



DEPARTMENT OF THE NAVY

CHIEF OF NAVAL EDUCATION AND TRAINING

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CNETINST 1540.17B

ETE3

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CNET INSTRUCTION 1540.17B

Subj: SHIPBOARD TRAINING ENHANCEMENT PROGRAM (STEP)

Ref: (a) OPNAVINST 1540.55
(b) CNETINST 1500.21A

Encl: (1) Formal Course Review Checklist for STEP Courses
(2) Training Project Plan Format
(3) STEP Course Pilot Procedures
(4) Procedures for Course Cancellation
(5) Responsibilities for Life Cycle Maintenance
(6) STEP Course Development Process
(7) Testing Procedures for STEP Courses
(8) Hardware and Software Requirements

1. Purpose. To establish policy and prescribe direction for the development, implementation, and life cycle maintenance of Shipboard Training Enhancement Program (STEP) courses. This instruction has been revised extensively and should be read in its entirety.

2. Cancellation. CNETINST 1540.17A

3. Background. STEP was established by Chief of Naval Operations (CNO) (N869) to meet surface fleet training needs and to better use diminishing resources. The objectives of STEP are to: (1) convert existing formal training courses, or portions of training courses, to computer-based Interactive Multimedia Instruction (IMI), delivered on CD-ROM (and in some cases over the Internet); (2) develop new training as computer-based IMI; and, (3) provide computer-based IMI to the worksite on a ship. This enhancement allows the Sailor to complete formal training requirements without leaving the ship. New and revised STEP courses are distributed automatically to all ships at least annually. Additional copies and requirements for other commands are distributed upon request.

4. Discussion. Reference (a) designates Chief of Naval Education and Training (CNET) as the STEP Coordinator (STEPCC) and identifies responsibilities of Type Commanders (TYCOMs) and the STEP Executive Review Board (STEP ERB). As STEPCC, CNET is responsible for managing and providing administrative support for

the program. This instruction establishes the process for STEP product development, and provides direction to and identifies responsibilities of the Curriculum Control Authority (CCA), Local Training Authority (LTA), Course Curriculum Model Manager (CCMM), and Naval Education and Training Professional Development and Technology Center (NETPDTC). Reference (b) describes how to develop, acquire, and manage Navy IMI training within Naval Education and Training Command (NAVEDTRACOM).

5. Responsibilities. STEP responsibilities are defined below:

a. CNET will act as CCA for all STEP courses. As CCA, CNET will:

(1) Designate a training command to act as CCMM for each STEP course. For commands not reporting directly to CNET (Bureau of Medicine and Surgery, AEGIS, etc.), designation of the CCMM will be coordinated through the appropriate command.

(2) Assign a course identification number (CIN) to all STEP courses.

(3) Direct CCMM to conduct formal course review (FCR) of assigned STEP courses annually. This review will be conducted prior to all related Surface Warfare Training Requirements Reviews (SWTRR)/Navy Training Requirement Reviews (NTRR). Enclosure (1) will be used to complete the FCR.

(4) Coordinate the development, review, and approval of Training Project Plans (TPP) for STEP course revisions with Naval Sea Systems Command (NAVSEASYSCOM), the Training Support Agent (TSA), and appropriate program offices. Enclosure (2) provides the format and content for STEP-related TPPs.

(5) Direct CCMM to conduct pilot of all new and revised STEP courses. Enclosure (3) outlines the STEP course pilot procedures.

(6) Direct CCMM to submit TPP to cancel a traditional schoolhouse course of instruction when it is replaced by a STEP course. Cancellation TPPs will be coordinated with the appropriate resource sponsor. The CCMM will retain the approved TPP after the course is cancelled. Enclosure (4) provides guidelines for course cancellation.

(7) Review SWTRR/NTRR action items that recommend STEP as replacement of, or a supplement to, formal training or in response to a new topic or requirement. Coordinate development action with NAVSEASYSCOM and the appropriate TSA.

(8) Review Navy Training System Plans (NTSPs), formerly Navy Training Plans (NTPs), that recommend STEP courses to satisfy formal training requirements and coordinate action with the appropriate TSA.

(9) Approve STEP courses for distribution to the fleet.

(10) Direct CCMM to submit TPP to cancel a STEP course of instruction when it becomes obsolete, technically inaccurate, or as otherwise required. Cancellation TPPs will be coordinated with the appropriate resource sponsor. The CCMM will retain the approved TPP after the course is cancelled. Enclosure (4) provides guidelines for course cancellation.

b. LTAs act as CNET's representative for STEP issues within their respective regions. LTAs will:

(1) Represent CNET during in-process reviews (IPRs).

(2) Working in conjunction with the TYCOMs, gather feedback from the fleet users.

(3) Enter course completion data as it is received from the user.

c. CCMM is responsible for life cycle maintenance of the assigned STEP courses. In addition to the responsibilities identified in enclosure (5), all CCMMs will:

(1) Ensure subject matter expertise is maintained for the course assigned. In all cases, this will require, at a minimum, completion of assigned STEP courses and a working knowledge of all references and documentation. This may also require attendance at factory training for new acquisitions. CCMMs are encouraged to establish any additional qualification requirements for a subject matter expert (SME) as appropriate.

(2) Provide STEPC information on the status of and recommendations for improvement to the STEP course.

(3) Provide SME for all phases of STEP course development and revision. This may require attendance at an IPR. Funding for SME travel is provided by the developing agent as a part of the development/revision process. If the SME is unable to attend the IPR, a copy of all printed and digitized material provided by the developing agent for the IPR must be provided to the SME for review. The SME must then review the material and provide recommendations/comments to the developing agent in a timely manner.

(4) Conduct pilot of all new and revised STEP courses per enclosure (3).

(5) Provide Catalog of Navy Training Courses (CANTRAC) updates to the CCA.

(6) Review Instructional Media Design Package (IMDP) for STEP development efforts for assigned courses and provide comments to the developing agent.

(7) Maintain a copy of the Life Cycle Manager's (LCM) Notebook for assigned courses.

(8) Brief assigned STEP courses during SWTRRs and NTRRS.

d. NETPDTC is tasked to act as the Clearinghouse Agent for all STEP products. NETPDTC will:

(1) Provide interactive multimedia instruction (IMI) developmental guidelines for the standardization of STEP products.

(2) Serve as the repository for all STEP products and the corresponding LCM Notebooks.

(3) Distribute all STEP products.

(4) Review IMPD for all STEP development efforts and provide comments back to the developing agent.

6. STEP Product Identification and Development Process. CNET and/or the STEP ERB will designate and/or approve the developing agent for each STEP course. STEP product development may be accomplished by NETPDTC or some other developing agent. Regardless of the developing agent, the process for STEP course development must adhere to the guidelines provided in this instruction. All developing agents will coordinate development efforts with CNET. The process for identifying and developing STEP products will be standardized per enclosure (6). Testing procedures will be per enclosure (7). All STEP courses will be developed to operate using the hardware and software requirements in enclosure (8).

/S/D. L. BREWER, III
Vice CNET

Distribution (CNETINST 5218.2D):
Lists I (12, 17, 19, 20, 24, 25, 36, 46)

SNDL A3 (CNO (N869, N71))
A5 (BUMED)
FA8 (FTSCLANT)
FKA1G (COMNAVSEASYSYSCOM)
FKA1A (COMNAVAIRSYSCOM)
FKP21 (COMNAVSEALOGCEN)
21A1 (CINCLANTFLT)
21A2 (CINCPACFLT)
23C (COMNAVRESFOR)
24A1 (COMNAVAILANT (N81D3))
24A2 (COMNAVIRPAC (N72))
24D (COMNAVSURFPAC (N83), COMNAVSURFLANT (N8111))
26B3 (COMNAVSURFRESFOR)

FORMAL COURSE REVIEW CHECKLIST FOR STEP COURSES

COURSE REVIEW CHECKLIST FOR STEP COURSES			
Complete this checklist for all assigned STEP courses and forward to CNET (ETE3). Attach explanation for all "NO" responses.			
PART 1. COURSE INFORMATION			
COURSE TITLE:			
REVIEW DATE:		CIN:	
CCMM:	DATE OF LAST REVISION:		
COURSE LENGTH:	DATE OF LAST REVIEW:		
PART 2. COURSE DOCUMENTATION			
	YES	NO	NA
1. Approved TPP for development is on file.			
2. Approved TPP for formal course cancellation is on file.			
3. LCM Notebook and course reviews for the previous two review cycles are on file.			
4. Discrepancies from the previous course reviews have been corrected.			
PART 3. COURSE SPECIFICATIONS AND FORMAT			
	YES	NO	NA
1. The main course folder contains a README file in a non-proprietary format identifies: course title; course identification number (CIN); salient features of the course; course length (in hours); hardware, software and system setup requirements; the authoring system, programming language or applications software used to develop the course; the developing agency; date of final release; the Course Curriculum Model Manager (with contact information).			

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PART 4. TECHNICAL CONTENT			
	YES	NO	NA
1. Course content is technically correct.			
2. Course content supports recent changes to the technical documentation and reference material.			
3. Test questions are technically accurate.			
PART 5. COURSE DESIGN			
	YES	NO	NA
1. Course title, security classification, and instructions for providing feedback to CCMM and NETPDTC are accurate.			
2. Student log-on procedure is straightforward, adequate, and easy to follow.			
3. Bookmarking procedures allow the student to return to an appropriate and adequate bookmark.			
4. Key points are reinforced during training.			
5. Course is challenging and provides the student with essential information.			
6. Course provides novel and interesting examples that stress objectives and maintain student interest without detracting from the training.			
7. HELP is complete, easy to access, and available at all times EXCEPT during testing.			
8. Student interacts with the course material and not just the computer.			

PART 6. VISUAL AND AUDIO INFORMATION			
<p>VISUAL INFORMATION includes: GRAPHICS - digitized photographs, computer-generated pictures, diagrams, etc., that do not have motion. ANIMATION - computer-generated pictures, diagrams, etc. that have motion applied (e.g., current moving through a wiring diagram or a computer-generated picture of a weapon firing). VIDEO - series of moving photographs of actual equipment, facilities, personnel, etc. AUDIO - digitized sound without any embedded graphics, animation, or video.</p>			
	YES	NO	NA
1. Video accurately depicts actual equipment, facilities, or personnel.			
2. Visual information enhances learning.			
3. Text emphasizes visual information.			
4. Sound complements the text and visual media.			
PART 7. TESTING & REMEDIATION			
	YES	NO	NA
A. GENERAL TESTING PROCEDURES			
1. Test questions are cross-referenced to an objective.			
2. There are an adequate number of questions to measure the objectives.			
3. Types of questions/degree of difficulty are consistent with the objectives.			
B. PRETEST PROCEDURES			
1. Pretest thoroughly covers the knowledge objectives.			
2. The pretest score recommends an appropriate student track through the course.			
C. PROGRESS CHECK PROCEDURES			
1. Progress checks are used to measure student understanding of the objectives.			

PART 7. TESTING & REMEDIATION (CONTINUED)			
	YES	NO	NA
2. Feedback recommending additional study or practice is provided at the end of the progress check.			
3. Test results can be correlated to the applicable module for remediation or further study.			
D. PERFORMANCE TEST PROCEDURES			
1. Performance objectives are measured through simulated exercises.			
2. Students are required to complete all performance objectives regardless of the pretest score.			
3. Simulation depicts actual performance when possible. If not, disclaimers are provided.			
E. FINAL COMPREHENSIVE			
1. A final comprehensive exam is given and measures student understanding of all objectives.			
2. Final comprehensive exam test questions and performance exercises are generated/selected randomly.			
F. REMEDIATION AND RETESTING			
1. Students who achieve the minimum cutoff score on the final exam are remediated and retested on all missed items.			
2. Students failing to achieve the minimum cutoff score on the final exam are remediated/retested on a new exam.			

PART 8. FEEDBACK & STUDENT CRITIQUES			
	YES	NO	NA
1. The critique provided at the conclusion of the training allows the student to adequately rate the delivery method and course content.			
2. A working process is in place to provide to the CCMM, CNET, and NETPDTC, on a regular basis for review and analysis, all student critiques, course data, and course statistics that have been gathered.			
3. Where student and course data and/or statistics have been gathered, they indicate the course is performing in a satisfactory manner. (If "NO" attach explanatory comments.)			

TRAINING PROJECT PLAN FORMAT

1. The TPP is the planning document used for all curriculum development efforts. For the purpose of STEP courses, the TPP will serve as the approval document for (1) development of new STEP courses, (2) revisions to existing STEP courses, and (3) cancellation of courses that are replaced through STEP. The CCMM is responsible for preparing TPPs for revisions and cancellations. TPPs prepared by the CCMM will be forwarded to CNET (ETE3) for approval. The following sections will be addressed in the TPP:

a. Cover Page

b. Justification. This section will include a description of anticipated benefits as well as the reason for development/revision/cancellation. If the development/revision effort is based on the results of an NTRR or SWTRR, provide the name of the NTRR/SWTRR and the chit sequence number.

c. Course Data Pages will include:

(1) Course Title and CIN

(2) Course Mission Statement describing who is trained, what is trained, and the degree of qualification

(3) Navy Enlisted Classification (NEC) earned

(4) Prerequisites

(5) Anticipated Course Length - defined for a "worst case" situation (i.e., the student takes the longest direct path through the course, missing every progress check question the maximum number of permitted times, and passing the final comprehensive exam on the first attempt by achieving the cutoff score, then remediating to achieve 100 percent)

d. Compensation. This section will include a specific list of possible savings in manpower and funding. Also listed are the anticipated reductions in course length or cancellations and reduced instructor requirements.

e. Milestones

f. Resource Requirements. This section provides an estimate of known and anticipated resources necessary to implement the training. If the revision/development effort is planned for in-house development, include costs for course development as well. This should include manpower requirements for performing

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CCMM duties, training, travel, and Automated Data Processing (ADP) equipment requirements. This section is not required for course cancellation.

STEP COURSE PILOT PROCEDURES

The purpose of the pilot process is to ensure the technical accuracy of the curriculum, to assess the student's ability to navigate through the program, to assess the ability of the course to measure student performance, and, in some instances, to determine equivalency with existing formal training. Developers are expected to conduct formative evaluations at regular intervals throughout course development. The pilot will be conducted on the completed course prior to government acceptance. The CCMM is responsible for conducting the pilot; however, other commands may also conduct a pilot of the training if desired. The CCMM will consolidate and prioritize the findings and forward the results to CNET. In order to ensure the pilot is conducted as required, the following guidelines apply.

1. Subject Matter Expertise Validation. To gather data on the technical accuracy of the STEP course, students may be selected from a group of Subject Matter Experts (SMEs). This part of the validation process is used to determine the technical accuracy of the course, not to provide student validation. Validation by SMEs is not mandatory; however, it is encouraged. The CCMM will determine if SME validation is required. All SME input will be documented and included in the results provided to CNET.

2. Student Validation. To gather data on the student's ability to navigate through the course, to achieve the objectives, and to determine course equivalency, students will be selected from a population typical of the type of student who will be participating in the training on the ship. For example, students who already have a knowledge of the training material may give a false representation of the ability of the IMI to pass the objectives on to the student.

3. Training Environment Validation. Because the training provided on board a ship is different from the traditional training environment, the pilot process must attempt to simulate the ship training environment as close as possible. Typically, the training is provided in an LMRC, equipped with multimedia computers. Another characteristic of the shipboard training environment is the absence of an instructor to answer questions and guide the student through the training. It is imperative that the staff personnel assigned to conduct the pilot act only as monitors and that the students complete the course. Students should be allowed to progress at their own pace within the advertised course length.

4. Class Size. Class size will vary but should range between 10 and 25 students.

5. Documentation. The following documentation will be maintained during the pilot and submitted to CNET after the pilot is concluded.

- a. Start and stop times for each individual student.
- b. List areas of difficulty encountered by the students.
- c. Final Knowledge Comprehensive Grade on first attempt and number of attempts required to achieve 100 percent.
- d. Final Performance Test Grade if applicable.
- e. Student comments on the training to include difficulty of the subject matter, ability to navigate through the program, and overall impression of the training.
- f. The CCMM will complete appropriate items on the Course Review Checklist contained in enclosure (1).

PROCEDURES FOR COURSE CANCELLATION

1. Procedures for Traditional Schoolhouse Course Cancellation

a. One of the purposes of STEP is to increase the efficiency of delivering training to the fleet. This occurs by making the training available onboard the ship, thus eliminating the need to fund shipboard personnel to attend traditional schoolhouse training. Therefore, an efficiency is realized when the traditional course of instruction is canceled and the training is provided by the STEP course.

b. CCMM, when directed by CNET, is responsible for forwarding a TPP identifying the Plan of Action and Milestones (POA&M) for cancellation of the traditional schoolhouse course of instruction. Cancellation will not occur until all students currently enrolled in the traditional course have graduated and the new STEP course is available to the fleet on CD-ROM or via the Internet.

c. When preparing the TPP, use the basic format provided by enclosure (2). In the TPP, identify the savings realized through course cancellation to include manpower, curriculum, training materials, training equipment, etc. When designating manpower savings, ensure one billet is retained to support the CCMM duties and provide subject matter expertise for the STEP courses.

2. Procedures for STEP Course Cancellation

a. Changing requirements may result in cancellation of a STEP course. The CCMM is responsible for forwarding a TPP identifying the POA&M for cancellation of the STEP course. Cancellation will not occur until all students currently enrolled in the STEP course have completed the course (or exceeded the amount of time during which the course could have been reasonably completed) and an alternative source of the STEP course training is provided.

b. NETPDTC will retain the master of all cancelled STEP courses for a period of at least 5 years following the date of course cancellation. Subsequent versions of the STEP Program README.TXT file will list courses which have been cancelled within, as a minimum, the previous 365 days, along with the date of cancellation and the reason for cancellation.

RESPONSIBILITIES FOR LIFE CYCLE MAINTENANCE

1. The CCMM has been delegated the responsibility for life cycle maintenance of all assigned STEP courses. The CCMM reviews the STEP course for technical accuracy and currency and makes recommendations for change/revision. When assigning the CCMM for a STEP course, every effort will be made to assign responsibility to the schoolhouse where the resident expertise exists. In cases of new course development, resident expertise may not exist in the schoolhouse. Factory training and involvement in the development process may develop subject matter expertise.
2. The CCMM provides an SME for the STEP development project. Every effort must be made to provide the same SME throughout the review process. Travel requirements for SMEs during the review process are provided for with STEP funds.
3. Using enclosure (1) as a guideline, the CCMM reviews assigned STEP courses to ensure compliance with referenced instructions, directives, procedures, etc. When a STEP course is scheduled for review, the CCMM will notify the TSA and request the completion of enclosure (1). Based on the review comments from the TSA and CCMM, the CCMM may recommend changes or a revision to the STEP course. If a revision is recommended, a TPP will be forwarded to CNET. CNET will forward all TPPs to the appropriate TSA and program office for review and comment. Once approved, CNET will determine the best means to accomplish the revision and assign resources and tasking as appropriate.
4. To ensure the availability of manpower, CCMM duties for STEP courses are included in the instructor computation process as described in CNETINST 5310.4E. CCMM responsibilities must be cross-utilized with an existing course of instruction for the purpose of instructor computations. For each STEP course assigned, complete step seven on the instructor computation form in CNETINST 5310.4E. Multiply 3.34 by the number of curriculum hours in the STEP course. Curriculum hours equate to the course length. This number will be added to the instructor computation requirement for the primary course. If CCMM duties are assigned to more than one STEP course, calculate the requirement for each separately and add to the primary course instructor computations.
5. As STEP hardware and operating system software requirements change, NETPDTC will review existing STEP courses on systems meeting the new requirements to assess performance and document functional shortfalls.

STEP COURSE DEVELOPMENT PROCESS

1. Background. STEP is one of several shipboard training programs and was established to deliver approved training, remote from the schoolhouses. The STEP program provides a coordinated, systematic approach to the development, distribution, and life cycle management of STEP formal training courses.

2. Requirements Determination Phase. Requests/requirements to develop STEP products may be identified several ways. Some examples include Navy Training Feedback System (NTFS), NTRR, SWTRR, NTSP, LTA recommendations, or STEP ERB. Requirements to develop STEP products based on a SWTRR action item or NTSP will be coordinated with CNET. Requirements identified through the LTA, ERB, and NTFS will adhere to the following procedure.

a. Planning Stage

(1) Sixty days prior to the ERB, STEPC will request, via message, input from the TYCOMs on training courses recommended for conversion to STEP or new topics to be considered for STEP development. TYCOMs will forward a prioritized list of these courses to the CINCs, with a copy to CNET (STEPC).

(a) NETPDTC, in conjunction with the CCMM for a formal course, reviews the list of courses to determine feasibility of converting each to IMI for STEP, conducts a Defense Instructional Technology Information System (DITIS) search for existing courses that could meet the requirement, and forwards recommendations to CNET (STEPC).

(b) NETPDTC, in conjunction with fleet personnel, reviews the list of courses to determine feasibility of developing IMI for STEP and forwards recommendations to CNET (STEPC).

(2) STEPC provides the ERB with the list of recommendations for course conversions.

(3) STEP ERB reviews the list and prioritizes courses selected for development.

(4) STEPC coordinates plans for all revisions/developments with NAVSEASYS COM, TSA, CCMM, NETPDTC, and the appropriate program office.

(5) STEPC assigns a developing agent and tasks the developing agent to prepare IMDP. The developing agent will notify NAVSEASYS COM, TSA, CCMM, NETPDTC, and program office of all IPRs.

(6) CCMM for the formal course of instruction provides curriculum and reference material to the developing agent.

(7) CCA (CNET) assigns CCMM for the STEP course.

(8) CCMM assigns SME.

(9) Developing agent prepares IMDP within 60 days of receipt of the curriculum and reference material.

(10) Developing agent announces and conducts first IPR with the STEP working group. The purpose of the first IPR is to review and approve the IMDP and POA&M. The POA&M will address formative evaluations and the final course pilot. The Course Development Review Checklist (CDRC) for STEP Courses at the end of this section will be used as guidance in determining the adequacy of the proposed course design in the IMDP. Copies of the IMDP and POA&M shall be distributed to all working group members, and to the designated NETPDTC STEP point of contact, at least 1 week prior to the IPR. The working group is composed of the STEPC or LTA, developing agent, SME(s), TYCOM representatives, TSA, and program office representatives. A NETPDTC representative will also be invited to attend the first IPR.

(11) The developing agent updates IMDP, and provides minutes and POA&M to all working group members and to the designated NETPDTC STEP point of contact.

b. Course Development Stage. Course development begins after approval of the IMDP. The developing agent will:

(1) Develop storyboards/templates, text, graphics, animation, audio, and/or video.

(2) Conduct second IPR with STEP working group. The second IPR and subsequent IPRs will be scheduled to review storyboards/templates/sample lessons. Depending on the length of the course, there may be one IPR or several to review this phase of production. The CDRC at the end of this section will be used as a reference during each review.

(a) Publish minutes and update POA&M (send NETPDTC a copy of minutes and POA&M).

(b) Revise course material as required.

(c) Continue to develop the content, importing graphics, animation, audio, and video as appropriate.

(3) Conduct third (or subsequent) IPR with STEP working group. If possible, this IPR may be convened via video teleconference (VTC). The final IPR should be the review of the draft CD-ROM and include results from the course pilot. The CDRC for STEP Courses at the end of this section will be used as guidance in determining the adequacy of the course as it is developed.

(a) Publish minutes and update POA&M (send NETPDTC a copy of minutes and POA&M).

(b) Revise course material as required.

(c) Within 7 days of the revisions, pre-master the STEP CD-ROM.

c. Approval and Distribution

(1) Developing agent forwards final CD-ROM to members of the STEP working group and NETPDTC for review.

(2) Within 30 days after receipt of CD-ROM, TYCOM provides consolidated review comments from STEP working group members via message to developing agent, info CNET, NETPDTC, and other TYCOMs.

(3) The developing agent incorporates changes to the final CD-ROM and forwards final course to STEPC for approval.

(4) Within 7 days, STEPC approves STEP course and announces approval via message.

(5) Within 14 days, TYCOMs announce course approval and acceptance of the course as meeting formal training requirements.

(6) Within 30 days, the developing agent provides NETPDTC with source codes and documentation required for replication and distribution.

(7) NETPDTC will include the course on the next CD-ROM distribution and archive all course development materials.

3. Life Cycle Manager's Notebook. The developing agent will ensure that all aspects of course development are documented in a Life Cycle Manager's Notebook. At the completion of the project, the developing agent will provide a minimum of two copies of the Notebook for historical documentation purposes, one of which will go to the CCMM and one of which will go to NETPDTC.

a. At a minimum, the Notebook will contain the following:

- (1) A copy of the initial DITIS search and the final DITIS entry
- (2) Needs Analysis, Feasibility Report, and any other preliminary documentation
- (3) Plan of Actions & Milestones (POA&M)
- (4) Design Document portion of the IMDP, with supplement including the name, version, and vendor of each software package used in the development of the course and the minutes from each IPR
- (5) Screen/Frame Name Identifiers Guide explaining how individual course screens were identified
- (6) File/Module Names, with brief description of what each contains and any other information pertinent to the course
- (7) Master Template Index (MTI) describing any course templates used
- (8) Multimedia Tracking Log (MTL) listing all media elements used in the course and the corresponding screens on which they were used
- (9) Project Diary documenting any problems encountered during development, along with lessons learned
- (10) Rapid scripts, storyboards, and/or database structure with content
- (11) Source code documentation, including authoring system and programming language code documentation
- (12) Final Course Map and Supplemental Information (CMSI), illustrating the overall layout and components of the course, and their relationship to each other
- (13) Flowcharts indicating the logical path the student will follow and variable settings that will result as decisions are made while progressing through the course
- (14) Precompiled version of all source code and media related to the course, on CD-ROM
- (15) Final course in the format in which it is to be distributed, on CD-ROM

b. The Notebook and all its documentation will be delivered in a paper-based format and also in a digital format on CD-ROM. If the size of the course is excessive, the items specified in 3a(10) above may be delivered in digital format only, as long as the files are identified and referenced in the paper-based format. If space is available, the digital format may be included on the same CD-ROM as the precompiled version of the source code.

COURSE DEVELOPMENT REVIEW CHECKLIST FOR STEP COURSES			
Refer to this checklist for guidance during each IPR. Complete the checklist during the final IPR for each STEP course and include it as part of the IPR minutes.			
PART 1. COURSE INFORMATION			
COURSE TITLE:			
REVIEW DATE:	CIN:		
CCMM: PHONE NUMBER:	PRIMARY AUTHORING/PROGRAMMING SOFTWARE USED:		
COURSE LENGTH:			
PART 2. COURSE DOCUMENTATION			
	YES	NO	NA
1. Approved TPP for development is on file.			
2. Approved TPP for course cancellation is on file.			
3. The Life Cycle Manager's Notebook is complete and accurate, and final copies have been provided to the CCMM and NETPDTC.			
PART 3. COURSE SPECIFICATIONS AND FORMAT			
	YES	NO	NA
1. All filenames consist of an eight-character name with a three-character extension (8.3 format), and contain only letters, numbers or the underscore.			
2. All files (including unique drivers) and folders required for installation and operation of the course are contained in a single, main course folder.			

PART 3. COURSE SPECIFICATIONS AND FORMAT (CONTINUED)				
	YES	NO	NA	
3. The main course folder contains a README file in a non-proprietary format identifies: course title; course identification number (CIN); salient features of the course; course length (in hours); hardware, software and system setup requirements; the authoring system, programming language or applications software used to develop the course; the developing agency; date of final release; the Course Curriculum Model Manager (with contact information).				CH-1
4. The course utilizes the STEP Application Installation Model to launch the course specific installation (i.e., the course icon is placed in the "STEP Courses" folder on the desktop, an uninstall file is placed in the "STEP Uninstall" folder within the "STEP Courses" folder, command line includes course version verification routine).				
5. All course release CD-ROMs provided are ISO 9660, Mode 1 compliant.				
6. The course has been tested and is certified to run, at a minimum, on Windows® 95, 98 and NT (ver. 4.0 and higher).				
7. The course has been tested under different Windows® Display screen resolutions, color palettes and font sizes, and display problems communicated to the user.				
8. Course development, including the Computer Managed Instruction (CMI) data handling aspects of the course, complies with the most recent version of the SCORM (http://www.adlnet.org/). Indicate if the course has been AICC certified.				CH-1
9. Course text content and media references are primarily stored in a database, from which they are accessed for display to the user.				CH-
10. Course is designed to be multi-delivery (i.e., the course uses essentially the same content to deliver training to a stand-alone computer, LAN or the Internet (i.e. WEB based), depending on which installation best meets the needs of the individual command).				

PART 4. TECHNICAL CONTENT			
NOTE: If you answer NO to items 1, 2, 3 under TECHNICAL CONTENT, attach a list of discrepancies. Include location, documentation to support the discrepancy, and recommended changes.			
	YES	NO	NA
1. Course content is technically correct.			
2. Course content supports recent changes to the technical documentation and reference material.			
3. Test questions are technically accurate.			
PART 5. COURSE DESIGN			
	YES	NO	NA
1. Introduction explains how the student navigates through the course and the materials required to complete the course.			
2. Course title, security classification, and instructions for providing feedback to CCMM and NETPDTC are accurate.			
3. Student log-on procedure is straightforward, adequate, and easy to follow.			
4. Course Overview adequately prepares the student to return to the bookmark.			
5. Bookmarking procedures allow the student to return to an appropriate and adequate bookmark.			
6. Student can review information in any sequence.			
7. Key points are reinforced during training.			
8. Lessons are structured to allow student to finish in a short amount of time (typically 15 to 20 minutes).			
9. Course is challenging and provides the student with essential information.			
10. Course provides novel and interesting examples that stress objectives and maintain student interest without detracting from the training.			

PART 5. COURSE DESIGN (CONTINUED)			
	YES	NO	NA
11. HELP is complete, easy to access, and available at all times EXCEPT during testing.			
12. Student interacts with the course material and not just the computer.			
13. Student has the option to review material prior to taking the final exam.			
PART 6. VISUAL AND AUDIO INFORMATION			
<p>VISUAL INFORMATION includes: GRAPHICS - digitized photographs, computer-generated pictures, diagrams, etc., that do not have motion. ANIMATION - computer-generated pictures, diagrams, etc. that have motion applied (e.g., current moving through a wiring diagram or a computer-generated picture of a weapon firing). VIDEO - series of moving photographs of actual equipment, facilities, personnel, etc. AUDIO - digitized sound without any embedded graphics, animation or video.</p> <p>NOTE: While the STEP hardware configurations (enclosure (8)) specify that a sound card is required, courses should be designed so that the lack of a sound card does not cause the course to lock up or prevent the student from proceeding.</p>			
	YES	NO	NA
1. Video accurately depicts actual equipment, facilities, or personnel.			
2. Visual information enhances learning.			
3. Text emphasizes visual information.			
4. Sound complements the text and visual media.			
5. Key points of sound and audio portion of video are summarized in text form.			
6. Lack of sound card or video driver does not prevent a student from proceeding through the course (i.e., progress is not keyed to completing an audio or video file/clip).			

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PART 7. TESTING AND REMEDIATION			
	YES	NO	NA
A. GENERAL TESTING PROCEDURES			
1. Student is provided information on number of questions, time required to complete the test, and minimum passing score.			
2. Student can move around within the test and change an answer before it is scored.			
3. Test questions are cross-referenced to an objective.			
4. Test questions are constructed in accordance with NAVEDTRACOM standards.			
5. There are an adequate number of questions to measure the objectives.			
6. Types of questions/degree of difficulty are consistent with the objectives.			
B. PRETEST PROCEDURES			
1. Pretest is optional and may only be attempted once.			
2. Pretest thoroughly covers the knowledge objectives.			
3. For courses 8 hours or less, the pretest covers the entire course.			
4. For courses 8 hours or less, students may progress through the pretest as long as the questions are answered correctly.			
5. For courses longer than 8 hours, the pretest is divided by objectives.			
6. The pretest score is used to generate an appropriate student track through the course.			
7. Students are not remediated on the pretest.			
8. A score of 100 percent must be achieved on the pretest, or the objective, in order to be exempt from the corresponding lessons.			
9. Pretest questions are randomly generated/selected and different each time a student logs on.			

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PART 7. TESTING & REMEDIATION (CONTINUED)			
	YES	NO	NA
C. PROGRESS CHECK PROCEDURES			
1. Progress checks are used to measure student understanding of the objectives.			
2. Feedback recommending additional study or practice is provided at the end of the progress check.			
3. Test results can be correlated to the applicable module for remediation or further study.			
D. PERFORMANCE TEST PROCEDURES			
1. Performance objectives are measured through simulated exercises.			
2. Students are required to complete all performance objectives regardless of the pretest score.			
3. Simulation depicts actual performance when possible. If not, disclaimers are provided.			
E. FINAL COMPREHENSIVE			
1. A final comprehensive exam is given and measures student understanding of all objectives.			
2. Final comprehensive exam test questions and performance exercises are generated/selected randomly.			
F. REMEDIATION AND RETESTING			
1. Students who achieve the minimum cutoff score on the final exam are remediated, then retested on all missed items.			
2. Students failing to achieve the minimum cutoff score on the final exam are remediated, then retested on a new exam.			

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PART 8. FEEDBACK & STUDENT CRITIQUES			
	YES	NO	NA
1. A critique is provided at the conclusion of the training.			
2. The critique allows the student to rate the delivery method and course content.			
3. A working process is in place to provide to the CCMM, CNET, and NETPDTC, on a regular basis for review and analysis, all student critiques, course data, and course statistics that have been gathered.			
4. Upon successful completion of the course, the student has the option of printing, at a minimum, a Certificate of Completion and a Page 4 with course and student-specific data filled in.			

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TESTING PROCEDURES FOR STEP COURSES

1. During the development/revision process the following guidelines will be used for all STEP courses.

a. Types of Tests. For the purpose of STEP the following types of tests or evaluation methods will be used.

(1) Diagnostic Pretests. Pretests are required to allow the student to challenge or accelerate through the course or portions of the course. Additional guidelines for pretesting are contained in paragraphs b and c below.

(2) Progress Checks. Progress checks are designed to measure the student's accomplishment of the objectives. Progress checks will be administered at intervals determined by the developing agent and are based on the complexity and length of the material.

(3) Final Comprehensive Exam. These tests are the only tests that are scored for the student. The minimum cutoff score for STEP courses is 70. The cutoff score is the score below which the student will be forced to retake the entire exam, and at or above which the student will be remediated on questions missed until a score of 100 percent is achieved. The cutoff score may be higher if deemed appropriate by the CCMM and the developing agent. The minimum cutoff score will be identified in the IMDP. Final comprehensive exams will be randomly generated each time a new student takes the course. As with pretests, it may be desirable to measure student performance through successful completion of the entire final comprehensive exam or objectives within the exam. The method used will determine the level of remediation and retest required.

b. General Diagnostic Pretesting Procedures

(1) Pretests will be developed for all STEP courses. Pretests must be comprehensive enough to thoroughly cover each objective. Pretest scores will not be provided to the student and need not be stored for other than analysis purposes. The requirement for the student to take a pretest is optional.

(2) To successfully accelerate through the course, the student must achieve 100 percent on the pretest. Depending on the number of objectives and the length of the training, it may be desirable to pretest the entire course or pretest on objectives within the course. The following options apply:

(a) For STEP courses with an estimated length of 8

hours or less in duration, pretesting the complete course may be preferable. In this instance, the first time the student misses a question the pretest is terminated and the student will be referred to the course menu to complete the training.

(b) For courses with an estimated length of more than 8 hours, developing a pretest for objectives may be preferable. In this instance, the student will be allowed to progress through each objective. The menu will reflect the lessons the student is exempt from taking.

(c) The type of pretesting method used will be agreed upon by the working group during the first IPR and identified in the IMDP.

(4) In order to reduce the chances of pretest compromise, no remediation will be given on the pretest.

(5) Pretest questions will be randomly generated from a test bank.

(6) If 100 percent is achieved on the pretest or objectives within the pretest, the student has the option of completing the course or portions of the course, or going directly to the post test or final comprehensive exam.

c. Pretesting Procedures for Courses Containing Both Knowledge and Application Objectives

(1) Pretests will be developed for the knowledge objectives in the course only. If 100 percent is achieved on the knowledge pretest, the student is directed to complete the application portion of the course.

(2) The student has the option of reviewing the knowledge lessons prior to taking the application lessons.

(3) Once the application lessons are complete, the student may progress to the final comprehensive test.

(4) The final comprehensive test will cover both knowledge and application objectives.

d. Retest and Remediation Procedures

(1) As required by NAVEDTRA 135A, all missed test questions must be reviewed to ensure the student completely understands the material. This review will be accomplished through the remediation process.

(2) For progress checks, remediation (review of material missed) will occur immediately after the student's second unsuccessful attempt to answer the question. For true/false questions, the student will be remediated on the first incorrect attempt. If the student still answers the item incorrectly after remediation, the correct answer will be provided to the student.

(3) For final comprehensive exams, students will be remediated on all missed items regardless of the score. Remediation will occur at the end of the test. Menus can be used to indicate how many items were missed and direct the student back to the material for remediation, or remediation on missed items can be provided directly.

(4) Retesting only occurs for the final comprehensive test. Students scoring below the minimum cutoff score on the final comprehensive test will be retested on the entire exam. A new exam will be randomly generated for this purpose. Students scoring above the minimum, but less than 100, will be retested only on the missed items. Retest and remediation will continue until a score of 100 is achieved.

(5) Grades will be recorded as follows:

(a) Students scoring below the minimum passing score are required to retake the complete exam and a separate score maintained for each attempt.

(b) Students scoring above the minimum, only the original test score will be recorded; however, students are required to remediate and retest until all questions are answered correctly.

HARDWARE AND SOFTWARE REQUIREMENTS

1. In order to produce the highest quality STEP packages, the Navy must exploit state-of-the-art advances in technology. At the same time, the introduction of innovative training packages must be balanced with fleet customers' ability to run the programs on existing equipment. With this in mind, STEP courses will be developed to operate on the following system. As previously developed STEP courses are revised, they will be developed to this minimum.

- Central Processing Unit (CPU): Intel Pentium 133 MHz or equivalent

- Random Access Memory (RAM): 16 MB (Windows 95/98), 64 MB (Windows NT) CH-1

- Graphics Adapter: SVGA, capable of at least 640X480 and 800X600 screen resolution with high color (16 bit) option. 2MB on-board DRAM.

- Mass Storage Media: The STEP Installation Program requires 3 MB of free space on the Hard Drive. Each course requires an additional 3 MB to 30 MB of free space when the course is installed to run from the CD-ROM. While space required to download a course to the Hard Drive and run it without the CD-ROM varies with the course, in all cases free space requirements will increase significantly.

- 3.5 inch floppy drive, 1.44MB capacity or greater

- Compact Disk Read-only memory (CD-ROM): one 6X (900 Kb per second transfer rate), 5" CD-ROM drive with cache of 256K or greater, 195 ms access time or less.

- XY input device: mouse or trackball

- Audio: 16 bit soundboard, Soundblaster compatible, MPU 401 compliant, with external speakers or headphones. Audio recording and playback rates 4-44.1 Khz stereo.

- Operating System: Windows® 95, 98, or NT (ver. 4.0 or higher)

2. While the system described above will serve to meet minimum training needs for the immediate future, the installation of Library Multimedia Resource Centers (LMRCs) and Automated Electronic Classrooms (AECs) will continue to provide the STEP program with access to increasingly higher levels of technology. As of October 1999, the minimum configurations being specified

for new equipment include the following:

- Central Processing Unit (CPU): Intel Pentium III 450MHZ (or greater); 100MHz Bus
- Random Access Memory (RAM): 256MB ECC DRAM (2 DIMMS); 100Mhz
- 512k cache
- Graphics Adapter: SVGA, capable of at least 640X480 and 800X600 screen resolution with high color (16 bit) option. 2MB on-board DRAM.
- Mass Storage Media: 9GB Hard Drive (7200 RPM or greater)
- 3.5 inch floppy drive, 1.44MB capacity or greater
- Compact Disk Read-only memory (CD-ROM): one 32X (or greater)
- XY input device: mouse or trackball
- Audio: PCI Sound Card (Soundblaster 128 or equal) with external speakers or headphones. Audio recording and playback rates 4-44.1 Khz stereo.
- Operating System: Windows® 95, 98, or NT (ver. 4.0 or higher)