. Extra Training (SXX87). Additional student training flights ordered by the Commanding Officer or higher, in order to make up for documented training deficiencies.

17. Final Progress Check (SXX89). A special check normally given by the Commanding Officer (CO) or Executive Officer (XO) in the CO's absence. The CO may delegate Final Progress Check (FPC) duty in writing to a qualified O-4 or above, in the event that neither the CO nor XO are qualified or available to instruct in the required stage. A satisfactory FPC returns the student to normal syllabus flow. An UNSAT FPC results in an attrition recommendation to Commander, Training Air Wing X, and a TRB.

18. Flight Training Instruction. A CNATRA-approved manual describing flight procedures and techniques for each training stage.

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

20. Initial Progress Check (SXX88). A special check given by an experienced instructor (senior O-3 or above) as designated in writing the CO. A satisfactory IPC returns the student to normal syllabus flow. An UNSAT IPC results in an FPC.

21. Lesson Designator. All syllabus events have a lesson designator consisting of a stage identifier of up to three letters and an event code of four numbers in the following format:

Char	Meaning	Remarks
1st -3rd	Stage	AER—Aerodynamics AN—Airways Navigation ASI—Aviation Student Indoctrination BFM—Basic Fighter Maneuvering BI—Basic Instruments CO—Cockpit Orientation CR—Course Rules CRM—Crew Resource Management CQL—Carrier Qualification Landing DIV—Division Formation ENG—Engineering EP—Emergency Procedures FAM—Familiarization FCL—Field Carrier Landing FRM—Formation IR—Instrument Rating MET—Meteorology NA—NATOPS NAV—Instrument Navigation NFM—Night Familiarization NFR—Night Formation OCF—Out-of-Control Flight ON—Operational Navigation ORM—Operational Resource Management RI—Radio Instruments RR—Road Recce SEA—Seat SEM—Section Engaged Maneuvering STK—Strike/Air-to-Ground Weapons TAC—Tactical Formation
4th	Media	0—Ground Training 1—Flight Support 2—Emergency Procedures Simulator 3—Simulator 4—Aircraft
5th	Block	Sequential, indicating block within stage.

6th & 7th	Event/ Check Identifier	Sequential, indicating event within block, or other event types as shown below:	
		84—Adaptation	88—Initial Progress Check
		85—Practice Sim	
		86—Warmup	89—Final Progress Check
		87—Extra Training	90—Check Ride/Exam

22. Maneuver Item File. A listing of required maneuvers and associated proficiency levels for each block of training.

23. Master Syllabus. Chapters I-VIII list all training syllabus activities, prerequisites, and desired training flow for T-45 Combined MPTS.

24. Off-Wing Flight. A Day Familiarization flight not flown with the student's on-wing.

25. On-Wing. One of two primary instructors assigned to prepare a student in the Familiarization stage IAW CNATRAINST 1500.4H.

26. Outcomes. Potential courses of action following a Progress Check.

a. Pass - Return to training.

b. Fail (IPC) – Results in FPC.

c. Fail (FPC) - Proceed with the attrition process/attrite.

27. Phase of Training. A phase consists of a major division in the course of training. T-45 Combined MPTS training consists of two phases: Intermediate Jet and Advanced Strike. Upon completion of the Advanced Strike phase, students will be assigned to the appropriate Fleet Replacement Squadron.

28. Pink ATF. A standard ATF that is printed on pink paper. The pink ATF is used to denote an UNSAT event generating a progress check.

29. Progress Check Pilot. An Instructor authorized in writing by the CO to administer Initial or Final Progress Checks.

30. Ready Room UNSAT (RRU). An UNSAT grade given for inadequate knowledge of flight procedures, systems, discuss items, emergency procedures, deficient preflight planning, or failure of a non-academic examination (e.g., NATOPS quiz/exam). Missing a brief does not constitute an RRU and shall be documented on a supplemental ATF (also, see paragraph 714, CNATRAINST 1500.4H).

31. Regression. Performance of a graded item, maneuver, or procedure determined to be below the MIF proficiency level of that same item, maneuver, or procedure in a previously completed block of training.

32. Shotgunned. Solo flights flown with an IP Safety Observer for weather requirements.

33. Special Syllabus Requirement. A one-time, ungraded demonstration item(s) or other special requirement requiring documentation.

34. Stage of Training. A stage consists of all training of a particular type (Engineering, Familiarization, Operational Navigation, Carrier Qualification Landing, etc.) within a phase. The first three letters in the lesson designator identify the stage of each lesson (example: FRM4101 is in the Formation Stage). Refer to the Lesson Designator Table on page xxv for a complete listing of all stages in the T-45 Combined MPTS curriculum.

35. Student Monitoring Status. Squadron-initiated, focused supervisory attention on an SNA’s progress in training to address performance deficiencies and assess the SNA’s potential to complete the program. It may also be applied to SNAs who require supervisory attention while attempting to resolve personal issues.

36. Supplemental ATF. A form inserted into a student’s ATJ that contains non-syllabus information. Also referred to as a “writeup” in TIMS.

37. Training Media. T-45 Combined MPTS media include aircraft, simulators, emergency procedures simulators, flight support lectures and ground training instruction. The first number in the lesson identifier designates the training media. Ground training and flight support lectures may consist of MILs, off-line lectures (LECT), CAI lessons, and exams.

38. Training Review Board. A fact-finding board appointed to conduct an administrative review of training following a failed FPC.

a. The TRB shall consider the quality of training provided, continuity of training provided, outside influences, and extenuating circumstances.

b. The TRB shall not make recommendations based on perceived NFS potential or aspects unrelated to the administrative application of the NFS's training.

39. Warmup Event (SXX86). Additional event(s) given to allow a student to regain a level of proficiency previously demonstrated which has diminished due to a non-syllabus break in training.

40. Yellow ATF. A standard ATF that is printed on yellow paper. The yellow ATF is used to denote an UNSAT event that does not generate a progress check.

APPENDIX E

CNATRAINST 1542 FORMAT SAMPLE (STUDENT SYLLABUS)

1. The MCG contains a summary of all the items necessary for each phase of flight training. All chapters listed in this appendix will be present in each MCG. If a particular stage is not used, the first page of the chapter will include the following statement: "This chapter does not apply to the (applicable) phase of training."

2. The MCG format follows standard instruction format from SECNAVINST M-5215.1 series. The font and size to use is Courier New 12. For purposes of page spacing in this instruction, the text of figures is in Courier New 10, except where it would detract from the presentation and layout, such as for tables. Actual MCGs shall use Courier New 12. In general, *italics* within figures indicate information about formatting for the MCG developer, not literal text to include in the MCG. The specific breakdown in the MCG is as follows:

a. Cover Page

b. Letter of Promulgation

c. List of Effective Pages

d. Table of Contents (see **Figure E.1**)

Figure E.1

CNATRAINST 1542.XXX
(DATE)

TABLE OF CONTENTS

PAGE

SUMMARY OF CHANGES ii
COURSE DATA iii
ABBREVIATIONS iv
GLOSSARY v

CHAPTER I. GENERAL INSTRUCTIONS

SYLLABUS MANAGEMENT I-1
TRAINING MANAGEMENT (INCLUDES COURSE FLOW CHARTS) I-3
UNSATISFACTORY PERFORMANCE I-10

CHAPTER II. GROUND TRAINING

INDOCTRINATION (G01) II-1
IFR-PHASE I (G02) II-3

CHAPTER III. CONTACT TRAINING

CONTACT STAGE MANEUVER ITEM FILE MATRIX III-1
COCKPIT PROCEDURES (C21) III-1
CONTACT (C41) III-2

e. Summary of Changes

f. Course Data (see **Figure E.2**)

g. Course Length (see **Figure E.3**)

h. Course Training Subjects (see **Figure E.4**)

i. Training Preparation Time (see **Figure E.5**)

Figure E.2

CNATRAINST 1542.XXX
(DATE)

COURSE DATA

1. Course Title.---------- Text
2. Course ID Number ---------- Text
   (one for each CNATRA Phase)
3. Location(s).---------- Text
4. Course Status.---------- Text
5. Course Mission.---------- Text
6. Prerequisite Training.---------- Text
   (include CINs where applicable)
7. Security Clearance Requirements.---------- Text
8. Follow-on Training.---------- Text
9. Course Length. ---------- Text
   (see Figure F.3)
10. Class Capacity.---------- Text
11. Instructor Requirements.---------- Text
12. Curriculum Model Manager.---------- Text
13. Quota Management Authority.---------- Text
14. Quota Control.---------- Text
15. Course Training Subjects.---------- Text
    (see Figure F.4)
16. Training Preparation Time.---------- Text
    (see Figure F.5)
17. Physical Requirements.---------- Text
18. Obligated Service.---------- Text
19. Primary Instructional Methods.---------- Text
20. Preceding Curriculum Data.---------- Text
21. Student Performance Measurement/Application of Standards.-------- Text

iii

Figure E.3

9. Course Length. Overall Time-to-Train calculated in accordance with CNATRAINST 1550.6F. Training Days account directly or provide margin for factors including weather, personnel and equipment availability, briefing and preparation time, and historical delays. Calendar Weeks further account for weekends, holidays, safety standdowns, and other expected non-working days throughout the year.

	Training Days	Calendar Weeks
Syllabus 1	53	11.8
Syllabus 2	37	8.2

Figure E.4

15. Course Training Subjects

a. Ground Training

ADMINISTRATION		
Stage	**Symbol**	**Hours**

INTERMEDIATE JET GROUND TRAINING		
Stage	**Symbol**	**Hours**
Aviation Student Indoctrination	ASI01*	7.7
Engineering	ENG01	33.2
Aerodynamics	AER01	6.0
Meteorology	MET01	4.0
Instrument Navigation	NAV01	10.1
Total		**61.0**

Check-In and Check-Out	G0101	6.0

Figure E.4 (continued)

b. Flight Support

FLIGHT SUPPORT		
Stage	**Symbol**	**Hours**
Cockpit Procedures	C2000	6.5
Day Contact Flight Procedures	C0101	5.7
Basic Instrument Flight Procedures	I0101	4.0
IFR Academic Training	I0202	43.5
⋮	⋮	⋮
Formation Flight Procedures	F0101	4.0
Totals		63.7

c. Flight/Simulator Training. The programmed times for each phase, stage, and media are:

FLIGHT TRAINING								
Flight/Events	**UTD**		**OFT**		**T-6B**			
					Dual		**Solo**	
	Flts	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**	**Flts**	**Hrs**
Cockpit Procedures	5	6.5						
Day Contact			3	3.9	16	29.2	4	6.9
⋮			⋮		⋮			
Instruments			10	13.0	4	8.0		
Basic Formation					5	10.5	1	1.5
Totals	**5**	**6.5**	**13**	**16.9**	**25**	**47.7**	**5**	**8.4**

Note: In general, the lines in these charts correspond to blocks of training, not individual events. There is no requirement to break out exams and check rides separately. Media should not be listed after the block names. Add additional charts as necessary if MCG covers more than one CNATRA Phase, with clarifying modifications to the chart titles (i.e. Primary, Initial, Strike, etc).

Figure E.5

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 will vary 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 debrief times will be programmed into TIMS and accounted for on the flight schedule, per the following table:

ADDITIONAL TRAINING TIME PER CURRICULUM HOUR/EVENT			
Training Area	**Brief/Preflight**	**Debrief**	**Total**
Simulator/CPT	0.5	0.5	1.0
Flight	2.0	1.0	3.0

Note: These times are not used directly in the CNATRAINST 1550.6F Time-to-Train calculations, as shown in Chapter 4. They are used by CNATRA N3 (Operations, Plans, and Requirements) to facilitate instructor resource planning. If the brief or debrief times are not the same throughout the syllabus, lines should be added to the table to show the correct times for each group of events that are the same. Averages of varying brief times and ranges of brief times shall not be used.

j. Abbreviations

(1) List alphabetically. Do not precede with leading numbers or letters.

(2) If an abbreviation is always used with its definition beside it in the text, it is not required to also list it in this section.

(3) Standards for commonly used abbreviations appear in Appendix E. Only acronyms used in the MCG text should be included. Abbreviations not listed in the standards may be added after positive confirmation of accuracy.

k. Glossary

(1) List alphabetically, preceded by a number.

(2) Standards for commonly used glossary entries appear in Appendix E. Terms that are not applicable to a particular MCG may be deleted. If desired, information may be added to entries requiring more clarification, but the standard wording for the existing part of an entry should not be changed. Where it is desirable for the MCG developer to make modifications specific to a particular MCG, italics are used as example or explanation. The italicized words are not intended to be literally transcribed into the actual MCG. Glossary entries not listed in the standards may be added, provided that the definition is consistent with other CNATRA publications, if applicable.

l. Chapter I - General Instructions

(1) Syllabus Management

(2) Training Management (includes Course Flow Chart(s) - see **Figure E.6** for example). The following standards and explanatory notes apply to Course Flow Charts:

(a) Use the symbols for ground training, flight, and simulator events as depicted in the legend. A diamond shape may also be used as a decision symbol. Text within symbols may be individual events, a list of multiple events, or an abbreviated name referring to a block of events. If desired, the legend can be expanded to include a list of class/event names that correspond to the abbreviations in the chart. Text may also be added in the white space of the chart for general groupings (e.g., “Instruments”) or specific events (e.g., “Check ride”).

(b) Where multiple symbols and lines are presented in a parallel arrangement, then join one line which enters another symbol (e.g., “G” series classes). The order is not critical, but all those events must be complete (prerequisites) before entering the new symbol. Note: in older flowchart formats, multiple arrows pointing to a block were sometimes used to indicate that several paths were prerequisites (not alternate

entry paths), but this should be indicated in the standard format of joining into one line/arrow before the new block.

(c) Where blocks are stacked vertically with no intervening lines/arrows (e.g., C2001 to C2005), the events must be conducted in order.

(d) Where several events are condensed within one symbol, an asterisk and explanatory note in the legend or near the symbol may indicate that those events are to be conducted "in order" or "in any order".

(e) Make every effort to prevent crossing lines. Where unavoidable, indicate the distinction between the paths with a small hump in one of them.

(f) Use only horizontal and vertical connecting lines between symbols, not diagonal/slanted lines.

(g) The general flow shall be top-to-bottom and left-to-right. Wherever possible, lines and arrows shall follow this orientation. For clarity and to make efficient use of space, limited exceptions may be made.

(h) Arrows must point to symbols, not other lines.

(i) Where the arrangement of lines would be overly cluttered if all were drawn, a small circle with a reference letter may be used at the exit and entry points of the symbols to indicate the connection instead. This may also be useful when the flowchart is on more than one page.

(j) Dashed lines may be used as symbol connectors where the events are optional or "if required". This includes additional qualifications beyond the original. All, some, one, or none of them may be obtained. An asterisk with explanatory note in the legend may be included.

(k) A horizontal dashed line may be drawn across the page to indicate transition between one phase and the next, i.e., Primary to Advanced.

(l) A symbol for a check event should be outlined in bold.

Figure E.6
INTERMEDIATE JET COMPLETE COURSE FLOW (PART 1)

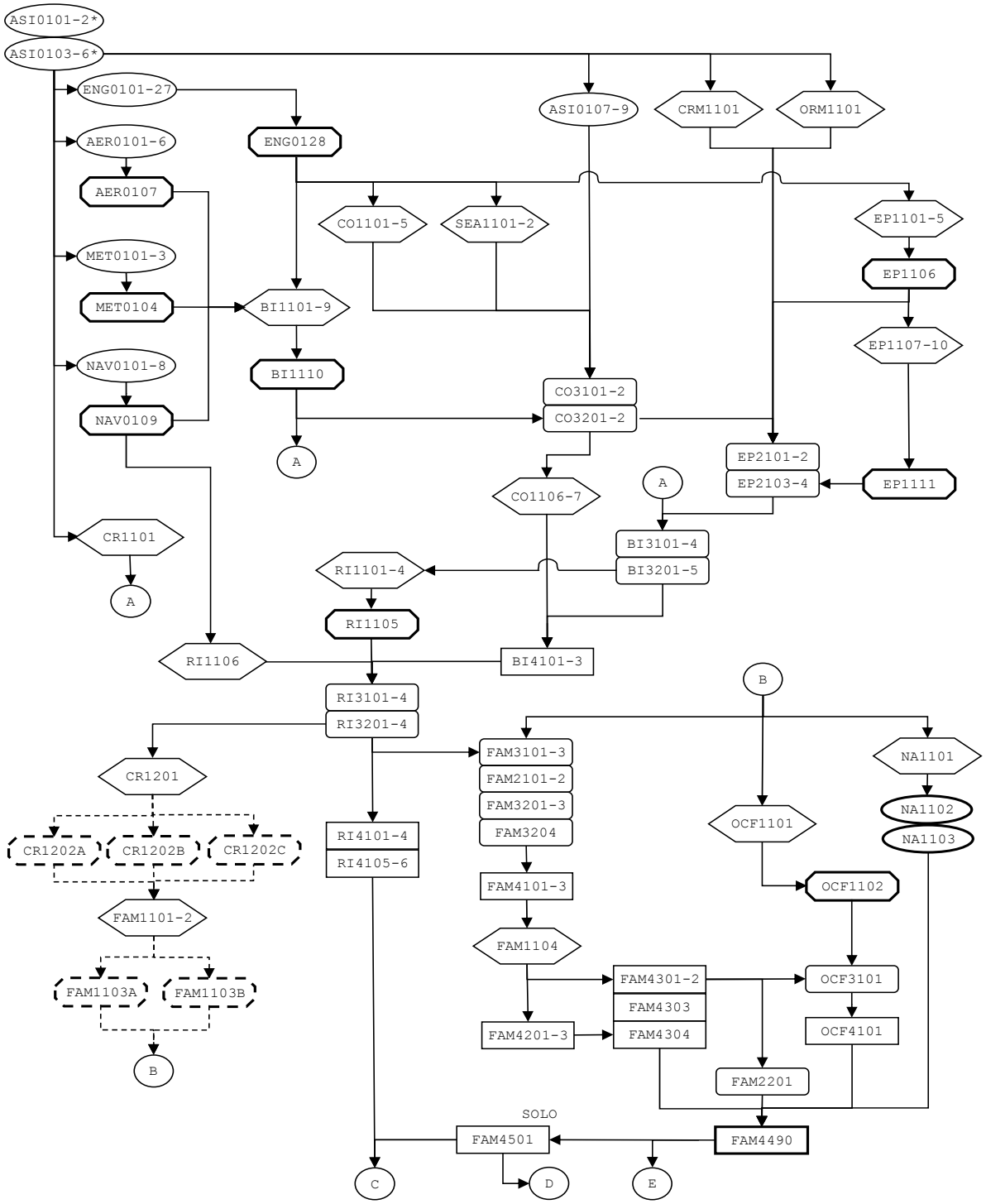
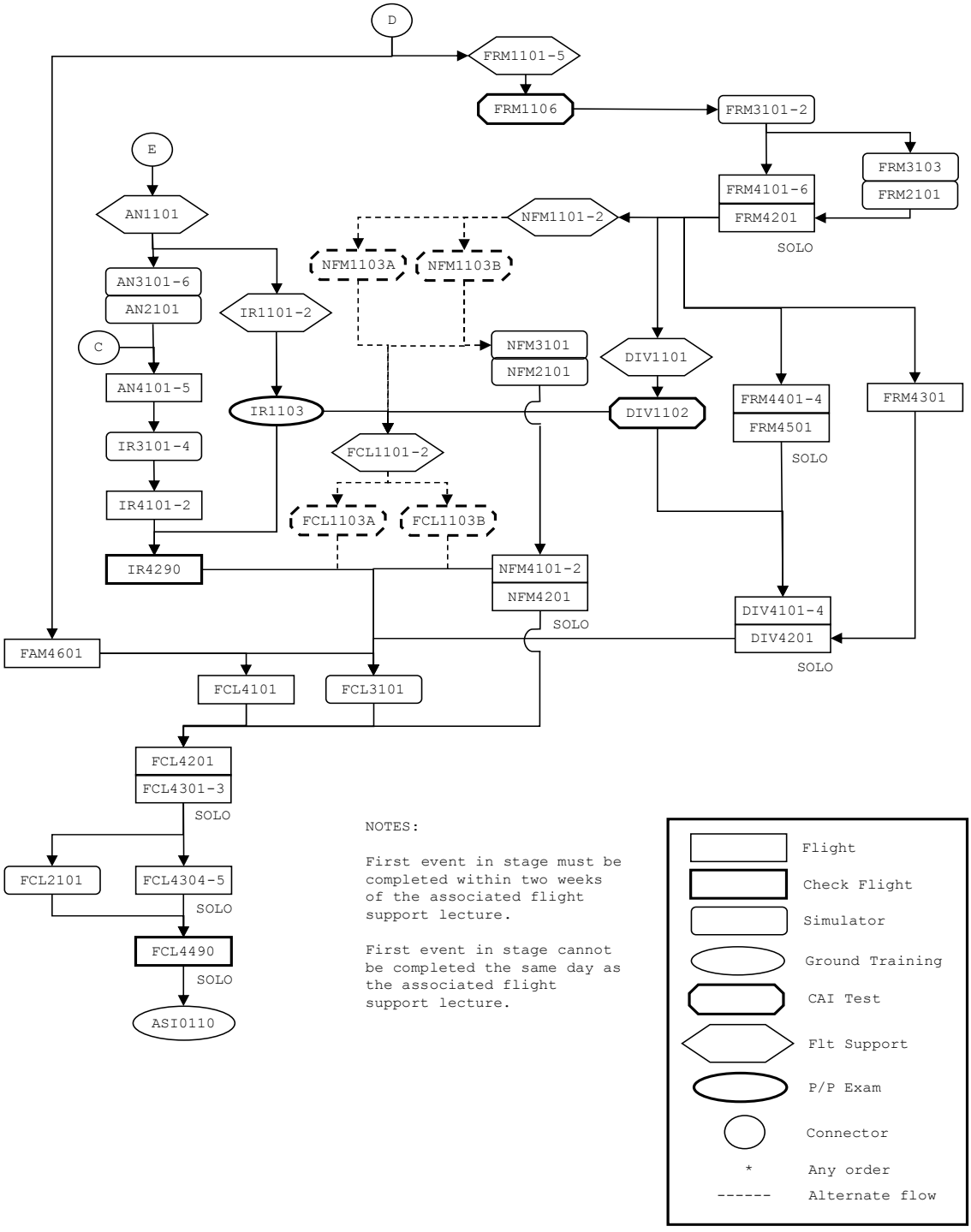


Figure E.6 (Continued)

INTERMEDIATE JET COMPLETE COURSE FLOW (PART 2)



(3) Unsatisfactory Performance (includes Progress Check and Training Review Process. See **Figure E.7**).

(4) Training Review Board

(5) Instructor Continuity

(6) Break in Training Warm-Up Events (SXX86)

(7) Additional Flights/Simulators (SXX87)

(8) Student Monitoring Status (SMS)

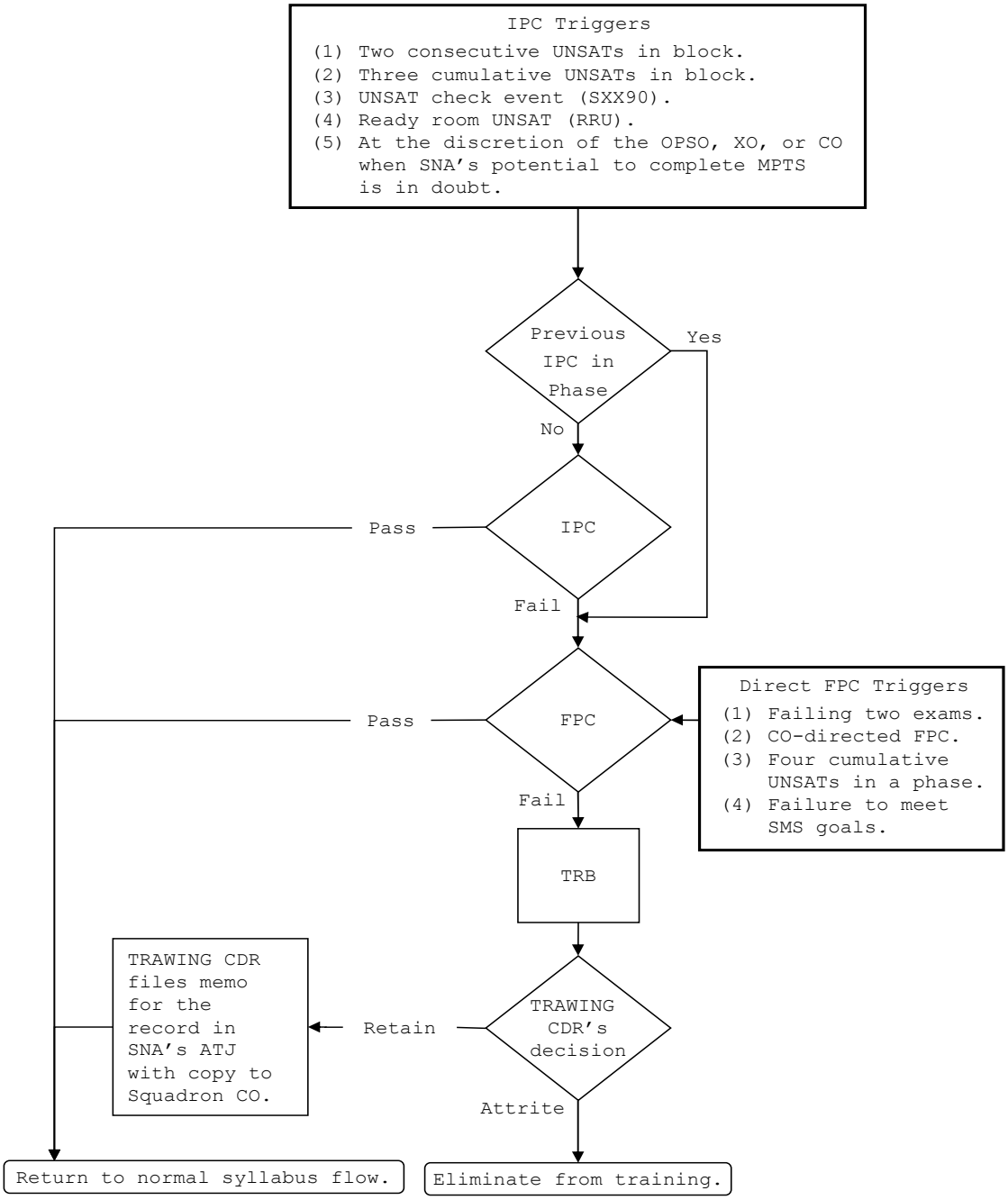
(9) Ground Training and Briefing Requirements

(10) Mission Grading Procedures and Evaluation Policies

(11) Special Instructions and Restrictions

FIGURE E.7

MPTS PROGRESS CHECK TRAINING REVIEW PROCESS



m. Chapter II to Chapter VIII – Stage chapters

(1) In general, each chapter in this portion of the MCG corresponds to a particular Stage of training. They can be grouped into two broad areas: Ground stage (Chapter II) and Flight stages (Chapters III-VIII). If absolutely necessary, multiple stages may be included within a chapter. The chapter names are always as follows:

(a) Chapter II – Ground Training

(b) Chapter III – NATOPS Training

(c) Chapter IV - Contact Training

(d) Chapter V – Instrument Training

(e) Chapter VI – Navigation Training

(f) Chapter VII – Formation Training

(g) Chapter VIII – Tactical Training

(2) Chapter III is only used in IUT syllabi. In student syllabi, the first page of the chapter shall contain "does not apply" words per paragraph 1.

(3) The title page for the chapter may contain paragraphs on overall topics such as general information, seating, philosophy, etc.

(4) For flight stages, the introductory section shall always include a comprehensive MIF chart for the entire Stage (see Figure F.8). Each block will also include a block-specific MIF chart. Charts should include a number reference for CTS, allowing for quick reference to the particular Behavior Statement and Standard in Chapter IX (see **Figures E.9, E.10 and E.11**).

(5) For flight stages, all flight support will be presented in sequence by block number, followed by all simulators, followed by all flights, regardless of the intended order of execution in the course flow.

(6) Each training segment (which may consist of a single block or several related blocks) shall be grouped under one title header. Each title header will appear at the top of a new page. Continuation pages (if necessary) shall not have a header. While not strictly defined, effort shall be made to have a reasonable number of events under one title header, i.e. one is probably too few (except for check rides), and all the ground training academics is too much. The title header and page layouts are as shown in **Figure E.12**.

n. Chapter IX -Course Training Standards (CTS) See **Figure E.10**.

(1) Purpose

(2) Student Duties and Responsibility

(3) General Standards

(4) Execution

(5) Job Tasks

(6) Graded Items

(7) Course Training Standards (***in the following order)***:

(a) General Knowledge/Procedures

(b) Emergency Procedures

(c) Headwork/Situational Awareness

(d) Basic Airwork

(e) Flight Planning

(f) Radio Procedures

(g) Crew Resource Management

(h) All other applicable CTS (in order of flight if possible)

(i) CTS should be numbered for easy reference.

o. Chapter X – Master Materials List.

Figure E.8

Comprehensive Stage MIF example

Simulator Event
Check Flight Event

Contact Stage Maneuver Item File (MIF)										
CTS Ref	**MANEUVER**	**C2106**	**C0101**	**C4105**	**C4206**	**C3201**	**C4390**	**C4401**	**C4503**	**C4601**
1	General Knowledge/Procedures	4+	4+	4+	4+	4+	4+	4	4+	4
2	Emergency Procedures	2+		2+	3+	3+	3+	3	3+	3
3	Headwork/Situational Awareness	2+		3+	4+	4+	4+	4	4+	4
4	Basic Airwork	3+		3+	4+	3+	4+	4	4+	4
5	Mission Planning/Briefing/ Debriefing	3+		3+	3+	3+	3+		3+	
6	Ground Operations	3+		3+	4+	4+	4		4+	
9	Takeoff	3+		3+	4+	4+	4+		4+	
10	Aborted Takeoff	2		3+	4+	4+	4		4+	
11	Departure			3+	4+	4+	4		4+	
12	Inflight Planning			2+	2+	2	2+			
15	Level Speed Change			4+	4+	4	4			
16	Climbs/Descents			4+	4+	4	4			
17	Turn Pattern			4+	4+	4	4+			
18	Slow Flight			4+	4+	4	4+			
19	Approach to Stalls			4+	4+	4	4+			
20	SSE at Altitude			2	3+		3			
21	SSE Waveoff at Altitude			2	3+		3			
22	Dynamic Engine Cut	2		2	4+	4	4+			
23	Power On Ditch	2+		3+	4+	3	4			

Figure E.9

Block MIF example

CTS REF	MANEUVER	FAM4203
1	General Knowledge/Procedures	4+
2	Emergency Procedures	3+
3	Headwork/Situational Awareness	3+
4	Basic Airwork	3+
5	Mission Planning/Briefing/ Debriefing	4+
6	Communications	3+
7	Ground Operations	3+
8	Flight Admin	3+
10	Takeoff	3+
11	Departure Procedure	3+
8	Course Rules	3+
13	Descent/Field Entry	3+
21	Precautionary Approach(es)	3+
22	VFR Landing Pattern	3+
23	Field Carrier Landing	2+
23	NF Touch-and-Go	3+
23	FF Roll-and-Go	3+
23	Half-Flap Roll-and-Go	3+
23	NF Roll-and-Go	3+
23	Crosswind Landings	3
24	Waveoff	3
23	Full-Stop Landing	3+
23	No-HUD Landings	3+
21 23	PA to Full Stop	3+

Figure E.10

CTS example

The first four items listed below are required for all graded simulator and flight events and 1542s. The specific standards may be modified, but the wording should be kept as close as possible to the following example.

BEHAVIOR STATEMENT	STANDARD
1. General Knowledge/Procedures	
• Demonstrate knowledge of aircraft systems, procedures, and associated directives and instructions	• Demonstrates a thorough understanding of aircraft systems capabilities, aircraft directives, and local procedures. • Knowledgeable of local working area WRT boundaries, altitudes, and significant landmarks without reference to in-flight guide or charts. • Demonstrates ability to apply procedures from all applicable source guidance.
2. Emergency Procedures	
• Recognize system malfunction and/or emergency situation	• Expeditiously analyzes situation and systems and recognizes malfunction or emergency situation. • Maintains control of aircraft while responding appropriately to malfunction/emergency. • Maneuvers aircraft smartly to prevent degradation of situation with respect to external factors such as weather, traffic, etc.
3. Headwork/Situational Awareness	
• Assess self and aircraft in relation to the dynamic environment of flight, threats, and mission forecast; then execute tasks based on this assessment.	• Understands instructions, demonstrations, and explanations. • Remains alert and spatially oriented. • Recognizes and avoids channelized attention.

4. Basic Airwork	
• Perform general aircraft control and composite/instrument crosscheck as appropriate.	• Maintains smooth positive aircraft control at all times. • Ensures momentary deviations, ±5 seconds, do not exceed: ▶ Airspeed: ±5 percent. ▶ Altitude: ±100 feet. ▶ Heading: ±5 degrees. ▶ Course: ±1 dot/½ scale. ▶ AOA: ±1 unit. • Avoids hazards (ground obstructions, terrain, other aircraft, and severe weather).

Figure E.11

Generic CTS chart

BEHAVIOR STATEMENT	STANDARD
#. Graded Item	
A brief description of the behavior, required action, and/or conditions.	The specific standards for the action. May be read as "The student aviator…"

Figure E.12

Title header and page layouts

for Ground Training (admin, preflight academics, tours):

Blk #	Media	Title	Events	Hrs	Blk Name
G16	MIL/CAI	T-6 Aircraft Systems	13	29.0	SYS

1. Prerequisites
2. Events
3. Syllabus Notes
4. Discuss Items

for Flight Support (flight stage academics, procedures, and preparation):

Blk #	Media	Title	Events	Hrs	Blk Name
F01	Class	Formation Procedures	2	5.0	FORM

1. Prerequisites
2. Events
3. Syllabus Notes
4. Discuss Items

for Flight Training (simulator events and aircraft flights):

Blk #	Media	Title	Events	Hrs	H/X
I40	T-6B	Radio Instruments	4	8.0	2.0

1. Prerequisites
2. Syllabus Notes
3. Special Syllabus Requirements (SSR)
4. Discuss Items
5. Block MIF

p. Blocks and Events: Block # in title header may show one or more codes and consists of 1-3 characters and first two numbers in the lesson designator used for the block, i.e. G02/G03 or MET01. The column below the "Events" paragraph title has full lesson designators listed (ground training and flight support block only) for the "event code". In addition to the

overall format shown in Appendix D and the general guidance provided in Chapter 4, the following formatting rules also apply to lesson designators:

(1) In the 1 to 3 letter identified used as the first part of the lesson designator, avoid using the letter "O" or "I" as the last letter character to prevent confusion with the subsequent digits by interpreting it as a zero(0) or one (1). This prefix does not have to be exactly the same abbreviation used in the Block Name column of Ground Training/Flight Support pages in Stage chapters, which has no limit on letters.

(2) Second number character of lesson designator (Block code): use only numbers 1-9 (do not use zero).

(3) Event Code: Do not use zero-zero (00) for the event code.

q. Media: Media in title header may be a general term corresponding to the media code, a specific term, or several terms, i.e. MIL/CAI. For Ground Training and Flight Support, a slash (/) indicates "and", as in both types are used for the block(s) or events listed on that page. The individual lines listed under "Events" paragraph should all show only one ***specific*** Media per event. For overall class media, the media shall be selected from the list shown in Chapter 4, paragraph 404c(a)4. For sims and flights, the specific training device(s) or aircraft should be used. In the case of sims, either the specific word name (i.e., IFT) or code (i.e., 2F137) may be used; however, in the first case, the MCG must include the acronym in the glossary showing the exact correlation of word names to device codes. Aircraft should always be listed with the specific model(s), not simply "aircraft". If there is a choice, separate by a slash (/), indicating "or", i.e. "OFT/IFT" for a sim where the visuals are optional, or "T-45A/C" for a flight where either model will meet the objectives. Modifiers such as FR (front cockpit), RC (rear cockpit), solo, dual, and hood shall not be used as part of Flight Training Media. This information can be put in "Syllabus Notes".

r. Hrs: For Ground Training and Flight Support, "Hrs" title header may be split into two if desired. This may be particularly helpful for MIL/CAI, where knowing the total hours

for the block broken down by these media would be beneficial. However, each event in the column below should have its own line, and there shall be only one column, reflecting the hours specifically for each event (even if there are complementary MIL and CAI events with the same title). In some MCGs, i.e., multi-engine, additional rows in the header are used to separate "Hrs" total for the block per platform.

s. Block Name: If all events on the page fall into the same TIMS category, put the Block Name into the title header and leave the column below blank; otherwise, enter "See below" and put the specific Block Names at the end of each event line. The Block Names may be abbreviated or spelled out depending on length. Long names get cut off when input into TIMS.

t. H/X: if not the same for all events in block, enter "See below" and include the details under "Syllabus Notes".

APPENDIX F

CNATRAINST 1542 FORMAT SAMPLE (INSTRUCTOR SYLLABUS)

1. The CNATRAINST 1542 instructor syllabus contains a summary of all the items necessary for IUT and/or NATOPS qualifications and will be maintained in the standardization library. All chapters will be present in each MCG. If a particular stage is not used, the first page of the chapter will include the following statement: "This chapter does not apply to the (applicable) phase of training."

2. The format for the IUT curriculum will be identical to the student format (see Appendix F), except for the NATOPS Training chapter if applicable.

a. The MCG format follows standard CNATRA instruction format from SECNAVINST 5215.1 series. The font and size to use is Courier New 12. The specific breakdown is as follows:

(1) Chapter 1: General Instructions

(2) Chapter 2: Ground Training

(3) Chapter 3: NATOPS Training. This chapter will use standard flight code designations: C - Contact, I - Instrument, N - Navigation, F - Formation, and T - Tactical. However, the events in this chapter are specific to the NATOPS qualification. These flights will be graded per NATOPS grading criteria (i.e., 1 = demonstrate, 2 = UQ, 3 = CQ, 4 = Q, and 5 = Not applicable).

(4) Chapter 4: Contact Training

(5) Chapter 5: Instrument Training

(6) Chapter 6: Navigation Training

(7) Chapter 7: Formation Training

(8) Chapter 8: Tactical Training

(9) Chapter 9: Course Training Standards (CTS). CTS should be numbered for easy reference.

(10) Chapter 10: Master Materials List

APPENDIX G

AVIATION TRAINING FORM (ATF)

1. An ATF is used to document student and IUT aircraft and simulator events. These forms are electronically generated using TIMS. Sample ATF format is as shown in Figure H.1:

Figure G.1

Navy MPTS 15-Jul-2015 Page 1 of 1

STK2101 / Strike Emergency Procedures

Lesson Grade / Status / Type

Device Type: OFT VT-21

MANEUVERS

#	DESCRIPTION	MIF	N	U	F	G	E
1	GENERAL KNOWLEDGE/PROCEDURES	4+					
2	EMERGENCY PROCEDURES	4+					
3	HEADWORK/SITUATIONAL AWARENESS	3+					
4	BASIC AIRWORK	4+					
5	MISSION PLNG/BRF/DEBRF	4+					
6	COMMUNICATIONS	4+					
7	GROUND OPERATIONS	4+					
8	FLIGHT ADMIN	3+					
9	TACTICAL ADMIN	3+					
10	GROUND EMERGENCIES	3+					
11	TAKEOFF EMERGENCY PROCEDURES	4+					
12	IN-FLIGHT EPS	3+					
13	LANDING EPS	3+					
14	LOST COMMUNICATIONS	3+					
15	ABORT RUN	4+					
16	HUD FAILURE	3+					
17	PITOT STATIC MALFUNCTION	3+					
18	SIMO RUN	3+					
19	EMERGENCY JETTISON	3+					
20	HUNG ORDNANCE APPROACH	3+					
21	BLOWN TIRE DURING TAKEOFF/LDG	3+					
22	TAKEOFF	4+					
23	DEPARTURE						
24	RENDEZVOUS						
25	FORMATION WING						
26	ENROUTE NAVIGATION						
27	SPACER PASS	3+					
28	ROLL-IN						
29	TRACKING/DIVE ANGLE						
30	CCIP TARGET TRACKING						
31	ERROR CORRECTIONS						
32	RELEASE/FIRING PARAMETERS						
33	DIVE RECOVERY						
34	WEAPONS PATTERN	3+					
35	ACCURACY						
36	OFF-TARGET RENDEZVOUS						
37	PATTERN STALL/RECOVERY	4+					
38	DESCENT/FIELD ENTRY						
39	PRECAUTIONARY APPROACH						
40	VFR LANDING PATTERN						
41	LANDING/TOUCH-AND-GO						

COMMENTS

GENERAL COMMENTS:

Event: STK2101	ITEM	MIF	N	U	F	G	E
Doc:	Total Marks						
DATE	Score						
	Total Carried						
Julian	NSS Cumulative Stage Total						
	NSS Cumulative Stage Score						

STUDENT'S NAME / RANK Class No. Grade / Status / Type

INSTRUCTOR'S NAME / RANK

INSTRUCTOR'S SIGNATURE

Winds: Wx:

FLIGHT TIME LOG

FLT DUR	FPT	CPT	SCT	NIGHT	INSTRUMENT ACT	INSTRUMENT SIM	LANDINGS TYPE / NO.	APPROACHES TYPE / NO.

CNATRA 1542/2022 (Rev 11-14) This report complies with provisions of the Privacy Act of 1974 CNATRA 1542.167A Adv Stk

All times unless otherwise noted are in (UTC-05:00) Central Time (US & Canada)

APPENDIX H

FLIGHT TRAINING INSTRUCTION (FTI) FORMAT SAMPLE

1. FTIs should be formatted to enhance student learning. See Chapter 6 for further explanation.

a. This format includes:

(1) Cover

(2) Letter of Promulgation

(3) Title Page (see **Figure H.1**)

(4) List of Effective Pages

(5) Interim Change Summary Sheet

(6) Safety/Hazard Awareness Notice Page

(7) How to use the FTI

(8) Table of Contents (see **Figure H.2**)

(a) The table of contents and the FTI may include any chapters deemed necessary for the stage(s)/course(s). **Figure H.2** is only an example of the format, not content required of an FTI.

(b) FTIs should use Times New Roman 12 to the maximum extent possible. It may be more appropriate to use smaller font for some figures or examples.

(9) Table of Figures (see **Figure H.3**)

(10) Introduction

(11) Subsequent Chapters (see **Figure H.4**)

Figure H.1

FLIGHT TRAINING INSTRUCTION

FOR

CARRIER QUALIFICATION

T-45

P-1211

Figure H.2

TABLE OF CONTENTS

LIST OF EFFECTIVE PAGES..... iv
INTERIM CHANGE SUMMARY..... v
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101. COMPONENT DESCRIPTION.....1-2
102. LENS OPERATION 1-2
103. GLIDESLOPE 1-4

CHAPTER TWO – LANDING SIGNAL OFFICER (LSO). 2-1
200. GENERAL INFORMATION 2-1
201. LSO CALLS. 2-1
202. GRADING CRITERIA 2-2

APPENDIX A - GLOSSARY.....A-1

Figure H.3

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Figure 1-2 IFLOLS Lens - Ship-based Model…….. 1-1
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Figure 1-4 Optical Coverage of the Fresnel Lens……... 1-4
Figure 1-5 Optimum Glideslope……... 1-4
Figure 1-6 Vertical Field Angle Table……. 1-5

Figure 2-1 LSO Grading Symbols (1 of 2)……...2-5
Figure 2-2 LSO Grading Symbols (2 of 2)……...2-6

Figure 3-1 Day FCLP Pattern…….. 3-3
Figure 3-2 Deep 90……. 3-4
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Figure 5-1 Pedal Toe Bar…….. 5-9
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Figure 6-1 Bingo Chart (Clean)……6-3
Figure 6-2 Bingo Chart (Dirty)……6-5

Figure H.4

CHAPTER ONE
IMPROVED FRESNEL LENS OPTICAL LANDING SYSTEM (IFLOLS)

100. MODEL DESCRIPTION

There are two models of the IFLOLS lens: one is a portable shore-based model (Figure 1-1) and the other is the shipboard model. The model (Figure 1-2) used on carriers is line and inertial stabilized. Line stabilization compensates for the ship's pitch and roll, where inertial compensates for pitch, roll, and heave.

102. LENS OPERATION

All source lights in the lens box are illuminated during operation (Figure 1-3). Each of the 12 cells is angled slightly from the adjacent cell for a total vertical coverage of 1.7 degrees. The lenses are manufactured in such a way that only one cell, or part thereof, can be seen from a particular angle. Each cell projects a bar of horizontal light that appears to be a ball until very close range; therefore, the term "meatball" or "ball" is used to describe the light. As stated previously, the red bottom cells indicate an excessively low condition. ***Never accept or finesse a low ball.***

103. GLIDESLOPE

Because of the divergence of each lens cell, the size of the ball projected by that cell increases as distance from that cell increases, and vice versa. The following graphic illustrates this relationship, as well as the sink rate/ball position relationship. Note that at one mile, the thickness of the center cell is approximately 15 ft. The entire lens is approximately 194 ft thick at one mile and only 20 ft thick at the ramp. It must be noted also that as distance increases, resolution of the cells decreases. Thus, the information you receive within one mile is better resolved and more accurate the closer the aircraft gets to touchdown.

APPENDIX I

ACADEMIC TRAINING INSTRUCTION FORMAT SAMPLE

1. ATIs consist of student guides, lesson guides and student workbooks.

a. ATIs shall use Times New Roman 12.

(1) Cover

(2) Letter of Promulgation

(3) Title Page

(4) Introduction (see **Figure I.1**)

(5) Scope and Terminal Objectives (see **Figure I.2**)

(6) How to Use the Student Guide (see **Figure I.3**)

(7) List of Effective Pages

(8) Interim Change Summary

(9) Table of Contents (see **Figure I.4**)

(10) Table of Figures

(11) Subsequent Chapters (see **Figure I.5**)

(12) Study Questions (if applicable) (see **Figure I.6**)

Figure I.1

INTRODUCTION

In accordance with applicable military instructions, all pilots are responsible for reviewing and being familiar with weather conditions for their planned flight. Where Weather Services are available, a qualified forecaster shall conduct the weather briefings. They may be conducted either in person or via telephonic, autographic, weather vision, or approved Internet methods. In some cases, pilots may have to complete the briefing and DD 175-1 Weather Briefing Forms on their own.

Figure I.2

WORKBOOK SCOPE

Upon completion of this unit of instruction, student aviators and flight officers will demonstrate knowledge of meteorological theory which will enable them to make intelligent decisions when confronted with various weather phenomena and hazards, as well as interpreting and using various weather products for flight planning.

TERMINAL OBJECTIVES

1. Describe displayed data in Aviation Routine Weather Reports (METARs) and Terminal Aerodrome Forecasts (TAFs).

2. Describe displayed data shown on various weather imagery products.

3. Describe displayed data on Severe Weather Watches and In-Flight Weather Advisories, and state the use and requirements for Pilot Weather Reports (PIREPs).

4. Describe indicated data on the DD 175-1, “Flight Weather Briefing Form,” and state the sources of hazardous weather information used to complete the form.

Figure I.3

HOW TO USE THIS STUDENT GUIDE

1. Read and become familiar with the objectives of each chapter. These objectives state the purpose of this chapter of instruction in terms of ***WHAT YOU WILL BE ABLE TO DO*** as you complete the chapter. Most importantly, your end-of-course examination is developed directly from these objectives.

2. **Before the class presentation**, read the information in each chapter using the objectives as a guide. Develop a list of questions about material that is unclear to you at this point. This practice will allow you to ask questions when the topic is covered during the classroom presentation or at a later time with the instructor in a one-on-one setting. You may also wish to consult your Weather for Aircrews handbook for further information.

3. **After the class presentation**, re-read each chapter to ensure your comprehension of the subject material. If you desire further information, explanation, or clarification, consult your instructor.

4. Answer the questions provided in the "Study Questions" sections. These questions will help you recall the information presented in each chapter, and they will also serve as a practice for the examination. Check your answers to the Study Questions with those provided in Appendix E. If your answer to a question is incorrect, review the objective and information covering that subject area prior to continuing to the next chapter. ***"Good Luck."***

Figure I.4

TABLE OF CONTENTS

INTRODUCTION……...……..…v
WORKBOOK SCOPE……..……vi
HOW TO USE THIS WORKBOOK……vii
LIST OF EFFECTIVE PAGES……..viii
INTERIM CHANGE SUMMARY……ix
TABLE OF CONTENTS……x
TABLE OF FIGURES……...xii

CHAPTER ONE - AVIATION ROUTINE WEATHER REPORTS AND TERMINAL AERODROME FORECASTS……1-1
100. INTRODUCTION……1-1
101. LESSON TOPIC LEARNING OBJECTIVES……1-1
102. REFERENCES……..1-2
103. STUDY ASSIGNMENT……..1-3
104. THE AVIATION ROUTINE WEATHER REPORT……..1-3
105. METAR FORMAT……...……....1-4
106. REMARKS SECTION……1-13
107. THE TERMINAL AERODROME FORECAST……1-18
108. CHANGE GROUP TERMINOLOGY……1-24
109. SUMMARY OF U.S. CIVIL/MILITARY TAF DIFFERENCES……..1-28
110. DETERMINATION OF CEILING IN METARS AND TAFS……...1-29
111. IFR/VFR RULES FOR FLIGHT PLANNING……...1-29
112. REQUIREMENTS FOR AN ALTERNATE ON IFR FLIGHT PLANS……1-30
113. USING TAFS FOR FLIGHT PLANNING……1-31
STUDY QUESTIONS……..1-33

Figure I.5

CHAPTER TWO
DATA DISPLAYED ON WEATHER IMAGERY PRODUCTS

200. INTRODUCTION

This chapter will introduce a number of different weather products available from the local weather office or over other lines of communication. An understanding of these visual products, which are produced to show a national scale, will quickly provide an aviator a broader picture of the weather than can be gathered from METARs and TAFs.

201. LESSON TOPIC LEARNING OBJECTIVES

TERMINAL OBJECTIVE: Partially supported by this lesson topic:

Describe displayed data shown on various weather imagery products.

ENABLING OBJECTIVES: Completely supported by this lesson topic:

1. State the pilot's use of a Surface Analysis Chart.

2. Identify displayed data on Surface Analysis Charts.

3. Describe displayed data on Station Model Plots.

202. REFERENCES

- Chief of Naval Operations Instruction 3710.7 series, NATOPS General Flight and Operating Instructions

203. STUDY ASSIGNMENT

Review Chapter Two and answer the Study Questions.

204. SURFACE ANALYSIS CHARTS

Weather forecasting, to a great extent, is dependent on weather charts showing the weather, its development, and movement from place to place. Regular scheduled observations (METAR) are taken throughout the world at selected times and compiled by computer at the Suitland, Maryland Weather Bureau Center. The computers analyze this information and produce a number of products, including the Surface Analysis Chart, which are transmitted to subscribers throughout the world.

Figure I.6

STUDY QUESTIONS

Data Displayed on Weather Imagery Products

1. Which one of the following would NOT be found on a Surface Analysis Chart?

   a. Fronts
   b. Station models
   c. Areas of moderate or greater turbulence
   d. Isobars

2. Which one of the following is a true statement about the Surface Analysis Chart?

   a. It transmits teletype information describing observed weather for use by meteorologists and aircrew.
   b. Pilots use the chart to obtain an overall facsimile picture of forecast weather.
   c. The chart is a computer-produced facsimile presentation based on radar observations of echo activity.
   d. The information displayed on the Surface Analysis Chart is observed weather and is NOT a forecast. CHAPTER ONE REVIEW QUESTIONS

APPENDIX J

INSTRUCTOR GUIDE FORMAT GUIDELINES AND SAMPLE

1. The following are sample format pages for a CNATRA IG.

   a. Each IG will contain:

      (1) Cover Page

      (2) Instructor Guide Topic Page (see **Figure J.1**)

      (3) Change Record

      (4) Table of Contents (see **Figure J.2**)

      (5) Security Awareness Notice

      (6) Safety/Hazard Awareness Notice (see **Figure J.3**)

      (7) NATRACOM DOR and TTO Policy

      (8) Objectives (see **Figure J.4**)

      (9) Outline of Instruction and Instructor Activity Pages (see **Figure J.5**)

Figure J.1

Instructor Guide Topic Page

Chief of Naval Air Training
CNATRA
250 Lexington Blvd., Suite 102
Corpus Christi, TX 78419-5041

Classification: Unclassified

Course Title: CNATRAINST 1542.164 (AWI Stage)

Topic: Stern Conversion Intercepts II

Time: 1.5 Hours

Instructional References:

1. P-825 Advanced Intercept Procedures

Instructional Aids:

1. Electronic Classroom
2. White Board

Unit Topic Number: G1516

Terminal Objective:

Upon completion of this course, the SNFO will be able to guide a stern conversion.

Specific Instructional Objective:

Upon completion of this course of instruction, the SNFO will demonstrate their knowledge of the AWI Procedures by completing the end of course examination with a minimum of 80% accuracy.

Enabling Objectives:

1. Explain stern conversion intercept purpose and procedures.
2. Apply counterturn (CT) procedures.
3. Apply displacement turn (DT) procedures.
4. Apply attack procedures on hostile aircraft.

Homework: N/A

Test Criterion: N/A

Prerequisites: Completion of UMFO Primary and Intermediate phases of training

Approved By: _____ *Date:* _____
Course/Stage Manager

FIGURE J.2

TABLE OF CONTENTS

Content

Page

FRONT MATTER

Change Record iii
Table of Contents iv
Security Awareness Notice v
Safety/Hazard Awareness Notice vi
NATRACOM Drop on Request (DOR) and Training Time Out (TTO) Policy vii
Objectives viii

AIR-TO-AIR RADAR MODES II

Introduction 1
Presentation 3
Initialization, Controls, and Setup 3
Air-to-Air Search Fundamentals 18
Single Target Track and Target Parameters 22
ACM Mode Use 24
Radar Troubleshooting 27
Summary 32
Application 32
Evaluation 32
Assignment 32

FIGURE J.3

SAFETY/HAZARD AWARENESS NOTICE

a. All personnel must be reminded that personal injury, death, or equipment damage can result from carelessness, failure to comply with approved procedures, or violations of warnings, cautions, or safety regulations.

b. Safe training is the number one goal. Each year at training commands, lives are lost, and thousands of man-hours and millions of dollars are wasted as the result of accidents. Most of these accidents could have been prevented. They are the result of actions performed incorrectly, either knowingly or unknowingly, by people who fail to exercise sufficient foresight; lack the requisite training, knowledge, or motivation; or fail to recognize and report hazards.

c. A mishap is any unplanned or unexpected event causing personal injury, occupational illness, death, material loss or damage, or an explosion, whether damage occurs or not.

d. A near miss or hazardous condition is any situation, which if allowed to go unchecked or uncorrected, has the potential to cause a mishap.

e. It is the responsibility of all Department of Defense personnel to report all mishaps and near misses. If a mishap, hazardous condition, or near miss occurs, let your instructor know immediately.

f. Students will report all hazardous conditions and near misses to the command high-risk safety officer via their division/departmental high-risk safety officer. Reports can be handwritten on the appropriate form. Injuries shall be reported on the appropriate form.

FIGURE J.4

OBJECTIVES

TERMINAL OBJECTIVE:

Upon completion of this course, the SNFO will be able to perform setup of the T-45C OFT and VMTS radars for air-to-air intercepts.

SPECIFIC INSTRUCTIONAL OBJECTIVE:

Upon completion of this course of instruction, the SNFO will demonstrate their knowledge of the AWI Procedures by completing the end of course examination with a minimum of 80% accuracy.

ENABLING OBJECTIVES:

1. Identify the procedures to initialize T-45C OFT and VMTS radars.
2. Use the T-45C OFT/VMTS radar to search for contacts.
3. Identify the procedures to take radar lock on a contact.
4. Use ACM modes to acquire targets.
5. Apply OFT/VMTS radar troubleshooting procedures.
6. Determine how to adapt to degraded radar.
7. Determine how to respond to radar jamming.

FIGURE J.5

OUTLINE OF INSTRUCTION	INSTRUCTOR ACTIVITY
I. INTRODUCTION	**Pass out** Muster sheet.
A. Establish Contact	**Display** name and course title.
i. Introduce self, give rank, current job.	**Introduce** self.
ii. Topic –Stern Conversion Intercepts II	**(Main Menu)** Title " Stern Conversion Intercepts II"
iii. State background, schools, and duty stations, etc.	**Discuss** Briefly.
iv. State question and answer policy.	**Discuss** question policy.
v. State TTO and DOR Policy	**State** policy.
B. Introduction	**Select** “Introduction” from the Main Menu
i. Objectives	**(Page 1 of 3)** Title “Objectives”
a. Purpose	**Reference** graphics throughout topic.
– This lesson familiarizes you with the stern conversion intercept procedures	
b. Terminal Objective	**State** terminal objective.
– Upon completion of this course, the SNFO will be able to guide a stern conversion.	
c. Enabling Objectives	**State** enabling objectives.
i. Explain stern conversion intercept purpose and procedures.	
ii. Apply counterturn (CT) procedures.	
iii. Apply displacement turn (DT) procedures.	

FIGURE J.5 Continued

2. Overview – This lesson provides an overview of the stern conversion intercept and is divided into the following segments. **I.** Stern conversion intercepts **II.** Counterturns **III.** Displacement turns **IV.** SRM attack and visual identification	**(Page 2 of 3)** Title "Overview"
References – The following reference supports the content of this lesson: – P-825 Advanced Intercept Procedures	**(Page 3 of 3)** Title "References"
II. PRESENTATION	
A. Stern Conversion Intercepts	**Select** "Stern Conversion Intercepts" from the Main Menu
1. Stern Conversion Intercepts Outside 10 NM a. Precommit/CAP – Threat sector b. Commit c. Correlation/declaration – Standard sets and comms d. Target – Only "single group" e. STT – On correlated group	**(Page 1 of 10)** Title "Stern Conversion Intercepts Outside 10 NM" **Reference** graphics throughout topic.