



Naval Education and
Training Command

NAVEDTRA 131B
November 2010

Support Manual for
MIL-HDBK-1379-2A

PERSONNEL PERFORMANCE PROFILE BASED
CURRICULUM DEVELOPMENT MANUAL
VOLUME III MANAGER'S GUIDE



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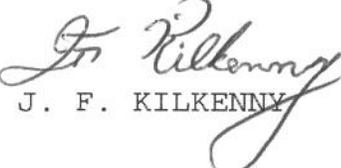
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LETTER OF PROMULGATION FOR NAVEDTRA 131B

1. This guidance manual has been extensively revised. Most of the revisions are in response to user comments and reflect a continuing effort to increase the manual's utility to the training field. NAVEDTRA 131B, Volumes I-III, supersedes and replaces NAVEDTRA 131A, dated: July 1997.
2. The procedures in this manual follow a Personnel Performance Profile (PPP) Based Curriculum Development method. This manual is intended for use by military, civil service, and contractor personnel engaged in Navy training materials development and modification.
3. Procedural guidance for development of training materials following a Task based method is published in NAVEDTRA 130 (series).
4. This publication is available electronically at: Navy Knowledge Online (NKO) - NETC N74 Learning Standards Homepage; and Navy Marine Corps Intranet's (NMCI) Total Records and Information Management (TRIM).
5. Corrections and comments concerning this manual are invited and should be addressed to the Naval Education and Training Command, attention: N7.
6. Reviewed and approved.


J. F. KILKENNEY

NAVEDTRA 131B, VOLUME III
PERSONNEL PERFORMANCE PROFILE BASED
CURRICULUM DEVELOPMENT MANUAL

Manager's Guide

**PUBLISHED BY DIRECTION OF COMMANDER NAVAL EDUCATION AND
TRAINING, LEARNING AND DEVELOPMENT DIVISION (N7)**

FOREWORD

NAVEDTRA SERIES MANUALS

- NAVEDTRA 130 Task Based Curriculum Development Manual
- NAVEDTRA 131 Personnel Performance Profile Based Curriculum Development Manual
- NAVEDTRA 134 Navy Instructor Manual
- NAVEDTRA 135 Navy School Management Manual

NAVEDTRA 130 (series) manuals provide fundamental guidance, within the Naval Education and Training Command (NETC) domain, for the development of curricula, the delivery of instruction, and the management and evaluation of training programs.

These manuals do not supersede the directive policy established by Commander NETC in these subject areas. Rather, they supplement the NETC Instructions in two important ways. First, they reflect the philosophical principles underlying NETC policy for curriculum, instruction, and evaluation; second, they provide procedures for carrying out that policy.

NAVEDTRA 130 (series) interrelationships: Each of the NAVEDTRA 130 (series) manuals are designed as a stand alone document to serve a specific user group such as curriculum developers, instructors, training managers, or evaluators of training. These manuals are, however, interrelated and appropriately cross-referenced to one another.

SCOPE

NAVEDTRA 131B: Personnel Performance Profile (PPP) Based Curriculum Development Manual provides guidance for developing curricula to teach operation and maintenance of hardware and/or performance of tasks or functions (hardware is any System/Subsystem/Equipment). The processes and illustrations found in NAVEDTRA 131B reflect the experience of Subject Matter Experts (SME), curriculum developers, and decision makers who approve Navy training material developed by Navy curriculum developers and civilian contractors. NAVEDTRA 131 (series) describes and illustrates all facets of planning, analysis, design, and development of curricula. NAVEDTRA 131 (series) provides systematic guidance to curriculum developers for developing job-efficient and effective training material.

Volume I (Developer's Guide): Contains procedural guidelines for the development of training programs. It is designed for use by the individual actually revising or developing training materials. Waivers or deviations from any of these procedural guidelines must be requested in writing and approved by the Curriculum Control Authority (CCA) for the individual course.

Volume II (Sample Products): Provides samples of each of the management and curriculum documents in a format that is consistent with the format conventions discussed in Volume I.

Volume III (Manager's Guide): Designed for the individual charged with the management of a course revision or development. It describes approval points, approval authorities, and responsibilities. The volume addresses the manager's responsibilities in each of the stages of PPP based curriculum development. Waivers or deviations from any of these procedural guidelines must be requested in writing and approved by the CCA.

**RELATIONSHIP TO DEPARTMENT OF DEFENSE (DOD) STANDARDS/
SPECIFICATIONS AND AUTHORIZING INSTRUCTIONAL MATERIALS (AIM):**
Chapter titles in this manual were derived from various DoD Standards and Specifications documents, which this manual supports. The name assigned to individual documents developed per this manual must correspond with the document name used herein. Exceptions to this rule shall not be granted. AIM is a computer based training materials authoring tool developed by the Navy. Training materials developed using AIM may be different in appearance than examples shown in this manual. However, all training materials developed using AIM are compatible with the concepts of this manual. If any instance exists where the information in this volume is in conflict or is not supported by the constraints of the AIM software, the information in this volume takes precedence and must still be supported.

CONTRACTUAL USE OF MANUAL: NAVEDTRA 131 (series) sample documents may also be used as an exhibit in a contract as service-specific guidance for use by civilian contractors developing Navy training material.

NAME SUBSTITUTIONS ALLOWED: The CCA may allow the following name substitutions:

NAVEDTRA 130 (SERIES) NAME OPTIONAL NAME

Lesson Plan (LP)	Instructor Guide (IG)
Written Test	Knowledge Test
Resource Requirements	List Master Materials List
Equipment Requirements	List Trainee Student
Learning Site (LS)	Training Facility/Activity

IN PROCESS REVIEWS:

Whether developed in-house or by a contractor, In Process Reviews (IPRs) will normally be conducted as follows to review the products. ("Bullets" indicate IPR points, followed by the products to be reviewed):

STAGE ONE

- PPP Table Listing
- Draft new and/or modified PPP Tables
- Preliminary Training Path System (TPS)

STAGE TWO

- Preliminary Training Course Control Documents (TCCD)

STAGE THREE

- Cross sections of LP, Trainee Guide (TG)/Instruction Sheets, Instructional Media Material (IMM) (Requirement for cross section and contents to be determined by CCA)
- Draft LP, TG/Instruction Sheets, IMM Roughs, Testing Plan, Tests

STAGE FOUR

- Conduct Pilot Course
- Pilot Course Monitoring Report
- Red-lined Curriculum

STAGE FIVE

- Finalized TCCD, Curriculum, Letter of Promulgation

HOW TO USE NAVEDTRA 131 (SERIES): NAVEDTRA 131 (series) provides guidance and illustrations for use in the planning, analysis, design, development, implementation, and evaluation of curricula. This manual has been designed so you may read the entire chapter or go to any subject area and perform the required task.

VOLUME I: Contains the step-by-step guidance for developing effective training materials. All chapters in Volume I were written so you can follow along with the corresponding figures, diagrams, Curriculum Development Aids, or examples presented in Volume II. It is important to open Volume II when referenced and study the appropriate illustrations.

VOLUME II: Contains examples of all the curriculum materials that make up a Course of Instruction (COI) developed under the PPP/TPS method. When you have located the sample document in Volume II that corresponds to the chapter you have selected in Volume I, keep the sample at hand as you read Volume I. For example, if you are developing a TPS, turn to the TPS section of the sample course in Volume II.

VOLUME III: Contains management information important to planning, analysis, design, development, implementation, and evaluation of curricula. The chapters in volume III establish the requirements for the submission and review of the various products developed during the curriculum development process.

TABLE OF CONTENTS

<u>TITLE:</u>	<u>PAGE NUMBER</u>
Title Page	i
Record of Changes	ii
Foreword	iii
List of Acronyms	ix
INTRODUCTION	
Chapter 1 - Training Materials Development Introduction	1-1
Figure 1-1 Curriculum Development Process	1-3
PLANNING	
Chapter 2 - Training Project Plan	2-1
STAGE ONE	
Chapter 3 - Personnel Performance Profile Tables	3-1
Figure 3-1 PPP Check List	3-3
Chapter 4 - Training Path System	4-1
STAGE TWO	
Chapter 5 - Training Course Control Document	5-1
STAGE THREE	
Chapter 6 - Curriculum and Support Materials	6-1
Figure 6-1 Guidelines for Review of Curriculum Material	6-7
STAGE FOUR/FIVE	
Chapter 7 - Pilot Course	7-1

TITLE:**PAGE NUMBER****EVALUATION**

Chapter 8 - Evaluation, Surveillance and Training Materials Modification	8-1
Figure 8-1 Interim Change Letter	8-5
Figure 8-2 Change Approval Letter	8-6
Figure 8-3 Modification Approval/Review Matrix	8-8
Figure 8-4 Interrelationship of PPP/TPS Components	8-11

ADDENDUM

Addendum A - Course Monitoring Outline Sheet	A-1
Addendum B - Course Monitoring Time Log	B-1
Addendum C - Learning Site Administrative Review Checklist	C-1
Addendum D - Curriculum Developer Aid for Systems Personnel Performance Profile Tables	D-1
Table 4 - Example System PPP Table	D-23
Table 6 - Checklist for Equipment PPP	D-29
Table 7 - Checklist for Subsystem PPP	D-35
Table 8 - Checklist for System PPP	D-38
Table 9 - Checklist for Task/Function	D-40
Table 10 - Checklist for background PPP	D-40
Addendum E - Development Using Expanded Training Objective Statements (TOS) and Creating The Table Assignment Chart	E-1
Addendum F - Training Objective Statement (TOS) Quick Reference Guide	F-1

LIST OF ACRONYMS

AAC	Acquisition Advice Code
AG/SAG	Activity Group/Subactivity Group
AIM	Authoring Instructional Material
AIM I	PPP Based Authoring Tool NAVEDTRA 131
AIM II	Task Based Authoring Tool NAVEDTRA 130
AOB	Average On Board
ASVAB	Armed Services Vocational Aptitude Battery
BCA	Business Case Analysis
CAGE	Commercial and Government Entity Code
CAIMS	Conventional Ammunition Integrated Management System
CANTRAC	Catalog of Navy Training Courses
CARIS	CNETC Automated Resource Information System
CBT	Computer Based Training
CCA	Curriculum Control Authority
CCMM	Course Curriculum Model Manager
CDA	Curriculum Developer Aids
CDP	Course Data Processing
CeTARS	Corporate enterprise Training Activity Resource System
CIN	Course Identification Number
CLO	Course Learning Objectives
CM	Corrective Maintenance
CMS	Course Master Schedule
CNP	Chief of Naval Personnel
CO	Commanding Officer
COI	Curriculum Outline of Instruction
COG/NIIN/SMIC	Cognizance Code/National Item Identification Number/ Special Material Identification Code
CPM	Content Planning Module
CTTL	Course Training Task List
DDA	Discussion-Demonstration Activity
DOD	Department of Defense
DOR	Drop On Request
DP	Discussion Point
DSOT	Daily System Operating Test
EO	Enabling Objective
FAL	Fault Applicability List
FC	Functional Commander
FEA	Front End Analysis
HPRR	Human Performance Requirements Review
ICW	Interactive Courseware
IETM	Interactive Electronic Technical Manual
IG	Instructor Guide

ILE	Integrated Learning Environment
IMI	Interactive Multimedia Instruction
IMM	Instructional Media Material
IPR	In Process Reviews
ISD	Instructional Systems Design
ITRO	Inter-service Training Review Organization
JDTA	Job Duty Task Analysis
JTI	Job Task Inventory
KM	Knowledge Management
LC	Learning Center
LCMS	Learning Content Management System
LMS	Learning Management System
LO	Learning Objective
LP	Lesson Plan
LS	Learning Site
LSAR	Logistics Support Activity Record
LSAR	Logistics Support Activity Record
LSO	Learning Standards Officer
LT	Lesson Topics
MCFR	Master Course Reference File
MILCON	Military Construction
MIL-STDS	Military Standards
NALC	Navy Ammunition Logistics Code
NCMR	Navy Curriculum Materials Repository
NEC	Navy Enlisted Classification
NETC	Naval Education and Training Command
NITRAS	Navy Integrated Training Resources Administration System
NKO	Navy Knowledge Online
NMETLS	Navy Mission Essential Task Lists
NOBC	Navy Officer Billet Classification
NPC	Navy Personnel Command
NTFS	Navy Training Feedback System
NTSP	Navy Training System Plan
OAC	Item-to-Objective Assignment Chart
O&MN	Operation and Maintenance Navy
OCCSTD	Occupational Standards
OJT	On-The-Job Training
PADDIE	Plan, Analyze, Design, Develop, Implement and Evaluate
PM	Preventive Maintenance
POA&M	Plan of Action and Milestones
POM	Program Objective Memorandum
PPP	Personnel Performance Profile
PQS	Personnel Qualification Standards
RIA	Related Instructor Activity

RIT	Revolution In Training
RRL	Resource Requirements Listing
SCORM	Shareable Content Reference Model
SME	Subject Matter Expert
SYSCOM	Systems Command
TA	Training Agency
TAM	Table Assignment Matrix
TCCD	Training Course Control Documents
TD	Training Devices
TDSR	Training Decision Summary Report
TG	Trainee Guide
TLA	Training Level Assignments
TLO	Topic Learning Objectives
TO	Terminal Objective
TOS	Training Objective Statements
TPC	Training Path Chart
TPP	Training Project Plan
TPS	Training Path Systems
TRR	Training Requirements Review
TSA	Training Support Agency
TTE	Technical Training Equipment
TTO	Training Time Out
TYCOM	Type Commander
VI	Visual Information
WC	Wall Charts

INTRODUCTION

CHAPTER 1

TRAINING MATERIALS DEVELOPMENT INTRODUCTION

INTRODUCTION

The core procedures for developing training materials following the Personnel Performance Profile (PPP) Based Curriculum Development method consists of five interrelated Stages. The five stages are preceded by planning, and followed by training materials evaluation, surveillance, and modification. A curriculum development project is a complex undertaking bringing together a wide range of human and material resources for the goal of creating quality training.

- *PLANNING* identifies resources requirement and the sequence of events in the development process.
- *STAGE ONE* consists of determining job tasks, supporting skills and knowledge, and level of performance.
- *STAGE TWO* determines the skills and knowledge which must be taught and produces the course learning objectives and an instructional sequence.
- *STAGE THREE* produces the instructional materials for the instructor and the trainee.
- *STAGE FOUR* begins when the Curriculum Control Authority (CCA) has approved a course for pilot, and ends with submittal of the Pilot Course Monitoring Report.
- *STAGE FIVE* begins after the incorporation of the results of the pilot course ("red-line") into smooth curriculum and management materials, and ends with the CCA Letter of Promulgation which approves the material for use in support of Navy training.
- *EVALUATION* is the surveillance, evaluation, change, and revision of the training materials based on assessment of the training materials and the performance of the graduates in the fleet.

NAVEDTRA 131 (SERIES): PPP Based Curriculum Development is designed to guide Navy activity personnel (curriculum developers) in the development of accurate and effective training materials. This manual:

- Specifies the tasks necessary to develop and support training materials.
- Establishes the sequence of task performance.
- Assigns task performance responsibilities.

The overall process is illustrated in Figure 1-1.

NOTE

Since the initial writing of this guidance, naval training has evolved to include a variety of different training solutions that were not available in the past such as Computer Based Training (CBT), Blended Training, and the Integrated Learning Environment (ILE), just to name a few. Although this volume focus on PPP Based Curriculum Development, the foundational principles explained in this volume such as the development of test items, the piloting process, and the planning and development of a training project plan, can and should be utilized with the evolution of new training solutions.

PLANNING - CCA/Functional Commander/NETC/OPNAV

- Training Project Plan (TPP)

STAGE ONE

- PPP Table List
- New and Modified PPP Tables
- Training Path System (TPS)

STAGE TWO - CCA

- Preliminary Training Course Control Document (TCCD)

STAGE THREE

- Instructional Materials Cross Section (if required)
- Lesson Plan
- Trainee Guide
- Tests
- Other Support Materials

STAGE FOUR - CCA

- Course Pilot
- Pilot Course Monitoring Report

STAGE FIVE

- Final Curriculum
- Final TCCD
- Letter of Promulgation

EVALUATION

- Internal
- External

= Approval Authority]

FIGURE 1-1: CURRICULUM DEVELOPMENT PROCESS

SECTION 1 - TRAINING MATERIALS

Training materials include management materials, curriculum materials, and support materials. These training materials are developed following the guidelines of this manual.

Recognizing the complexity of training materials development and the external factors which influence curriculum development projects, this manual is to be used as a guideline, not as a prescriptive document. Waiver of any document or procedure is at the discretion of the CCA. The CCA may also require additional documents or reviews.

AUTHORING INSTRUCTIONAL MATERIALS (AIM)

AIM is a computer based training materials authoring tool developed by the Navy. Training materials developed using AIM may be different in appearance than examples shown in this manual. However, all training materials developed using AIM are compatible with the concepts of this manual and are deemed to be correctly formatted. NETC LCs, or as designated, shall use AIM II (application) for the Plan, Analyze, and Design Phases of curriculum development. The develop phase may also be used if applicable and achievable. AIM I is for PPP Based Development and AIM II is for Task Based development which is discussed in detail in NAVEDTRA 130 (series).

1.1. **Management Materials.** Management materials define training requirements and provide an overall plan for the accomplishment of these requirements. The chapters of this manual provide detailed content requirements and format conventions for the development of management materials. Management materials for training materials development include:

- TPP - Discussed in Chapter 2
- PPP Tables - Discussed in Chapter 3
- TPS - Discussed in Chapter 4
- TCCD - Discussed in Chapter 5
- Pilot Course Monitoring Report - Discussed in Chapter 7
- Testing Plan - Discussed in Chapter 8 and NAVEDTRA 135 (series)

- Audit Trail Documentation - Discussed in NAVEDTRA 135 (series)

1.2. **Curriculum Materials.** Curriculum materials include all materials required for the presentation of information and the development of skills in formal school training. Chapters in this manual contain detailed content requirements, format conventions, and development guidelines for curriculum materials. Under this definition, curriculum materials include:

- Curriculum and Support Materials - Discussed in Chapter 6.
- Implement Final Curriculum - Discussed in Chapter 8.
- Test Package - Discussed in Chapter 8 and in NAVEDTRA 135 (series).
- Other Materials helpful in the preparation and presentation of Lesson Topics (e.g., Exercise Controller Guide).

1.3. **Support Materials.** Support materials are instructional materials and other devices used in support of formal instruction, informal instruction, or for independent study. Chapter 6 of this manual provides more detail on Visual Information (VI) and Instructional Media Materials (IMM). The following are the most common support materials:

- VI includes:
 - Wall Charts (WC)
 - Films
 - Digital Video Disc
 - Graphic Media Presentations
- IMM includes:
 - On-the-Job Training (OJT) Handbook.
- Textbooks:
 - Technical Manuals to include Interactive Electronic Technical Manuals (IETM)
 - Training Devices
 - Other materials helpful in the preparation and presentation of Lesson Topics, such as a Fault Insertion Guide, or Instructor Utilization Handbook

Development of professional-looking, instructionally effective VI materials is costly and time consuming. NETC has been criticized for failure to properly manage VI production to reduce duplication of effort. Therefore, VI materials of greater complexity than what can be produced by in-house developers must adhere to the requirements of NETCINST 3104.1 (series) and its supporting instructions. Use your initiative and imagination to identify and select appropriate VI materials; leave production to the professionals. "Free lance" VI production is definitely discouraged and may be contrary to regulations.

SECTION 2 - TRAINING MATERIALS SUPPORT

All training materials are maintained current and accurate by surveillance and change efforts.

2.1. Surveillance. Constant surveillance is required to detect changes in documentation, equipment, or procedures that impact training materials. Procedures for identifying training material deficiencies, for recommending changes, and for coordinating recommended changes are given in Volume III. Some triggers that may direct a surveillance action be taken are:

- Updated Occupational Standards
- Job Duty Task Analysis
- Rating Mergers/Consolidations
- Rating Disestablishments
- Requirements Sponsor Changes
- Naval Training System Plan Revisions
- Change to existing operating procedure or policy
- Change in Technical Directives
- Change in Navy Mission Essential Task List (NMETL)

2.2. Training Materials Modifications. There are four categories of training materials modifications: Interim Change, Change, Technical Change, and Revision. The definition for each category is found in NAVEDTRA 135 (series) Chapter 4, Section 1.3. Procedures for incorporating training materials modifications are described in the sections for those materials in Volume III, Chapter 8 of this manual.

SECTION 3 - PROGRAM PARTICIPANTS

The following participants have vital roles in the development and support of training materials. Specific command assignments are addressed in Volume III, Chapter 1 of this manual.

3.1. Training Agency (TA): A TA is an office, bureau, command, or headquarters exercising command of, and providing support to, some major increment of the Department of the Navy's formal training effort. The Commander, NETC is a TA.

3.2. Training Support Agency (TSA): An office, command, or headquarters responsible for providing material and other forms of support to the TA. The TSA is normally a Systems Command (SYSCOM) (e.g., Naval Sea Systems Command) responsible for providing training support to the TA for a piece of equipment, a subsystem, or a system.

3.3. Learning Centers (LCs)/Functional Commander: NETC has designated LCs and/or Functional Commanders to plan, manage, and budget for training courses across broad functional areas.

3.4. Curriculum Control Authority (CCA): The CCA controls the course content and instructional methods by acting as approval authority for the curriculum. The CCA is also responsible for maintaining the curriculum through new development or revision of training materials. For courses conducted at schools under other Functional Commanders, the CCA will advise the other Functional Commanders of curriculum development/revision efforts which result in additional resource requirements, new course lengths, and/or course convening schedule requirements. Volume I of NAVEDTRA 10500, Catalog of Navy Training Courses (CANTRAC) in the Corporate enterprise Training Activity Resource System (CeTARS) identifies the CCA for existing courses. NETC LC Commanding Officers are designated as the CCA. Additionally, Type Commanders (TYCOMs), Joint Weapons Training Command, and Operational Units which develop, deliver and maintain training can also be designated as the CCA. The original intended functional control identification of the Course Identification Number's (CIN's) single letter for the most part may not always be the case due to changes in the Navy Training organization by the Revolution in Training (RIT) and or LC stand-up, merge, and disestablishments. NAVEDTRA 135 (series), Chapter 1 delineates the CCA duties and responsibilities that NETC has retained.

3.5. Course Curriculum Model Manager (CCMM). A CCMM is assigned by the CCA with the responsibility for conducting and maintaining a specific course. The CCMM initiates curriculum development and training materials modification, conducts curriculum reviews and analysis of feedback, maintains course audit trail documentation, and develops and approves changes. The CCMM normally functions as the developer for Navy in-house-developed courses. However, the CCA can also designate personnel, other than the assigned CCMM as required, to perform these functions. CCMM functions as the developer and first line of approval authority for in-house and contract developed curriculum.

3.6. Learning Site (LS): A Navy command which has a primary mission of conducting or supporting training at schools or institutions at which courses are offered. The LS has responsibility for maintaining selected audit trail documents, annually reviewing training materials in the form of a Formal Course review, making recommendations to CCMM for changes/ revisions, and maintaining training equipment and facilities.

SECTION 4 - APPLICABLE DOCUMENTS

The documents listed in Sections 5 and 6 are the primary resources to be used by activity developers in the design and development of training materials. Use of documents and manuals in effect on the date stated in the project plan is assumed. Later issues of these specifications, standards, documents, and publications, or new specifications, standards, documents, and publications, may be used subject to joint agreement of the CCA and activity curriculum developers.

SECTION 5 - STANDARDS, GENERAL

In June 1994 the Secretary of Defense (SECDEF) directed that "Performance specifications shall be used when purchasing new systems, major modifications, upgrades to current systems, and non-developmental and commercial items for programs in any acquisition category (in lieu of military specifications and standards)".

Source: SECDEF Memo, Subject: Specifications and standards - A New Way of Doing Business, of 29 June 1994. Consequently, references to military standards (MIL-STDS) have been deleted.

5.1. Department of Defense: DODDIR 5000.01 MIL-HDBK 502

SECTION 6 - PUBLICATIONS

6.1. Secretary of the Navy:

- SECNAVINST 5870.4 (series), Permission to Copy Material Subject to Copyright
- SECNAVINST 5510.30 (series), Department of the Navy Personnel Security Program Instruction

6.2. Chief of Naval Operations:

- OPNAVINST 1500.27 (series), Interservice Training
- OPNAVINST 1500.47 (series), Navy Training Quota Management
- OPNAVINST 1500.74 (series), Utilization of Enlisted Occupational Standards for Training and Career Development
- OPNAVINST 1500.75(series), Safety Policy and Procedures for Conducting High Risk Training
- OPNAVINST 1500.76 (series), Navy Training System Requirements, Acquisition, and Management
- OPNAVINST 3104.1 (series) Navy Visual Information (VI) Production, Replication, distribution and Management Information System Policy, Responsibilities, and Procedures
- OPNAVINST 3500.34 (series) Personnel Qualification Standards (PQS)Program
- OPNAVINST 3500.39 (series), Operational Risk Management
- OPNAVINST 5100.19 (series), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
- OPNAVINST 5100.23 (series), Navy Occupational Safety and Health (NAVOSH) Program Manual
- OPNAVINST 5513.1 (series), Department of the Navy Security Classification Guide
- OPNAVINST 11102.2 (series), Training System Installation and Transfer
- NAVPERS 18068 (series), Vol I and Vol II Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NEOCS)

6.3. Commander, Naval Education, and Training Command:

- NETCINST 5100.1 (series), Occupational Safety and Health, Training Safety and Firefighting Training Certification Programs
- NAVEDTRA 130 (series), Task Based Curriculum Development Manual
- NAVEDTRA 131 (series), Personnel Performance Profile Based Curriculum Development Manual
- NAVEDTRA 134 (series), Navy Instructor Manual
- NAVEDTRA 135 (series), Navy School Management Manual
- NAVEDTRA 10052-AJ Bibliography for Advancement Study
- NAVEDTRA 10500, Catalog of Navy Courses (CANTRAC)
- NAVTRASYS-CEN P-530, Naval Training Systems Center Guide
- NETCINST 1500.3 (series), Institutional Accreditation
- NETCINST 1500.4 (series), Interservice Training Review Organization (ITRO)
- NETCINST 1510.1 (series), Navy Training Management
- NETCINST 3104.1 (series), Visual Information (VI) Program Management
- Training Requirements Data Base Annual Report - Naval Education and Training Program Management Support Activity (NETPDTC)

6.4. Others:

- MPT&E CIOSWIT-ILE-STD-1B, Navy ILE Presentation Standards
- MPT&E CIOSWIT-ILE-GUID-3B, Navy ILE Instructional Content Style guide, Interactive Multimedia Instruction & Instructor Led Training
- DOD MILHDBK 29612.3A, DOD HDBK Development of Interactive Multimedia Instruction (IMI) (Part 3 of 5)
- MIL-PRF-29612B, Training Data Products
- MIL-HDBK 29612-1A, Guidance for Acquisition of Training Data Products and Services (Part 1 of 5)
- MIL-HDBK 29612-2A, Instructional Systems Development/Systems Approach to Training and Education (Part 5 of 5)
- MIL-HDBK 29612-4, Glossary for Training (Part 4 of 5)
- MIL-HDBK 29612-5, Advanced Distributed Learning (ADL) Products and Systems (Part 5 of 5)
- NAVSEAINST 4790.8 (series), Ships Maintenance and Material Management (3-M) Manual (Vol 1-3)

SECTION 7 - SECURITY REQUIREMENTS

Classified information will be handled in accordance with the Department of the Navy Supplement to the DOD Information Security Program Regulation (OPNAVINST 5510.1 (series)).

SECTION 8 - SAFETY REQUIREMENTS

Safety, occupational health, and hazard awareness information must be incorporated into the curricula of all appropriate training courses, as prescribed by NETCINST 5100.1 (series) and in NAVEDTRA 135 (series).

PLANNING

CHAPTER 2

TRAINING PROJECT PLAN

INTRODUCTION

Curriculum development project is a complex undertaking, bringing together a wide range of human and material resources for the goal of creating quality training. Curriculum development consists of six phases, beginning with the Plan Phase. This phase consists of gathering information and building a curriculum development plan. The output product of this phase is the Training Project Plan (TPP). When approved, the TPP becomes the authorization to undertake a course revision or a new course development project through the Pilot and Implementation Phases, and the initiation of resource requisitions. A TPP is also required to cancel a course. This chapter provides amplifying information, sources of data, and a structure for developing and assembling a TPP.

GOVERNING INSTRUCTIONS AND DIRECTIVES. Throughout this chapter, numerous instructions are cited. This ensures that actions governed by instructions are carried out per the latest directives. Accordingly, instructions cited are assumed to be the most current, and series suffixes are not used. A manager should review the instructions listed in Chapter 1 to ensure that applicable requirements are considered throughout the curriculum development process.

NETCINST 1510.1 (series), NAVEDTRA 135 (series) and amplified by OPNAV Memorandum for Distribution 7000 N1 127189 of 15 September 2008 are the primary governing requirements for a TPP, and its approval. The information in this chapter must be applied in accordance with the current issue of these references.

SECTION 1 - PLANNING FOR COURSE REVISION, NEW COURSE DEVELOPMENT OR COURSE DEACTIVATION

Most TPPs will be for revisions to existing courses - reflecting the constant introduction of new equipments, processes, and technologies into the Fleet. Although fewer in number, new course development projects respond to new requirements that cannot be met by revising an existing course. Courses are canceled when they become obsolete, or the training they provided is absorbed by other courses.

- The Plan Phase is the first of the six phases in the training materials development process. The output, the TPP, provides the blueprint and justification for the revision of an existing course, development of a new

course, or course deactivations. "Revision," for our use, is defined in NAVEDTRA 135 (series). In general, a revision means that the course mission has changed, course length is increased, or additional resources are required. A decrease in course length may also fall under the definition of a revision; the CCA will direct submittal of a TPP.

COURSE REVISION: A TPP will be developed and approved per NAVEDTRAs 135, 130 and 131.

NEW COURSE DEVELOPMENT: Completing a TPP for new course development requires establishing a Course Identification Number (CIN), Course Data Processing Code (CDP), initiating entries for the Catalog of Navy Training Courses (CANTRAC) and Corporate Enterprise and Training Activity Resource System (CeTARS), identifying preliminary resource requirements, and possibly planning for facilities requirements. This entails careful research and documentation. See NAVEDTRA 135 (series) for specific guidance of establishing a new course.

COURSE DEACTIVATION: NETCINST 1510.1 (series), NECTNOTE 1500 of 4 January 2010, and NAVEDTRA 135 (series) contain procedures for initiating and documenting the deactivation of an existing course or training program. A TPP is required.

SECTION 2 - JUSTIFICATION FOR COURSE DEVELOPMENT, REVISION, AND DEACTIVATION

There has to be a reason (or reasons) to undertake the development of a new course, the revision of an existing course, or to cancel a course. The justification for initiating these actions may come from:

- Navy Training System Requirements, Acquisition, and Management Plans, OPNAVINST 1500.76 (series):
 - Introduction of new weapons systems or engineering, or changes/modifications to existing systems
 - "Life-cycle" documents reviewed and updated annually

- Tasking by higher authority:
 - OPNAV. Introduction of new technologies, techniques, or equipment not supported by an NTSP, which can replace existing subjects, be added to an existing course, or require a new course.
 - OPNAV. Fleet manning requirements may dictate an increase (or decrease) in student throughput, which requires an adjustment in resources.
 - NETC. Addition of "by direction" topics or courses, or mandated course reductions.

- Internal course reviews and local command initiatives:
 - Course reviews or data analysis determine students are not meeting course objectives and need additional "hands on" time that can only come from extending the course length.
 - Combining, re-sequencing, or deleting subject's permits objectives to be met in less time and the decrease in instructional periods impacts instructor manning.
 - Data analysis or studies may show that a new course cans "common core" subjects which are now taught in several separate courses.

- External course reviews: Indicates problems with course content (obsolete objectives) or structure in terms of graduates not being able to perform on the job.
- Surveillance and external feedback:
 - The Navy Training Feedback System (NTFS) provides input mechanisms, data analysis, and feedback to ensure that training ashore meets Fleet requirements.
 - Job Duty Task Analysis (JDTA) is the process that NETC is maturing to list the jobs performed by an occupational field, who performs them, and the frequency of performance. A survey of jobs performed within a rating may indicate a need to revise training.
 - Human Performance Requirement Review (HPRR) consists of course reviews by Fleet, Learning Centers (LC), and Systems Command (SYSCOM) representatives to assess existing training and to identify inefficiencies, redundant or unnecessary material.

- Training Appraisal
- Updated Occupational Standards
- Enlisted Rating Mergers

SECTION 3 - TPP

The TPP presents a blueprint for curriculum development which contains course data, justifications for the course revision, new course development, or course deactivation. It includes impact statements, milestones, and resource requirements. Supportive information in developing the TPP can be found during the decision process of the project with Front End Analysis (FEA) and Business Case Analysis (BCA).

- The following paragraphs provide some general information on Training Project Plans.

Each project plan will be as unique as the project it describes. Your project may not require every item of information included in this chapter or shown in the Volume II TPP sample. Alternatively, your project plan may benefit from additional items and enclosures. The CCA and Functional Commander, working with the TPP developer, shall designate mandatory TPP elements, and possibly call for additional data which will reinforce the project plan. A sample package may be provided to guide developers, or additional requirements may be levied by command instructions. All data should be researched, referenced, and be as accurate as possible. However, the TPP is recognized as a planning document, subject to revision.

3.1. Purpose and Use of a TPP: The TPP describes all training and training support elements required to provide trained personnel to operate and maintain systems or equipments, or perform tasks and functions. It provides a Plan of Actions and Milestones (POA&M) to achieve a predetermined implementation date. A TPP describes all the factors necessary to prepare and conduct a successful training program and attain optimum use of personnel, hardware, and funds. The course revision or development described in the TPP should meet, and not exceed, the training requirement. In the case of a course deactivation, the TPP provides justification for the action and a blueprint for reallocation of resources.

3.2. Categories of Resources: Course development and, often, course revisions require resources to develop or implement the proposed course. Course deactivations may also require resources for such things as the removal and redistribution of equipment. Resources fall into four broad categories: (1) facilities, (2) funding, (3) personnel, and (4) equipment. All four categories require long lead-time planning. An approved TPP is the authority to submit requests for resources. Whenever resources are affected by unfunded requirements, OPNAV requirement per Memorandum for Distribution 7000 N1 127189 of 15 September 2008 requires that a TPP is routed to OPNAV (N15) via NETC (N7) for approval and resource allocation.

- Facilities include new construction, and modification of existing structures such as interior arrangement, power requirements, and air conditioning. Basic categories are Military Construction (MILCON) and Special Projects, with the difference being cost, approval authority, and lead time.

3.3. MILCON projects should be identified six (6) years prior to the ready for training date to ensure availability of permanent facilities. Relocatable facilities can be used as interim workaround solution, but require Commander, Navy Installation Command (CNIC) approval.

3.4. Special Projects needed to repair/renovate existing facilities or install training equipment should be identified three years prior to the ready for training date. Contact NETC (N4) for assistance.

- Funding includes all developmental and material costs anticipated for the project through the pilot convening.
- Personnel includes instructional and support personnel to conduct the course. Any increase in personnel must be identified and justified. A decrease in course length may also require a manpower adjustment.
- Equipment includes specialized items, systems, tools, or equipments required to support and conduct training.

When preparing the TPP ensure to identify any issues with berthing (including furniture), galley, or other base operating support (BOS) services requirements (bus transportation, janitorial, leased relocatable facilities, etc), particularly for those TPPs that propose an increase in Average On Board (AOB). Learning Sites (LSs) should coordinate these requirements with the local host installation prior to submitting the Training Program Plan (TPP). Stand-up of training inside the Program Objective Memorandum (POM) process may LC/LS resourcing until CNIC has an opportunity to POM for them.

Life-cycle costs for training equipment, Embedded Computer Resources (ECR), and content maintenance. Costs should include tech refresh and ITSO support for ECRs. Costs should include DLR, overhaul, and COMS costs for training equipment. Costs should include cyclic maintenance of content for Computer Based Training (CBT).

Propose how ECR requirements will be met. Is ECR requirement for a new ECR, or existing? Need to modify or improve the capability of the existing ECR? If new, who would fund the procurement/installation? If ECR requirement has been previously programmed reference documentation/coordination.

SECTION 4 - INITIATING A TPP

The decision to prepare a TPP can come from the LC/LS Commanding Officer, or Officer-in-Charge, or from higher authority.

- The Course Curriculum Model Manager (CCMM) will develop and submit the TPP for a course revision or deactivation.
- The CCA can designate an activity to be the CCMM for a new course and direct them to develop the TPP, or it may be developed by the CCA.
- When Functional Commanders in addition to the CCA are involved in teaching a course, preparation of a TPP should be coordinated with these functional commanders.

SECTION 5 - LOCATING DATA FOR COMPLETING A TPP

Any source which can be used to justify the project and identify the costs can be used in completing a TPP. Examples of some sources are:

- Technical manuals. Manuals should be used to the maximum extent possible as the basis for course content, equipment, and related material.
- Logistic Support Analysis Report (LSAR). A listing of jobs, and the detailed tasks to accomplish each job.
- Navy Training System Plans (NTSP):
 - Part II: Billet Requirements
 - Part III: Personnel and Training Requirements
 - Part IV: Training Logistic Support Requirements
- CeTARS data. Master Course Reference File (MCRF) displays out year student loading
- Resource Requirements. A composite listing of material necessary to implement the course at each site

SECTION 6 - SELECTING CURRICULUM DEVELOPMENT METHOD

The Navy uses several different methodologies, or systems, for developing training programs. The Task Based method and the PPP/Training Path System (TPS) method account for most training program development. Either system is equally capable of being used to develop all varieties of training programs. Each has characteristics and unique features that make it better suited for developing certain training programs. NAVEDTRA 130/131 (series) do not address the Navy's Integrated Learning Environment (ILE). However, the content development guidance serves as a development standard and the foundation for development in ILE.

6.1. The Task Based Method was designed for developing training programs that teach performance of a job or function in which operation or maintenance of the hardware is usually incidental or secondary to actual performance of the job. This manual - NAVEDTRA 130 (series): Task Based Curriculum Development Manual - provides details on this method.

6.2. The PPP/TPS System was originally designed for developing training programs that teach operation and maintenance of "hardware," such as equipments, subsystems, or a system. The

PPP/TPS system is advantageous where equipment or procedures are subject to frequent updating or change. NAVEDTRA 131 (series): PPP Based Curriculum Development Manual provides details on this method.

6.3. NETCINST 1510.1 (series) and NAVEDTRA 135 (series)

contains guidelines for determining the system for development of training materials. Which system is selected should largely be determined by the needs, desires, and experience of those training activities which will implement and conduct the training program. It is the training activities receptiveness to the delivered training program which will largely determine whether the training program succeeds or fails.

SECTION 7 - TPP OUTLINE

The TPP shall contain all the data and information necessary to identify and justify the course revision or development and the resources required for the training course under consideration. Data for course deactivations is also provided. Specific elements of data and information shall include the following items where applicable. A sample TPP is provided in Volume II, Tab A of this manual.

7.1. Cover Page, to include:

- The phrase "Training Project Plan for"
- Complete course title (actual or proposed), with no abbreviations
- CIN, if known. A new course development may not have a CIN assigned at the point the TPP is developed. CINs are assigned by the CCA as per NETC N73 guidance.
- The activity or organization for which the TPP is prepared. This is the sponsoring or tasking agency, usually the CCA.
- Name and address of the entity preparing the TPP
- Month and year that the TPP is prepared. This is a publication date and may differ from the transmittal or approval letter date. For a revision, the date is shown in parentheses under the original publication date.
- Security classification (if required). TPPs should be unclassified if possible. See SECNAVINST 5510.36 (series) for additional guidance on security classification.

7.2. Table of Contents. The table of contents shall be page 2, immediately after the cover page.

7.3. Course Data Pages, to include:

- The phrase "Course Data."
- Course title, with no abbreviations
- CIN, if assigned
- CDP code. This is a CeTARS identifier which will be different for each training site
- Course Status. Identify whether new start, revision, or deactivation of training
- Course Mission Statement. This is the purpose of the course, and responds to each of the questions below. Indicate if the course mission statement will change as a result of the course revision. The examples below illustrate the types of statements used to answer each question:

WHO is to be trained? "...technicians in the IC rating (E-5 through E-7)...", "...entry level enlisted Operations Specialist...", "...Aviation Electronics Technicians, Aviation Antisubmarine Warfare Operator, and Aviation Electrician's Mate's..."

WHAT job will the person be trained to perform? "...operation and maintenance of the Inertial Navigation System...", "...instruction and practical application in security fundamentals, basic message format, teletype typing proficiency, message tape preparation, teletypewriter circuit operating procedures, and basic safety precautions...", "..._AN/USM-484 Hybrid Test Station operational procedures, test procedures, emergency procedures, and scheduled maintenance procedures..."

DEGREE OF QUALIFICATION or how well the person will be able to perform the job? "...to perform tasks at the apprentice (journeymen, master) level...", "...to the accuracy specified in supporting documentation..."

WHERE will the person utilize the training? "...ashore and onboard amphibious assault (LHD-and LHA-1) class ships, in port and underway...", "...in afloat and shore communication installations...", "...in the AIMD working environment..."

CONDITIONS under which the graduate will perform on the job "...under supervision and using technical references...", "...in both field and shop conditions...", "...under all conditions of ship readiness..."

- Occupational classification. Applicable rate, rank designator, Navy Enlisted Classification (NEC), or Navy Officer Billet Classification (NOBC) of the intended input population, and the NEC, NOBC, or MOS earned by course graduates. If it is proposed that an NEC will be issued or changed as a result of the revised course, consult NAVPERS 18068 (series) for guidance.
- Prerequisites. List the prerequisites required of the trainees that are scheduled to attend the course. Prerequisites may be equipment, rate or rating specific, basic skills, or course specific. Prerequisites normally relate to prior training or skills, not ASVAB scores.
- Course overview. A listing of course subjects. Note any changes from the previous project plan. For a new course this will be a description of the skills and knowledge to be attained. This is not intended to be the equivalent of a curriculum outline, or to contain objectives. The overview helps the Training Agency see what the course will actually contain.
- Course length. Both current and planned course lengths in calendar days should be given.
- Training sites. Commands or activities where the course will be taught. This information can be combined with the CDP codes, if known. For multi-site training, an asterisk (*) may be used to indicate the CCMM.
- Number of convening's. Number of classes per year for each site, both current and planned.
- Class capacity. Specify the current and planned minimum and maximum class capacity, and if the class capacity will vary between teaching sites.
- Planned AOB, current and planned. This is:

Course length in calendar days X Planned input X # of Convening's
365

- Planned input should include:
 - USN
 - Reserves of all categories
 - Other Services
 - International training students
- Annual student throughput, current and planned.
- Estimated instructor and support requirements.
 - Provide the total number of instructor and support personnel required, current, and/or planned. NAVEDTRA 135 (series) describes the factors required for standard instructor computation. Many of the factors listed, such as classroom and laboratory ratios and instructional periods, may not be known at this point. If the standard computations cannot be applied, provide the rationale for the instructor and support manning figure used.

7.4. Justification. Cite specific references, correspondence, results of conferences, NTSP, FEA, BCA, TPS data, etc., where available.

- Reasons for and anticipated benefits of the proposed project:
 - Provides required training
 - Reduced course length
 - Increased student throughput
 - Impact of skill training requirements on the occupational classification system. A new course in "pipeline" training may provide an entrance or exit point to put graduates into the Fleet earlier
 - Reduced attrition and attendant costs by providing "common core" training
 - Deactivation of obsolete or redundant training
- Sources of information or data:
 - Tasking by higher authority. Cite specific correspondence
 - Internal review has indicated a need for training best met by a new course or a revision to an existing course

- External feedback/review. Current graduates are not able to perform on the job, or lack specific skills
 - JDTA data. JDTAs are normally accomplished as part of the curriculum development Analyze phase, but existing JDTA data should be used, if available
 - TPSs are normally accomplished as part of the curriculum development Design Phase, but TPS data should be used, if available
- Impact if the course development or revision is not undertaken: Clearly describe the impact on Fleet requirements and capabilities if the proposal is not undertaken. Note that this is NOT the same as "Justification." "Justification" is the authority behind the proposed revision. "Impact" refers to the consequences to the Navy of maintaining training in the current mode.

EXAMPLES:

Shortfall in numbers of trained personnel

Inability to operate or maintain updated Fleet equipment

Dollars not saved by deleting obsolete objectives and consolidating remaining objectives into a shorter course

7.5. Safety Risks and Hazardous Materials exposure. Describe anticipated safety risks and exposure to hazardous materials which are absolutely necessary for training realism. Indicate if the proposed training will be designated "high risk" and fall under the purview of OPNAVINST 1500.75 (series) and NETCINST 5100.1 (series). The incorporation of occupational safety and health considerations into training are defined in OPNAVINST 5100.23 (series), and NETCINST 5100.1 (series).

7.6. Curriculum development method recommended

- Curriculum development follows either task-based procedure (NAVEDTRA 130 (series) Task-Based Curriculum Development Manual) or PPP/TPS based procedures (NAVEDTRA 131 (series): PPP Based Curriculum Development Manual). Some of the considerations used to determine the most appropriate curriculum development method may be found in NAVEDTRA 135 (series). Training and Course Supervisors

will provide valuable assistance in determining the skills and knowledge, which will become the foundation for the training development or revision. Specify the development method recommended for use and the rationale for its selection.

- When preparing a TPP developed under ILE instructional development, this is not applicable: List training materials to be produced under the curriculum development procedure selected.

7.7. Compensation. Provide recommended sources of compensation for both manpower and funding. Identify possible course deactivations/reductions, cross utilization of instructors, etc.

7.8. Milestones. A time-phased narrative or graphic representation commencing with TPP approval, milestones shall include identification of major developmental products or events relating to the training materials development method selected, and end with implementation. Projected completion dates for each key event shall be indicated.

7.9. Resource requirements. Provide for each site a best estimate of the known and anticipated resources necessary to implement the training. For a revision, this will be the additional resources required. For a new development, this will be all resources needed to conduct the course. Identification of these resources does not constitute approval of the resources; Chief of Naval Personnel (CNP) Corporate Automated Resource Information System (CARIS) document numbers, cost account codes, and POM documentation must be forwarded:

<p>It is recognized that not all resource requirements may be known when the TPP is submitted. This is an initial submission, subject to revision.</p>
--

- **Manpower.** For new courses or revisions, identify officer, enlisted and civilian billets required, the number of billets authorized, the number of compensated billets that can be provided, and the difference (if any). For deactivations, identify all billets that will be offered up. Specify differences (if any). For questions on multiservice manpower issues, contact the NETC (N5) Inter-service Training Review Organization (ITRO).

- Funding. Identify by appropriation, such as, Operation and Maintenance Navy (O&MN), other procurement, Navy (OPN), and Activity Group/Sub-activity Group (AG/SAG) the one-time (initial) or recurring costs. For existing courses identify only the additional costs required to implement training.
- Specific expense items should be identified and include the following: Curriculum development, supplies, travel, equipment, publications, and printing.
- Contractor costs should be identified, including curricula development, instructors, and the operation and maintenance of training equipment.
- Equipment. Related end-item equipment. "Related" means those specialized items, systems, or equipments required to support and conduct training. For deactivations, identify the disposition/reassignment of equipment.
- List items, providing as much information as necessary to describe the item, such as:
 - Item name or official nomenclature
 - Part number
 - Cognizance Code/National Item Identification Number/Special Material Identification Code (COG/NIIN/SMIC) (Formerly National Stock Number)
 - Any other identifying code
 - Acquisition Advice Code (AAC)
 - Commercial and Government Entity (CAGE) code Source, Maintenance, and Recoverability (SM&R) code

NOTE

1. When identifying your items, use only the categories and codes that apply to your project. Use your command's logistic resource manager for assistance.

2. Indicate the number of items needed to support the course. Multiple training sites may require a further breakdown by site. In cases where some items are currently on hand, list the additional items needed.

3. Provide unit of issue and unit costs Technical Reference: Use when a technical reference provides source data, amplifying information, or justification for an item.

EXAMPLE: Maintenance Trainers. Normally, weapons system trainers designed to support on-equipment training, specially developed maintenance trainers, simulators/simulated trainer panels, and other simulator panels.

EXAMPLE: Technical Training Equipment (TTE). Operational equipment used for training purposes. Actual Weapon Replaceable Assemblies, Line Replaceable Units, Subsystem Replaceable Assemblies, Shop Replaceable Units, Circuit Card Assemblies, weapons pylons, engines or equipment normally a part of a weapon system.

- Test Equipment:
 - Special Purpose Electronic Test Equipment (SPETE). Test equipment designed to generate, modify, or measure a range of functional parameters for a single electronic system or equipment. For example, test equipments which perform diagnostics and troubleshooting on specific aircraft; normally provided by the SYSCOM.
 - General Purpose Electronic Test Equipment (GPETE). Electronic test equipment which may be used to test two or more equipments or systems, of basically different design, by generating, modifying, or measuring a range of electronic functions.

EXAMPLE: Oscilloscopes, multimeters - Where GPETE is not being provided by a SYSCOM or other sponsor, the Learning Center requests the equipment. Refer to OPNAVINST 11102.2 (series) and ILE website, <https://www.netc.navy.mil/ile/index.aspx>. GPETE is normally a long lead-time item.

- Visual Information (VI) devices such as projectors, video playback equipment, overhead projectors, projector screens, movie projectors, television monitors, etc.
- VI aids. Provide a summary listing containing an estimate of the VI aids required to conduct the proposed training course. OPNAVINST 3104.1 (series) is the basic reference for these items.

- Special-purpose tools, alignment jigs, and fixtures. GO/NO-GO gauges, adapters, and other tools especially designed for maintenance of weapon systems and normally listed in the technical manual.
- Common hand tools. Tools required performing the training which is not unique to the equipment.
- Consumables. Items that are required for the course, such as computer disks, special printing paper, plating materials, connector parts, rags, cotton swabs, etc. List quantity required per class. Do not include items that are provided to the students and then retrieved after class.
- Training Devices. Engine cutaways, models, inert bombs/weapons, and other devices especially prepared for demonstration and handling safety. Unless provided by an OPNAV sponsor, these items can have exceptionally long development and procurement lead-times. NAVTRASYS-CEN P-530 Navy Training Systems Center Guide refers.
- Specialized maintenance trainers and operator training devices (support training but cannot be substituted for operational equipment).
- Operational and training software, if not included with the hardware. Also, if the software must be modified, the scope of the modifications shall be included. This category also includes Interactive Courseware (ICW).
- General purpose equipment dedicated to a specialized task. For example, general purpose computers "wired in" and used to control training devices.
- Support equipment (Non-Avionic). Maintenance stands, bomb skids, engine stands, mobile hydraulic and electrical power units, mobile air conditioning units, engine removal trailers, and similar materials. NOTE: This category does not include line maintenance test sets.
- Calibration standards. Calibration standard test equipment used in the calibration of electronics equipment and test sets. These items are identified by a "-CS" at the end of the part number.
- Faultable/Pre-faulted modules. Modified modules, or modules that will be modified with insertible faults or malfunctions, for use in troubleshooting and performance testing.
- Trainer-peculiar materials. Items that are used in direct support of the trainer, such as trainer-peculiar special tools or special support equipment.

- Miscellaneous materials. Special clothing, goggles, standard work benches, special furniture, equipments, and items which do not fall under any category identified above.
- Ordnance/Ammunition/Pyrotechnics. Live, dummy, or inert. List by description and identifying numbers. Per the Conventional Ammunition Integrated Management System (CAIMS), SPCCINST 8010.12 (series), include the Navy Ammunition Logistics Code (NALC) for each item. The NALC can be appended to the NSN for each item. Specify requirement per student and per class.
- Stand-alone computer systems and peripherals. For example, desktop computers and printers used to deliver instruction. Not administrative or office support equipment.
- Equipment refurbishment. Available equipment which can be used to support training after repair, overhaul, or modernization.
- Publications. Commercial, DoD, and military service publications or technical manuals required to conduct training. List by title, identification number, quantity required, and supplier.
- Training material. The type and estimated quantity of training materials needed to conduct training. This includes instructor guides, trainee guides, instruction sheets, etc. Quantities and costs should be estimated through course pilot, or until training activity funding support can be established.
- Facilities. Identify requirements for MILCON or special projects for facilities modification. These requirements are highly situation-specific. See OPNAVINST 11102.2 (series) for detailed facilities documentation requirements.

EXAMPLE: A major training device needs to be relocated by the command as part of a course development or revision project. Or, additional electrical power and cooling are needed to support new equipment being installed in an existing space. This can also include accommodations and adaptations for safety, such as vapor/gas inductors, filtration, incineration, hazardous materials storage, handling, and disposal facilities.

- Early consultation with the training activity facilities manager is essential to determine the scope of the modification or construction, the level of approval and

funding required. Funding thresholds are repairs and construction less than 500K = Host Installation/Region Funding.

- Repairs Greater than 500K = CNIC Special Projects Funding.
- Construction Greater than 500K and Less than 750K = CNIC Special Projects Funding.
- Construction Greater than 750K = MILCON = CNIC MILCON Program.

SECTION 8 - TPP APPROVAL

A TPP is submitted via the chain of command for approval at the appropriate level as specified in NETCNOTE 1500 of 4 January 2010, NAVEDTRA 135 (series), and OPNAV Memorandum for Distribution 7000 N1 127189 of 15 September 2008.

Approval of the TPP may be used as authorization for submission of CPATS, POM and procurement of long lead-time items such as major training devices.

STAGE ONE

CHAPTER 3

PERSONNEL PERFORMANCE PROFILE TABLES

INTRODUCTION

The development of equipment tables will follow the definition of operational and maintenance specifications. Development of subsystem and system tables follow, based on the equipment tables. Data gathering and analysis for task/function and background tables should begin as soon as requirements are recognized.

- A Personnel Performance Profile (PPP) table must be usable for training all groups of personnel (Coordinate, Direct, or Perform). The most serious error in PPP table development occurs when a table is developed for a specific course of instruction. This results in a table which includes a list of line items relating only to the skills and knowledge required for that course, and subsequently reduces the utility of the PPP table for other courses of instruction.
- PPP tables will be developed in accordance with guidance contained in this manual.

PPP Tables. PPP Tables list the minimum knowledge and skills required to coordinate, direct, or perform operation and maintenance. The five types of PPP Tables are:

HARDWARE (E/SS/S)	NON-HARDWARE (T/F or B/G)
Equipment	Task/Function
SubSystem	Background System

PPP TABLE PACKAGE CONTENTS. Your project may contain any combination of the above tables. Normally, several PPP tables are developed for a particular program. When completed, they are delivered to the Curriculum Control Authority (CCA) for review as a package. Use the checklist below to ensure you include all required elements.

<u>ELEMENT</u>	<u>CHECK HERE</u>
1. PPP Cover including the Date of Issue	<input type="checkbox"/>
2. PPP Table Listing including:	<input type="checkbox"/>
a. PPP Table Title	<input type="checkbox"/>
b. Originating Activity of each PPP Table listed	<input type="checkbox"/>
3. PPP Table Title Page including:	<input type="checkbox"/>
a. Assigned PPP Table Number	<input type="checkbox"/>
b. Latest Equipment Modification Record Number	<input type="checkbox"/>
c. New Design-Drawing Number	<input type="checkbox"/>
4. All Applicable E/SS/S, Task/Function, or Background PPP Tables developed or revised for the project	<input type="checkbox"/>

FIGURE 3-1: PPP CHECK LIST

SECTION 1 - PPP REPOSITORY (PPP REP)

Naval Education and Training Command (NETC) has been designated as the PPP Representative. It is tasked to:

- Maintain an Automatic Data Processing (ADP) data bank of all approved and under development PPP tables
- Ensure that developers are provided timely, effective access to all PPP Tables when requested by the Training Support Agency (TSA), Training Agency (TA), or CCA
- Liaison with the CCAs for the assigning of numbers for PPP tables under development

SECTION 2 - PPP DEVELOPMENTS

- PPP tables used in support of new development or revision come from the following sources. Develop a PPP table listing identifying:
 - New tables to be developed. PPP table development is covered in Volume I, Chapter 3 of this manual.
 - Existing tables to be modified. Modifications permitted to existing tables to expedite their use in development are covered in this chapter.
 - Existing tables to be used unchanged.

Change and Revision to existing PPP tables as a maintenance action is discussed in Chapter 8.

- Establish a PPP development schedule to meet the timeline of the Training Project Plan (TPP) Milestones.
- Existing PPP tables to be used unchanged or modified for use: Tables listed as Under Development (UD) may be requested from the cognizant sponsor and utilized for development, with the understanding that such tables may not be in their final form. The requester must be added to the developer's distribution list for updates and final documents.
- Obtain from the PPP representative a table number for each new PPP table to be developed and a number for the projected Training Path System (TPS).
- Draft new PPP tables. PPP tables represent the foundation knowledge and skills upon which a course is developed. Existing tables should be used to the maximum extent possible before consideration is given to developing a table.
- Modify existing tables. The only modification permitted to existing PPP tables will be addition of sub-items to existing line items or inclusion of new knowledge and/or skill line items to meet new job task requirements which must be incorporated into the course under development.
- Submit new and modified PPP tables to CCA for review/ approval in support of further development:
 - CCA grants preliminary approval for the new and modified PPP table drafts.
 - Preliminary approval serves to establish these tables for use in further development. Subsequently, only changes mandated by changes in equipment, documentation, or operations/maintenance policy need be addressed.
- Submit all PPP tables used in developing the course as supporting documentation for the Training Course Control Document (TCCD) (see Chapter 5 of this volume for more discussion on submission of the TCCD).
- After the Course Pilot:
 - Forward newly developed and CCA-approved PPP tables to the PPP REP.
 - Final approval for new and modified PPP tables will normally come after the first curriculum supported by the tables has been successfully piloted.
 - Modified PPP tables should be forwarded to the PPP's originator.

- The PPP's originator will determine if the original PPP table maintained by NETC should be modified.
- PPP REP will add final or approved PPP tables to the data bank, removing the UD designation, indicating that the approved table is available for distribution:
 - PPP REP will maintain database and provide hard copy PPP tables to developer or as requested by the TA/TSA/CCA/Course Curriculum Model Manager (CCMM).
 - PPP REP will publish and distribute quarterly a list of PPPs that are approved and available for use.

SECTION 3 - REVIEW AND APPROVAL

The CCA will review and approve all Navy-developed PPP deliverables for compliance with NAVEDTRA 131B, Volume I guidelines.

SECTION 4 - SURVEILLANCE

The only revisions to PPP tables which will be considered after curriculum has been developed, approved, and implemented, are those which are necessitated by changes in equipment, documentation, or operational/maintenance policy in the tactical program. In general, changes or revisions to PPP tables will cause a Technical Change, Change, or Revision to curricula. Other than the above, routine surveillance of PPP tables is not required or desired. Each CCMM, for courses under their cognizance, will:

- Review PPP tables for currency, adequacy, and accuracy whenever a course revision or new course development is undertaken.
- Review technical changes to hardware or documentation and evaluate them for impact on existing PPP tables and curricula.
- Provide impact comments and/or draft PPP tables when appropriate changes are indicated to the TSA or CCMM as applicable. Each CCMM, for courses under their cognizance, will make recommendations and provide impact comments and/or draft PPP tables to the CCA when changes are indicated for PPP tables or related courses.

STAGE ONE

CHAPTER 4

TRAINING PATH SYSTEM

INTRODUCTION

The Training Path System (TPS) describes the breadth and depth of required training. TPSs can be developed either for pipeline/continuum training or for individual courses. Most developers will be concerned with an individual course. The TPS is the first course-specific document though it may also be a pipeline specific document. TPS development procedures are described in Volume I of this manual.

TPS Contents. Use the checklist provided below to ensure that all elements of the TPS are included in your TPS.

<u>ELEMENT</u>	<u>CHECK HERE</u>
1. Cover Page	<input type="checkbox"/>
2. Table of Contents	<input type="checkbox"/>
3. Introduction	<input type="checkbox"/>
4. Training Objective Statements (TOS)	<input type="checkbox"/>
5. Training Level Assignment (TLA) Tables	<input type="checkbox"/>
6. Table Assignment Matrix (TAM)	<input type="checkbox"/>
7. Training Path Chart (TPC)	<input type="checkbox"/>
8. PPP Table Index	<input type="checkbox"/>

SECTION 1 - DESCRIPTION AND APPLICATION OF THE TPS

- The TPS consists of the following elements:
 - TOS: The TOS describe the skills and knowledge to be learned for a specific group (Coordinate, Direct, Perform) of personnel.
 - TLA: The TLA lists specific PPP line items to be taught, where each will be taught, and the degree of training to be provided for each line item.
 - TAM: The TAM summarizes the training requirements for PPP Tables listed on the TPC by showing all TOS associated with each PPP table.
 - TPC: The TPC graphically shows a complete training path for a category of learner by listing courses in the path, and the PPP Table Index listing all PPP tables covered by each course.

SECTION 2 - TPS REPOSITORY (TPS REP)

NETC has been designated as the TPS REP. It is tasked to:

- Maintain an ADP data bank of all approved and under development TPS.
- Ensure that developers are provided timely, effective access to all TPS when requested by the Training Support Agency (TSA), Training Agency (TA), or Curriculum Control Authority (CCA).
- Liaison with the CCAs for the assigning of numbers for TPSs under development.

2.1. TPS Development Process;

- Request finalized TPS of interest from TPS REP. TPSs listed as UD may be requested from the cognizant sponsor and utilized for development, with the understanding that such TPS may not be in their final form. The requester must be added to the developers' distribution list for updates and final documents.
- Establish a TPS development schedule to meet the timeline of the Training Project Plan (TPP) Milestones.
- Obtain from the TPS REP an identifying number for the TPS to be developed.
- Draft TPS. (See Volume I, Chapter 4 for guidance on developing the TPS elements.)
 - Select or modify TOS model statements
 - Draft TLA for each PPP table listed in the PPP Table Index
 - Draft TAM
 - Draft TPC or PPP Table Index. The full TPC is required for pipeline/continuum training. If the TPS is being developed for a single course, only the PPP Table Index is required.
- Submit preliminary TPS to CCA as part of the preliminary Training Course Control Documents (TCCD) (See Chapter 5 of this volume for more discussion on submission of the TCCD.
- After the Course Pilot: CCA-approved final TPS is forwarded to the TPS REP. Final approval of TPS will normally come after the curriculum supported by the TPS has been successfully piloted. TPS REP will add TPS to

the data bank, removing the UD designation, indicating that the approved TPS is available for distribution:

- TPS REP will maintain the database and provide hard copy of TPS to developer or as requested by the TA/TSA/CCA/Course Curriculum Model Manager (CCMM)
- TPS REP will publish and distribute quarterly a list of TPSs that are approved and available for use

2.2. Review and Approval. The CCA will review and approve all Navy-developed TPS deliverables for compliance with NAVEDTRA 131B, Volume I guidelines. The CCA has the option of calling for a review and approval of deliverables at any time.

SECTION 3 - TPS CONTROL

- The CCA will control TPS development to ensure:
 - Analysis of the TPS for adequacy and accuracy. The TPS is the operational interpretation of the Course Mission Statement and establishes the boundaries of training materials development.
 - The preliminary TPS is viewed as a "working" document. The TPS will be reviewed by the CCA as part of the TCCD submittal to ensure that the essential linkage exists between the Topic Learning Objectives and the PPP table(s), to the training level specified by the TPS.
 - Upon final approval the TPS will be forwarded to the TPS REP for inclusion in the TPS ADP data bank.
 - The only changes to the TPS which will be considered after the curriculum has been developed, approved, and implemented, are those which are necessitated by changes in equipment, documentation, or operational/maintenance policy in the tactical program. In general, changes to the TPS will cause a Technical Change, Change, or Revision to curricula.

SECTION 4 - SURVEILLANCE

- Each CCMM, for courses under their cognizance, will:
 - Review TPS for currency, adequacy, and accuracy whenever a course Revision or new course development is undertaken.

- Review technical changes to hardware or documentation and evaluate them for impact on existing TPS and curricula.
- Provide impact comments and/or draft TPS when appropriate changes are indicated to the TSA or CCMM as applicable. Each CCMM or TSA, for courses under their cognizance, will make recommendations and provide impact comments and/or draft TPS for the CCA when appropriate changes are indicated for TPS or related courses.

STAGE TWO

CHAPTER FIVE

TRAINING COURSE CONTROL DOCUMENT

SECTION 1 - INTRODUCTION

The Training Course Control Document (TCCD) is the primary developmental and management document for a course. The approved TCCD serves as the authorization for further development and provides the information needed by curriculum developers to create the training materials for a course. Thus, careful attention must be paid to the detail, content, and structure of the TCCD. Volume I, Chapter 5 of this manual provides guidance on compiling the TCCD.

1.1. Description and Application of the TCCD. The TCCD is a collection of products which expresses in summary form, the content, structure, and essential management information for a course. Most of the information has already been developed; in the TCCD it is placed in a standard format for submittal. The TCCD consists of the following items:

- Front Matter
- Curriculum Outline of Instruction (COI)
- Annexes

The content, structure, and essential management information contained in the TCCD is used to implement and manage the course. For this reason it must accurately reflect the final course and must be kept updated.

1.2. TCCD Components: The following is a description of each TCCD deliverable:

- Front Matter:
 - Cover page
 - Letter of promulgation
 - Table of contents
 - Foreword (if required)
 - Course data
 - Trainee data. Consists of the following:
 - Personnel physical requirements
 - Security clearance
 - Prerequisites
 - Obligated service
 - NOBC/NEC/MOS earned

- COI:
 - In the COI, Units and Lesson Topics consisting of learning objectives are displayed in the order they will be taught.
 - Volume I, Chapter 4 of this manual describes the development of the COI.

- Annexes:
 - TCCD annexes provide the resource requirements and time allocations for the training course.
 - Resource Requirements List (RRL). It lists all the resources required to conduct the course. See Volume I, Chapter 5, Section 2.3 of this manual for more details on the development of the RRL.
 - Course Master Schedule (CMS). The CMS and CMS Summary shall be developed in accordance with Volume I and Volume II, NAVEDTRA 135 (series), and Corporate Enterprise Training Activity Resource System (CeTARS).
 - Profile item-to-topic objective assignment chart. Abbreviated OAC for "objective assignment chart," this chart provides a cross reference between the Personnel Performance Profile (PPP) items and the corresponding Lesson Plan locations for presenting the PPP items, Learning Objectives, and test items. The OAC is essential to ensure that all PPP line items are taught to the Training Objective Statement (TOS) levels indicated in the Training Level Assignment (TLA).

1.3. Review and Approval. The Curriculum Control Authority (CCA) will review and approve all TCCD deliverables.

SECTION 2 - LETTER OF PROMULGATION

Upon completion of the Pilot Course, the CCA will authorize the use of the curriculum through a Letter of Promulgation. This authorization is a permanent part of the course audit trail. It is placed in the TCCD front matter immediately following the cover page. When the TCCD is submitted, a page marker is inserted where the Letter of Promulgation will later be placed.

Authorization to implement the course after the curriculum has been approved and all required resources are in place is the

responsibility of the Learning Center or Functional Commander. See Chapter 6 of this Volume and NAVEDTRA 135 (series) for additional information.

SECTION 3 - SURVEILLANCE

Each Course Curriculum Model Manager (CCMM), for courses under their cognizance, will:

- Review TCCD for currency, adequacy, and accuracy whenever a course change or revision is undertaken.
- Review technical changes to hardware or documentation and evaluate them for impact on existing TCCD and curricula.
- Make recommendations and provide impact comments and/or draft TCCD for the CCA when appropriate changes are indicated for their courses.

"Using Authoring Instruction Material (AIM) and linking resources, especially technical data, to content can drastically reduce curriculum surveillance time required when a resource is updated. AIM will flag very specific content items based on changes to linked resources such as technical documentation, learning objectives, Course Training Task List (CTTL) items, Lesson Plans, and Trainee Guides."

- The TCCD is a document that is utilized in PPP curriculum development (NAVEDTRA 131 (series)) and Task Based curriculum development. The following figure provides a comparison of TCCD Components in both types of curriculum development styles.

NAVEDTRA 130	NAVEDTRA 131
Three Main Parts	Three Main Parts
1. Front Matter	1. Curriculum Outline of Instruction (COI)
2. Curriculum Outline of Instruction	2. Profile item to Objective Assignment Chart
3. Annexes	3. Resource Requirement List (RRL)
Front Matter Components	COI Elements
1. Cover Page	1. Course Learning Objectives
2. Letter of Promulgation	2. Topic Learning Objectives
3. Forward (Not Required)	3. Curriculum Outline of Instruction
4. Table of Content	
5. Course Data	COI Describes four main areas
6. Trainee Data	1. Skills and knowledge acquired by trainee upon completion of course.
7. Security Clearance	2. Skills and knowledge acquired by trainee upon completion of topic.
8. Obligated Service	3. Organization of subject matter into specific units of instruction (Parts, Section, and Topics) and the sequence or order which the subject matter will be taught.
9. NOBC/NEC/MOS	4. Developers intent with respect to course and each unit of instruction.
Curriculum Outline of Instruction	Profile item to Objective Assignment Chart
Review NAVEDTRA 130 for guidelines and differences from info in the NAVEDTRA 131 Column	1. An administrative tool designed to reflect the coverage of PPP items within a curriculum
	2. Structured to correlate PPP item coverage to specific TLOs within a curriculum.
ANNEXES	3. Divided into Columns
1. RRL	a. TABLE column - Identifies each PPP table once per page, followed by "(Cont)" as appropriate.
2. Course Master Schedule (CMS)	b. ITEM column - Lists PPP items sequentially, starting with the 1-1 series and ending with the 2-2 series for each PPP table listed in the "TABLE" column.

NAVEDTRA 130	NAVEDTRA 131
Resource Requirement List (RRL)	Profile item to Objective Assignment Chart Cont.
Texts. List all text materials (e.g., Lesson Plan and Trainee Guide) to be used in the course	c. TOS column - Arranged so the sequence of TOS listing per profile item or sub-item is T0/, F1, T1, T2, T3 for knowledge categories, and O1, O2, P1, C1, C2 for skill categories, as appropriate
References. List in alphanumeric order, all reference documents used in the course	d. VOL column -Lists the volume where the TLO is located if the LP is a multivolume set; otherwise, no entry is made.
Equipment. Includes all equipment, special tools and test equipment.	e. PART column - Lists the part in which the TLO is found if the part number is different than the table number.
Films. Also includes videotapes and videodiscs	f. SECT and TOPIC columns - Specify the Section and Topic in which the PPP item or sub-item is covered
Graphics. List transparencies, wall charts, slides, photographs, power points, etc., and Interactive Courseware (ICW)	g. LRNG OBJ column - Specifies the TLO which relates to the PPP item or sub-item
Support materials. All instruction sheets NOT contained within a Trainee Guide, list instruction sheet number, title, and quantities required per class	h. TEST ITEM column - Optional, and relates test item number to Topic Learning Objective
Other: List, as required	Resource Requirement List (RRL)

STAGE THREE

CHAPTER 6

CURRICULUM AND SUPPORT MATERIALS

INTRODUCTION

Curriculum Materials include all materials required for the presentation of information and the development of skill. Support materials are instructional materials and other devices used to support instruction.

SECTION 1 - CURRICULUM CONTROL, DEVELOPMENT AND COORDINATION

1.1. Control of Curricula:

- Control of curricula will be accomplished by the Curriculum Control Authority (CCA) who assigns coordination, development, and support responsibilities to participants. This is to ensure that:
 - Curriculum materials are analyzed for accuracy and effectiveness
 - The need for course revisions or development of new curriculum materials is evaluated
 - Schedules for the development of curriculum materials reflect new equipment deliveries and Fleet training requirements

1.2. Development of Curriculum:

- The developer will usually be in the Learning Center (LC) and in some cases delegated to the Learning Site (LS) designated as Course Curriculum Model Manager (CCMM) for the course to be developed or revised.
 - For multi-sited courses, the CCMM has a responsibility to liaison with each teaching site to determine site-unique requirements and to solicit review of materials.
 - Coincident with the development of Lesson Plan (LP), Trainee Guide (TG), and Test Package, is the procurement of Resource Requirements List (RRL) items which are identified as part of the Training Course Control Documents (TCCD).
 - The CCMM is the interim review and approval agent for the development of training materials, up to the pilot convening of the course.
 - The CCMM is ultimately responsible to the CCA for the development of all curriculum materials.

- NAVEDTRA 135 (series) discusses the CCMM's roles and responsibilities in greater detail and should be reviewed before revising or developing instructional materials.
- The developer is responsible for incorporating into the curriculum all requirements residing in current instructions, such as incorporating safety details and developing a Testing Plan.
 - NAVEDTRA 135 (series) should be consulted to ensure all requirements are addressed.
- The developer will work with numerous entities both inside and outside the Navy to ensure that training materials are developed or acquired which meet accepted instructional standards and meet the development schedule.
 - Assistance in meeting these requirements and professional guidance in the development of effective training materials may be obtained from the Curriculum and Instructional Standards functional area or the Learning Standards Officer (LSO), where available. The role and responsibility of the curriculum and instructional standard functions are discussed in NAVEDTRA 135 (series).
- Surveillance of approved, on-line courses is the subject of Chapter 7 of this Volume.

1.3. Coordination with LS:

- Curriculum development for courses which are multi-sited and/or developed by agents other than the LS should involve all LSs at a minimum in the review of the curriculum materials.
- The degree of LS involvement will be influenced by the approved Training Project Plan (TPP) milestones and CCA directions.
- The developer should forward for review and comment major segments of the course as soon as they are available rather than leaving the review until the total course is developed.

- The LS should review the material for technical accuracy and any problems they might have in implementing the material as written. Review of material should be expedited and comments should be specific and include suggestions for correcting any errors or problems identified.
- LSs may be called upon to pilot the material developed, provide instructors to participate at other sites in piloting the material, and/or provide pilot monitors. (See Chapter 7 of this Volume for more information on pilots.)
- If multiple Functional Commanders are involved, resource requirements and other factors which impact on the implementation of the final course should be coordinated with each Functional Commander as soon as requirements are identified.

SECTION 2 - CURRICULUM MATERIALS DEVELOPMENT

2.1. Development and approval of the curriculum materials will follow the events listed unless specifically waived by the CCA.

- Review management materials.
- TPP. As soon as a firm requirement exists, a TPP will be submitted in accordance with NETCINST 1510.1 (series) and NAVEDTRA 135 (series). Development of the course described in the TPP can proceed while awaiting TPP approval if authorized by the CCA.
- Personnel Performance Profile (PPP)/TPS. The TPS will identify the PPP tables, individual line items, and the training level to which they will be taught. The PPP line items will form the core of the Lesson Topics.
- TCCD. The approved TCCD will provide the Terminal Objectives and Enabling Objectives, course sequence by Unit and Lesson Topic, proposed test points, and resource requirements.
- Establish a development schedule which meets the Milestones approved in the TPP.
- The sequence in which the material is developed must be dictated by each course's individual requirements, including such factors as lead time for VI/IMM or training device development; availability of technical documentation; appropriateness of existing materials,

and the number and experience of developers assigned to the effort. The preferred sequence of training materials development is:

- LP
 - TG
 - Test Package
 - Support Material/Instructional Media Materials
- The schedule is an internal control document which should be monitored by the developer and the Learning Standards functional lead.
 - Monitoring the schedule will lead to early identification of possible changes in the TPP Milestones. Changes in the TPP Milestones must be coordinated and approved by the CCA.

2.2. Review content and/or format requirements levied by the CCA/CCMM in addition to those specified in this manual.

- If the developer is not experienced in application of the NAVEDTRA 130 (series) process, the CCA may require the developer to submit a sample of each type of curriculum material to be developed. This is referred to as a "Cross Section."
- The Cross Section and its contents will be specified by the CCA, if required.
- Complete development of draft curriculum and support materials.
- The LP places the instructional process in the sequence established by the TCCD. In the LP, the Topic Learning Objectives become discussion points, amplified as necessary to support the Course Learning Objectives. Methods and procedures for Lesson Plan development are contained in Volume I, Chapter 6 of this manual.
- Multiple Lesson Topics will normally be under development at one time. It is recommended that a single individual or team be given responsibility for developing a group of related Lesson Topics or Units.
- All Lesson Topic development should be a coordinated effort to ensure a smooth transition from Lesson Topic to Lesson Topic, Section to Section, and Part to Part.
- The TG is designed to support instruction. Most essential are Job Sheets to carry out skill objectives in both

practice and test situations. Directions for developing effective instruction sheets are found in Volume I, Chapter 7 of this manual.

- Tests measure the trainee's attainment of stated knowledge and skill objectives. Thus, tests are closely related to both the LP and the supporting TG Instruction Sheets. Procedures for developing knowledge and skill tests are contained in Volume I, Chapter 8 of this manual and additional guidance on the administration of a testing program is provided in NAVEDTRA 135 (series).
- Support material including Visual Information (VI) aids and Instructional Media Material (IMM) may actually be developed by personnel not part of the developer's command. This situation may increase the amount of coordination or require longer lead time.
 - Volume I, Chapter 9 discusses the coordination required to develop VI aids and IMM.
 - Other support material, such as training devices, is governed by their own instructions and will be coordinated with the CCA.
 - Procurement of technical manuals, textbooks, and government publications is governed by Supply System directives.
 - OPNAVINST 5290.3 (series), SECNAV 5870.4A, and NETCINST 3140.1 (series) defines the VI products exempt from production reporting requirements. Exemptions include graphics and overhead transparencies. Ensure all Copyright procedures are followed per previous instructions.
- All material should be reviewed by at least one Subject Matter Expert or other designated reviewer beside the developer.
- Reproduce copies of all curriculum materials (including paper copies of VI aids and IMM materials as practical) and forward to designate LSs for review and comment, as directed.
- Monitoring of the curriculum development process is accomplished by periodic In Process Reviews (IPRs).
 - IPRs are conducted for review of developmental products and to provide comments to the developer.
 - IPRs should be scheduled at intervals depending on the length and complexity of the development project.

- IPR participants include the CCA, LSO, and representatives from other LSs which will teach the course.
- Reviewers will ensure that developed curriculum materials comply with the management materials, are technically accurate, meet content requirements of NAVEDTRA 131 (series), Volume III, and comply with other format conventions specified for the course.
- If IPRs are not feasible, developer reproduces copies of all curriculum materials (including paper copies of IMM materials as practical) and forwards to the CCA and designated LSs for review and comment, as directed.

2.3. Review will be completed within the guidelines listed below, plus 14 days mailing time, unless otherwise directed by the CCA.

<u>EXPECTED COURSE LENGTH</u>	<u>REVIEW TIME</u>
Less than 3 weeks	30 Days
3 weeks to 8 weeks	60 Days
Greater than 8 weeks	90 Days

FIGURE 6-1: GUIDELINES FOR REVIEW OF CURRICULUM MATERIALS

2.4. Modify curriculum materials to reflect the changes identified during review.

2.5. Recommend pilot date to CCA:

- Advise the CCA of readiness to pilot 90 days in advance. (See Chapter 7 of this Volume for additional guidance on pilot responsibilities.)
- CCA should not authorize a pilot until sufficient VI aids and IMM are on hand to evaluate their integration into the course.
- CCMM/LS will monitor the pilot course assigned by the CCA.
- Forward pilot course progress reports in accordance with Chapter 6 of this Volume.
- The LSO (or Quality Control Officer) at the pilot site should monitor the pilot.
- Red-line curriculum to incorporate proposed changes in the curriculum/support materials.

- CCA signifies approval of the curriculum or red-lined curriculum identified during the pilot by issuing a Letter of Promulgation.
- Authorize LSs (as appropriate) to use approved red-lined pilot curriculum prior to final curriculum.
- Actual implementation of the course or use of the red-lined curriculum if resources are affected must be coordinated with NETC and the LCs Functional Commander.

2.6. Incorporate curriculum material comments in accordance with approved recommendations of the Pilot Course Report.

2.7. Duplicate and distribute masters of the curriculum materials to assigned LSs along with sufficient VI aids and IMM to implement the course at each site.

- Duplicate and distribute curriculum materials to LSs with receipt card (OPNAV 5511/10). Track receipt cards.
- CCMM and LS perform surveillance on the final curriculum materials as described in Chapter 8 of this Volume.

SECTION 3 - CURRICULUM AND SUPPORT MATERIAL REVIEW AND APPROVAL

Curriculum and Support materials may be reviewed by the CCA.

- Usually the CCA review will occur at the end of the development process, but the CCA can require additional IPRs in which CCA, CCMM, LSO, LSs, or others as designated by the CCA participate.
- IPRs should be required for new course development and for revision of lengthy courses and pipeline courses.
- Review authorities will ensure that developed curriculum materials comply with management materials, are technically accurate, and meet the guidelines of NAVEDTRA 130 (series) and other requirements specified for the course.

SECTION 4 - SUMMARY

Each document produced during the curriculum development process should build and support all others. It is rare that only one part of the curriculum materials is being worked on at a time. It is therefore important that all personnel actively engaged in developing the training materials communicate and exchange material. Not only is the developer able to see how material supporting or building on his/her topic is being developed, but it serves as a review for content and accuracy.

STAGE FOUR/FIVE

CHAPTER 7

PILOT COURSE

INTRODUCTION

A pilot course is defined as the first full length course conducted at a Navy school by Navy instructors using the curriculum and supporting training materials prepared specifically for that course. The purpose is to validate the curriculum and materials, and to determine their effectiveness and course length. The Curriculum Control Authority (CCA) will determine those course(s) designated as pilot convening's. The pilot course process consists of the following elements:

- Preparation for pilot course convening
- Pre-pilot conference
- Pilot course convening and course monitoring
- Post-pilot conference
- Report of pilot course assessment

SECTION 1 - PREPARATION FOR PILOT COURSE CONVENING

The structure and conduct of a pilot course will depend to a great extent on the length of the course, class convening schedule, and the extent of approved curriculum materials and support materials available.

- A short course with infrequent class convening's will permit the conduct of a pilot and assessment of results, and incorporation of review comments prior to the next convening.
- A complex, lengthy course, or the necessity to accommodate class schedules, may dictate the use of a "rolling pilot," where data is gathered and fed back to the developer for incorporation, while the pilot continues for later sections or convenings.
- Segments of the piloted materials must integrate into the rest of the course. That is, previous training must support the materials being piloted.
- Temporary duty considerations preclude lengthy participation by support personnel outside the host Learning Site (LS). Use senior, qualified LS personnel as available, preferably personnel NOT directly involved in writing the piloted course materials.

- Have options available to utilize previously approved course materials if piloted segment produces abnormally high test failure rates by students in the pilot class.
- If the piloted segment of a course is acceptable, it should be left in place after pilot. However, final approval of course materials by the CCA should be reserved until all revised materials have been piloted and reported upon. Suggestions regarding the use of this training material include:
 - If corrections are relatively minor, continue to instruct from the red-line materials while corrections are being incorporated into a smooth copy.
 - If corrections result in re-writing or re-sequencing materials within Lesson Topics, return to the use of previously approved materials until corrections are completed. If time and resources permit, pilot the revised materials a second time.

1.1. Preparation for Pilot of New Courses. The following procedures apply to preparation for pilot of new courses:

- Determination of Pilot Course Convening Date. The Curriculum Control Model Manger (CCMM) will submit a proposed pilot course convening date to the CCA with copies sent to all other participating LS as soon as a projected completion date for training materials development is available.
- Readiness to Conduct Pilot Course. Not later than 90 days prior to the designated pilot course convening date, the LS scheduled to conduct the pilot is requested to assess and certify its readiness to conduct the pilot course. This readiness notification should be addressed to and developed in conjunction with the CCA. Copies should be transmitted to any other participating LS or other activities, and include the following elements:
 - A listing of present training material shortages and deficiencies which are projected to be corrected prior to the pilot course convening date.
 - The state of completion, installation, and operability of training devices and laboratories which support the pilot course should also be considered.

- A listing of training material shortages and deficiencies, if any, which are not expected to be corrected by the convening date, or for which delivery/correction dates cannot be determined. Include cognizant activity and estimated delivery/correction dates if known.
 - A listing and assessment of any other factors which, in the judgment of the Commanding Officer, could adversely affect the validity of the pilot course as a comprehensive evaluation of all instructional elements. Instructor preparation time and the availability of students with the required prerequisites are among factors to be considered.
 - An overall assessment of readiness to conduct the pilot course as scheduled. (Include status and completeness of the curriculum and supporting training materials, technical training equipment, General Purpose Electronic Test Equipment (GPETE), training devices, laboratories, Coordinated Shore Bases Allowance List (COSBAL) supply support onboard, etc.)
 - If the scheduled date is not recommended, an alternate date should be proposed.
- Pilot Course Convening Approval. The CCA will evaluate the recommendations in the readiness report, approve a pilot course convening date, designate monitoring team members, and specify a due date for submittal of the Final (End of Course) Monitoring Progress Report.
 - This date will normally be 30 days after the estimated course completion date for courses less than 30 days in length, and 30 days after the estimated course completion date for courses 30 days or more in length.
 - The convening date approval letter distribution will include all addressees of the readiness report.
- Pre-Pilot Surveillance. After convening date approval and not later than 14 days prior to the approved pilot course convening date, the LS scheduled to conduct the pilot is requested to submit a message report if the pilot course should NOT be conducted on the approved date. This is an exception report which can be made after pilot convening date approval if the facts and assumptions contained in the original readiness report have significantly changed. Its purpose is to stimulate

timely recovery action if possible, and to notify pilot course support activities before attendance plans are finalized.

- Significant changes occurring in the two weeks immediately preceding the pilot course convening date should be reported to the CCA by telephone/electronic mail.

1.2. Pilot of Revised Courses Developed from Existing Curricula. For curriculum developed solely from previously piloted, approved, and promulgated curricula, the following procedures will be used to expedite curriculum development while retaining an option to pilot when the conditions warrant:

- The first convening of the course will be conducted using draft curriculum materials. The LS's course supervisor will provide monitoring support for this class.
- Within 30 days after course completion, the LS will provide a synopsis of course supervisor and student critique comments with a recommendation to either continue development to final products, or conduct a formal pilot.
- The CCA will select one of four options for the curriculum materials:
 - Approve as a final curriculum
 - Approve curriculum for pilot, subject to incorporation of designated comments. Continue to use for training, no pilot required.
 - Require a formal pilot.
- If a formal pilot is required, the LS comments will be considered a draft curriculum review, and the normal pilot process will be followed.

SECTION 2 - PRE-PILOT CONFERENCE

Shortly before the pilot course convening date, the monitoring team chairman will convene the pre-pilot conference. Its purpose is to plan the validation process, assign monitoring team responsibilities consistent with the levels of representation available, and discuss/resolve any outstanding issues impacting the conduct of the pilot. The following should be addressed:

- Assignment of monitors and respective responsibilities:
 - Status of management materials
 - Status of curriculum materials
 - Status of support materials
 - Status of applicable change recommendations
 - Identification of instructors
 - Status of pilot instructor's Lesson Plan personalization
 - Review of the Readiness to Pilot report or letter
 - Specification of Monitoring Report frequency and due dates
 - A tentative date for the post-pilot conference
- All problems and discrepancies should be identified and resolved so that a final determination can be made as to the suitability of conducting the pilot course.
- The chairman will distribute a summary of the agreements reached and responsibilities assigned during the pre-pilot conference.

2.1. Responsibilities and Functions of the Pilot Monitoring Team

- The pilot monitoring process is an evaluation of all training materials, both knowledge and performance, and it faithfully records in real-time all instructional presentations.
 - It is not the responsibility of the monitoring team to develop or revise curriculum material during the classroom/laboratory presentation.
 - If the monitoring team determines that the Learning Objectives (LO) are not satisfied, recommendations will be made to the CCA at the post-pilot conference and in the final report.
 - It is the responsibility of the CCA or Training Support Agent (TSA) to determine what action is necessary to accommodate the recommendations.
- The CCMM or LS conducting the pilot course will generally provide most of the monitoring team members from the instructional staff.
- It is evident that the greatest range of tasks are the responsibility of the course personnel at the host LS conducting the pilot course, with support from within by the LS course supervisor.

- To the maximum feasible extent, other LSs that will teach the course, or the developer if the material was not developed by the host LS, should provide assistance to the host command in the course monitoring effort.

2.2. The pilot course monitor(s) should be:

- Technically competent to provide the instructor technical assistance as required or capable of accessing a point of contact for technical assistance.
- Familiar with the development guidelines of NAVEDTRA 130 (series) and the management requirements established in NAVEDTRA 135 (series).
- Aware of the status and availability of all training materials associated with the particular curriculum.
- Familiar with approved and pending change recommendations to any training materials which could have an impact on the pilot course.
- Familiar with the objectives of the preliminary curriculum and approved training.
- The purpose of conducting a pilot course is to validate the curriculum and support materials, and to determine their effectiveness in attaining the course objectives.
- The role of the chairman is to coordinate and manage the project, and summarize the results in the final course monitoring report.
- The pilot course monitors serve as the primary judge of the adequacy of a new or revised course. In this role, notes and comments regarding observed problems are later amplified to provide the basis for recommending changes, completing Intermediate and Final Course Monitoring Reports, and, ultimately, in assessing the success or failure of the piloted course.
- The course monitor is provided with all curriculum materials and references while observing instruction. Addendum A, the Course Monitor Outline, can be used to note problem areas. A summary of all Course Monitor Outlines completed can thus provide a reference for daily and end of course critiques.
- Addendum B, the Course Monitor Time Log, is used to record the actual time spent on each lesson topic, and, in summary, provides the best estimate of total time required for the course.

2.3. The Chairman shall:

- Maintain physical custody of the master red-lined curriculum and support materials, ensuring all consensus/comments/recommendations of the course monitors are properly and accurately annotated.
- Chair and conduct critique sessions daily with the course monitors and incorporate comments into the master red-lined curriculum materials. Make the master red-line materials available to course monitors.
- Inform course monitors of the time and location for critiques.
- Conduct pre-presentation reviews of curriculum materials.
- Provide course monitors with presentation material that has been restructured by instructors in advance of presentation.
- Conduct and chair the scheduled post-pilot conference.
- Originate all Intermediate Pilot Course Monitoring Reports and the Final Pilot Course Monitoring Report.

2.4. Course Monitors shall:

- Attend pre-pilot conference.
- Attend post-pilot conference.
- Be present for all classroom and laboratory sessions.
- Comment as appropriate on the administrative aspects of the pilot course conduct, using the LS Administrative Review as a guideline (Addendum C).
- Comment as appropriate on curriculum, using the Course Monitor Outline as necessary.
- Maintain personal red-line of curriculum materials for use during critiques.
- Attend all critique sessions held to review presentations and resolve comments for incorporation into the master red-line.
- Attend all pre-presentation reviews of curriculum materials requested by the chairman.
- Accept and use for monitoring the modified curriculum materials supplied by the chairman.
- Participate in the development of Pilot Course Monitoring Reports.

2.5. The Course Monitoring Outline Sheets Addendum 6-A, are designed for use by course monitors and to serve as guides for noting subjects or items observed during the course monitoring

process that require comment. Typically, one sheet would be completed by each course monitor for each lesson topic, but this is flexible and should be amenable to the structure of the course.

SECTION 3 - PILOT COURSE CONVENING AND COURSE MONITORING

The course will be conducted and managed per the Lesson Plan (LP) and the management guidelines established in NAVEDTRA 135 (series).

- It is strongly recommended that the instructors not be the individuals who developed the material. The material should stand on its own. Often, when the writer is also the presenter, he will teach what he intended to have in the lesson topic and not necessarily the material which was actually written.
- Often the CCA or the CCMM will establish as a policy that any student recommended for dis-enrollment from a pilot course will be reassigned to another course teaching the old curriculum. This procedure eliminates the perception that the trainee is being penalized by problems which may be inherent in the material being piloted. NAVEDTRA 135 (series) provides additional information on student management. It and CCA/CCMM policies should be reviewed.

3.1. Pilot monitors shall:

- Attend critique sessions held at the completion of each instructional day to review presentations and resolve comments for incorporation into the master red-line.
- Unless otherwise directed by the chairman, assemble in assigned classroom 15 minutes prior to the start of scheduled instruction. Course monitors will return to the classroom or laboratory in sufficient time to ensure they are in place when class breaks are over.
- Not participate in classroom/laboratory activities or aid the instructors in any way, nor will they discuss their comments or recommendations with the instructors during classroom/laboratory presentations. In no case shall course monitors conduct business with trainees present.

SECTION 4 - POST-PILOT CONFERENCE

At the completion of the pilot, the pilot monitors, CCA, and representatives of the activity which developed the material will meet to discuss their observations and comments on all instructional material, the course management procedures, and the facilities.

Course Monitoring Outline Sheets are usually prepared for each Lesson Topic, but the frequency of preparation is based on whatever is appropriate to have meaningful data to discuss at the end-of-day critique and for input to the master red-line LP, Trainee Guide (TG), support material, and tests.

The Course Monitoring Outline Sheets, Time Log, and the Facilities Administrative Review Checklist will be reviewed to ensure all issues are addressed. Appropriate corrective action will be recommended.

SECTION 5 - REPORT OF PILOT COURSE ASSESSMENT

- The chairman, unless otherwise designated, will prepare the Monitoring Report. The report will be divided into the following sections:
 - Course Identification
 - Course Administration
 - Course Validation
 - Instructional Accuracy/Adequacy
 - Minority Report (If none, so state)
 - Other (Optional)
- Long courses may require interim pilot course monitoring reports. The final course monitoring report should contain all interim reports, as applicable.
- If the course is to be multi-sited, any problem at these sites which will impair the implementation of the course will be discussed under the appropriate heading in the report. The site should be clearly identified to distinguish it from the pilot site.

5.1. Course Identification. The course identification section will contain the following data on the pilot course:

- Title of the command conducting the pilot
- Course Title without abbreviations
- Course Identification Number (CIN) if assigned
- Inclusive dates of the pilot
- Name, rate, and rank of all monitors/representatives and the commands or activities they represent

5.2. Course Administration. The course administration section will contain the following data on the pilot course:

- Facilities. Major deficiencies impairing training and recommended for corrections. If corrective action requires additional resources it should be noted. The LS should prepare separate documentation to their Functional Commander for resources in accordance with NAVEDTRA 135 (series).
- Safety. Personnel and equipment deficiencies impairing training and recommended corrective action. Any safety problems which occur during the pilot will be reported in accordance with NAVEDTRA 135 (series) and NETCINST 5100.1 (series) as well as noted in the monitoring report.
- Security. Any deficiency impairing training, such as inadequate stowage for classified materials, or affecting the trainees assigned to the course, such as delays in obtaining necessary clearances.
- Allocation. Course and/or topic time, student-to-instructor ratios, and effectiveness of classroom-to-laboratory time allocations with recommendations when times deviate more than 10 percent.
- Critique Sheets. Summarize comments from the outline sheets.

5.3. Curriculum Validation. The curriculum validation section will contain the following information on the pilot course:

- LP. Statements as to attainment of objectives, recommendations, instructor/trainee preparation, major deficiencies, etc.
- TG. Statements as to the adequacy and organization of all instruction sheets.
- Equipment/Tools. Comments on the quantity/quality of equipment and tools, their adequacy in support of objectives, and trainee's ability to use.
- Support Materials. Comments on the type, quality, quantity, and adequacy to support objectives.

- Instruction. Comments on the quality of instruction in the attainment or lack of attainment of objectives.
- Testing. Comments on the testing strategy, test design, test items, and quantity to support uninterrupted training.

5.4. Instructional Accuracy/Adequacy. This section will address the accuracy, adequacy, sequencing, and overall effectiveness of the training in attaining the stated Course Learning Objectives.

5.5. Minority Report. This section provides an opportunity for monitors to provide any alternatives to the recommendations presented in the previous sections. If no minority comments are put forth, it should be noted.

5.6. Other. If any other items should be brought to the CCA's attention but do not fit under any of the other sections, they would be addressed here.

SECTION 6 - PILOT COURSE CORRECTIONS AND ADJUSTMENTS

Based on the findings and comments recorded during the pilot course, it is usually necessary to make corrections and adjustments to the training materials prior to approval and implementation.

- Detailed direction is provided to the developer on what corrections and adjustments are to be made.
- Limitations:
 - Any modification to training materials which does not affect the course mission statement or require additional resources may be corrected as a result of the pilot. The following are examples of such corrections:
 - Revise objectives as necessary to support the course Mission.
 - Add, delete, or re-sequence lesson topics.
 - Adjust lesson topic periods and ratios.
 - Add or delete support material such as transparencies, wall charts, and instruction sheets.
 - Any modification to training materials which does affect the course mission statement or require additional resources may not be corrected without

modification and approval of the Training Project Plan (TPP). The following are examples of such corrections:

- Work outside the course mission statement (expand or reduce scope).
- Change in minimum/maximum class size, established course length, Average on Board (AOB).
- Require additional resources:
 - Equipment
 - Facilities
 - Personnel
 - Funding

SECTION 7 - IMPLEMENTATION PROCESS

Implementation takes place after the pilot course has been conducted and the corrections and adjustments to the training materials indicated by the pilot course have been accomplished.

- CCA Approval:
 - Authorization to use curriculum materials is granted by the CCA through a Letter of Promulgation. This approves the curriculum for use in support of training
 - Functional Commander Approval
 - Where the CCA and the Functional Commander are different, the Functional Commander authorizes implementation of the course when the material has been approved by the CCA and all required resources are in place
- CCMM Responsibilities:
 - Ensure all sites are ready to train.
 - Accommodate site-unique training considerations.
 - Distribute all curriculum material masters to all LSs.
 - Distribute support materials consistent with the TPP or as directed by the CCA/Functional Commander.
 - Submit initial Corporate Enterprise Training Activity Resource System (CeTARS) and Catalog of Navy Training Courses (CANTRAC) data for new or revised courses.
- CCMM and LS(s) Responsibilities: Certify instructors to teach the course and supervise personalization of LPs.

- Establish administrative and support functions with:
 - Learning Standards Office (LSO)
 - Training Support Center (TSC)/Training Support Detachment (TSD)
 - Medical (if appropriate)
 - PSA/PSD (if appropriate)
- Distribute training materials
- Update CeTARS and CANTRAC if necessary
- Order consumables and other support materials. This should be coordinated with CCA and Functional Commander to avoid duplication of effort or funding conflicts
- Follow special procedures established for certification of instruction of high risk courses

SECTION 8- SUMMARY

After implementation, responsibility for curriculum maintenance is assigned to the CCMM and course evaluation begins. All future modifications to course materials fall under the guidance of Volume III, Chapter 8 of this manual. Course management is carried out by all sites per NAVEDTRA 135 (series).

EVALUATION

CHAPTER 8

EVALUATION, SURVEILLANCE, AND TRAINING MATERIALS MODIFICATION

SECTION 1 - IMPLEMENTATION

The training materials will be implemented by the Course Curriculum Model Manager (CCMM) with the cooperation of the Learning Sites (LSs) teaching the course. NAVEDTRA 135 (series) should be used as a guide for the management of the course. It specifies the audit trail to be maintained for each curriculum development/revision and what records are to be maintained on all courses.

SECTION 2 - EVALUATION

- The central concept behind evaluation is the constant improvement of training materials through a process that:
 - Provides a means of keeping training materials current and accurate
 - Is responsive to changing training requirements and equipment/documentation alterations
 - Is open to innovation
- Evaluation consists of a number of programs which either individually or collectively evaluate the instructional materials, the instruction, the instructors, and the trainees. NAVEDTRA 135 (series) describes the various programs used to evaluate the effectiveness and efficiency of the total training program. The portion of the evaluation program which concentrates on the curriculum is organized around two major functions, surveillance, and training materials modification.

SECTION 3 - SURVEILLANCE

Every Learning Site (LS) is responsible for monitoring each course it instructs and proposing changes to the CCMM as needed. NAVEDTRA 135 (series) describes in greater detail the responsibilities of LSs and CCMMs.

- Surveillance involves:
 - Monitoring hardware documentation and changes for impact on existing training materials
 - Detecting errors or deficiencies in existing training materials and initiating the necessary corrective action

"Using Authoring Instructional Material (AIM) and linking resources, especially technical data, to content can drastically reduce the surveillance time required. AIM will flag very specific content items based on changes to linked resources such as technical documentation, learning objectives or Course Training Task List (CTTL) items."

- Training materials modification is the result of surveillance and involves actual alterations to training materials. These alterations range from Interim Changes, such as the correction of clerical errors and insertion of titles, to revisions in course length, the course mission statement, or a shift from one instructional strategy to another.

SECTION 4 - SUPPORT COORDINATION AND CONTROL

- For courses supported by a Training Support Agency (TSA), both the CCMM and TSA will be responsible for the surveillance of, and the development of, modification to assigned training materials.
- For courses life-cycle supported by a TSA, the TSA shall introduce technical changes to curriculum necessitated by changes in tactical equipment, documentation, maintenance policy, or training-unique equipment.
- For all courses not life-cycle supported by a TSA, the CCMM will perform surveillance and introduce other modifications to curricula.

SECTION 5 - CATEGORIES OF MODIFICATIONS TO TRAINING MATERIAL

5.1. Interim Change. A minor modification to training materials correcting editorial, typographical or technical errors, teach ability, safety or urgent Type Commander promulgated subjects. An Interim Change does not require a TPP.

- An Interim Change will not alter the course mission statement, terminal/enabling objectives, change the length of the course, or require additional resources.
- The Commanding Officer/Officer in Charge of each LS teaching a course may approve Interim Changes made by the LS for the curriculum it teaches. Interim Changes related to safety will be implemented and reported to the CCMM immediately.

- Interim Changes not related to safety will be reported to the CCMM within five working days.
- The CCMM will incorporate Interim Changes in the next promulgated change to the curricula.
- If the Interim Change was generated due to site-unique circumstances, the CCMM will evaluate the Interim Change and upon concurrence will issue an approval letter. CCMM approval shall specify that the change is unique to the submitting site and will not be included in future changes promulgated by the CCMM.
- If the CCMM does not concur with an Interim Change as submitted, the issue will be forwarded to the Curriculum Control Authority (CCA) for resolution.
- Copies of the Interim Change will be forwarded to the CCA and TSA as appropriate. Figure 8-1 is a sample letter for forwarding an Interim Change.

From: Commanding Officer, Learning Site
To: Commanding Officer, Course Curriculum Model Manager
Subj: INTERIM CHANGE TO COURSE A-234-5678, COMMERCIAL UTILITY
CARGO VEHICLE (TYPE A) OPERATION AND MAINTENANCE
Ref: (a) NAVEDTRA 130 (series)

1. Discrepancies and/or errors have been encountered in the Lesson Plan, and the following pen and ink Interim Changes have been made:

a. In Volume 1, on page 4-4-5, change the part of item 3a which reads:

- (5) Steering/Wheels/Tires
- (6) Brakes

to read

- (5) Steering/Wheels/Tires/Tubes/Rims
- (6) Brakes/Shoes

2. This interim Change is per reference (a) and has been implemented at this command; request dissemination to other LSs teaching this course.

(LS COMMANDING OFFICER)

Distribution:
Other LSs

FIGURE 8-1: INTERIM CHANGE LETTER

5.2. Change. A modification to training materials that does not affect the course mission, does not increase course length, and does not require additional resources. A Training Project Plan (TPP) is not required.

- The need for a change may be identified by either the training activity or the CCMM. Changes will be approved and promulgated by the CCMM.
- Each Change will incorporate all outstanding interim changes.

- If a conflict exists between a CCMM and another LS over change, the matter will be referred to the CCA for resolution.
- For TSA-monitored courses, the TSA will monitor changes to ensure technical adequacy and accuracy.
- Formatting, production, and distribution of CCMM-originated changes shall be accomplished by the CCMM.
- Copies of all changes will be distributed to each LS instructing the course, the CCA, and TSA (for TSA-supported courses).
- Changes will be issued by letter as shown in Figure 8-2.

From: Commanding Officer, Course Curriculum Model Manager
 To: Commanding Officer, Learning Site

Subj: CHANGE 2 TO COURSE A-234-5678, COMMERCIAL UTILITY CARGO VEHICLE(TYPE A) OPERATION AND MAINTENANCE

Ref: (a) NAVEDTRA 130 (series)

Encl: (1) Lesson Plan Change Pages
 (2) Trainee Guide Change Pages

1. Incorporate enclosure (1) into the Lesson Plan for subject course. Incorporate enclosure (2) into the subject course Trainee Guide. This change is in accordance with reference (a) and incorporates Interim Changes 2-1 through 2-16 and is approved for use. Subsequent Interim Changes will be reflected in Change 3.

(CCMM Commanding Officer)

Distribution:
 Learning Center
 Learning Sites

FIGURE 8-2: CHANGE APPROVAL LETTER

5.3. Technical Change. A Technical Change addresses any change to tactical or training-unique equipment or documentation originating in the TSA's parent material agency and affecting promulgated curricula. A Technical Change does not require a TPP.

- A Technical Change may or may not affect learning objectives. It does not affect course mission, course length, or resources. The TSA develops and forwards a Technical Change to the CCMM.
- The Technical Change will consist of smooth change pages to the curricula, with sufficient copies to distribute to all activities teaching the affected course.

5.4. Revision

- A modification to the course mission statement, an increase in course length, or training material modification that requires additional resources. A Revision always requires a TPP.
 - A Revision incorporates previous modifications and supersedes preceding editions of the training materials.
 - Revisions require the development and submission of a TPP for approval. The level of approval for a TPP for revisions will vary based on the project. Refer to NETCINST 1510.1 (series) and NAVEDTRA 135 (series) and OPNAV Memorandum for Distribution 7000 N1 127189 of 15 September 2008 for information on the approval of TPPs. Volume I, Chapter 2 of this manual provides guidance for developing a TPP.
 - Revisions will be prepared by a developer and approved by the CCA.
 - The amount of change to the curriculum will vary between revisions. Revisions may consist of partial replacements of curriculum and thus, may not require a reprint of the entire curriculum; or the revision may be so extensive that the complete curriculum must be reprinted.
 - Revisions to be developed by a TSA to TSA-monitored courses shall be undertaken only with TSA concurrence and acceptance of funding responsibility for development and review of the Revision.
 - A developer (LS or TSA) shall be assigned for an approved Revision effort for in-house projects. This is usually the CCMM. The development process described in Volume I, appropriately modified by CCA and TSA concurrence, shall be applied to Revisions.
- The intent of training materials modifications is to allow expedient updating of curricula while still maintaining consistent instructional standards throughout the NETC.

Modifications to courses will not be undertaken solely to change format.

- Figure 8-3 describes the originator, promulgation authority, reproduction and distribution activity, and reviewing authority for Interim Changes, Changes, Technical Changes, and Revisions to curricula.

Type of Modification	INTERIM CHANGE	CHANGE	TECHNICAL CHANGE	REVISION
Originator	LS	CCMM	TSA	Per TPP
Pre Promulgation Review	None	CCMM	None	Per TPP
Promulgation Authority	CCMM	CCMM	CCMM	CCA
Reproduction/Distribution	CCMM/LS	CCMM/LS	Repro: TSA Dist: CCMM	Per TPP

FIGURE 8-3: MODIFICATION APPROVAL/REVIEW MATRIX

SECTION 6 - INTERNAL EVALUATION

Responsibility for internal course evaluation lies with both the CCMM and with all LS teaching the course:

- Internal Evaluation shall be conducted per NAVEDTRA 135 (series).
- Internal Evaluation will be done by all TFs for each course taught with the objective of ensuring that:
 - The course training materials match the CCMM master materials.
 - The Resource Requirements List (RRL) requirements for curriculum, audio-visual materials, and references are met.
 - Evaluation of all hazardous laboratory situations to eliminate or minimize training procedures that have potential for risk to the trainee (NETCINST 5100.1 (series) refers). A review of applicable safety regulations and precautions to ensure they are included in appropriate areas throughout the curriculum. This includes Training Time Out (TTO), Drop-on-Request (DOR) and Pre-Mishap Plan per NETCINST 5100.1 (series) and NAVEDTRA 135 (series).

- The Technical Training Equipment (TTE), tools, materials, and equipment supporting the course are safe, serviceable, accurately configured, and meet RRL requirements.
 - The instructional environment is adequate and conducive to learning.
 - All instructors are certified per NAVEDTRA 135 (series) and Training Facility (TF) directives.
 - Testing and measurement of trainee achievement are in compliance with NAVEDTRA 135 (series) and applicable Functional Commander directives.
 - Feedback action items on course content are followed up. Determine that all approved modifications have been incorporated into the curriculum.
 - Available external evaluation information is used to assess the course in terms of meeting current and projected fleet requirements.
- Instructional Staff evaluation. To ensure the quality of the instructional staff, all TFs will have an instructional staff evaluation program with feedback and discrepancy correction tracking components.

SECTION 7 - EXTERNAL EVALUATION

- There are two purposes for External Evaluation:
 - To determine whether the skills taught are job-specific.
 - To determine whether the course graduates can perform those skills in the work environment.
- Sources of External Feedback. External feedback data can be obtained from several sources. All TFs are to use all available data sources in determining the effectiveness of their training courses. The following are examples of some sources:
 - The course graduates and their immediate supervisors are two separate sources of information on the effectiveness of the existing courses. Evaluators must be aware of, and take into consideration, any interim training received by the graduates before reporting to their work station. Evaluators must also consider any time lapse between graduation from the course of instruction and the actual assignment to their work station.

- Technical Audit of a course provides valuable data on the technical strengths and weaknesses existing in the course content and supporting technical documentation and equipment.
- New instructors reporting for duty from the Fleet are an excellent source of information of what tasks are being performed on the job. New instructors should be considered as the equivalent of job incumbents, for purposes of providing external feedback, for up to six months after leaving the working environment.
- Contacts with Fleet personnel in the area, Fleet personnel who are attending other courses at the training facility, or others who have knowledge of course graduate performance can provide valuable inputs, comments, and recommendations.
- Training facility liaison with the Fleet Operational Chain of Command is a useful source of training feedback.
- Training effectiveness as measured by direct Fleet evaluation, testing, and assessment conducted by TSAs, is also a valid source of external feedback.

SECTION 8 - TRAINING MATERIALS MODIFICATION (TMM)

The rules governing TMM for interim change, technical change, change, and revision are found in this chapter. The process for creating new materials for inclusion in training materials are covered in Volume I of this manual. This section describes Change and Revision as applied to PPP/TPS based curriculum, and the effect a modification in one curriculum component can have on related components.

SECTION 9 - TMM ACTIONS

- The interrelationship of Personnel Performance Profile (PPP)/TPS components is shown by the arrows in figure 8-4:
- The most frequent cause of changes in curriculum materials occur in the LP, based on updates to technical documentation. For example, a modification to technical documentation will initiate a change in the LP. This would also cause a change in any Trainee Guide instruction sheets using the reference.
- A modification to technical documentation could also result in a modification to the text of one or more PPP line items. This would initiate a PPP table

change, which would feed through to all components using the affected line item(s).

- A change made to the Lesson Plan (LP) to resequence the Discussion Points (DP) within a lesson topic would alter the sequence of instruction sheets used in the topic, causing a change in the Trainee Guide (TG). The Topic Learning Objectives (TLOs) may also be affected, depending on the scope of the modification. If TLOs are affected, the Curriculum Outline of Instruction (COI) in the Training Course Control Documents (TCCD) must be updated to reflect the Change.
- A Change is indicated on curriculum materials by a sequential number; Change 1.
- A Revision to a course re-examines all course components, and is usually the result of an analysis of the job tasks associated with an equipment, subsystem, or system. Essentially, the rules for course development apply to a Revision and the course is put together in a new form using the existing Course Identification Number (CIN).

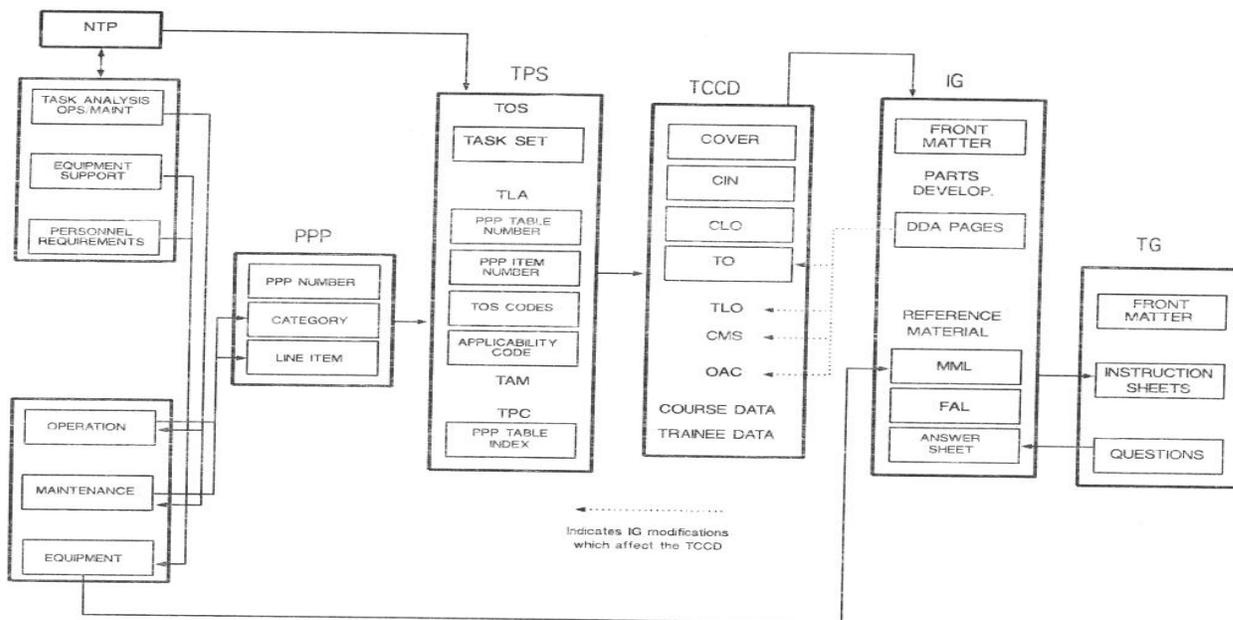


FIGURE 8-4: INTERRELATIONSHIP OF PPP/TPPS COMPONENTS

- A Revision is indicated on curriculum materials by a letter; Revision A. A Revision incorporates previous Changes; the Change number is reset to "0" and start over again.

9.1. PPP Tables: The following will help you determine the difference between a Change and Revision to a PPP table:

- **CHANGE:**
 - A PPP table Change is most commonly tied to a modification to technical documentation or a modification of equipment terminology.
 - Applies to approved tables only.
 - Can only add line items or sub-items at the end.
 - Can delete line items (Shows up as "Deleted").
 - Cannot renumber existing line items.
 - Can reword existing line items.
 - Adding a Change does not cancel prior Change inputs; only increments the Change number.
 - Submitted to custodian CCA listed in TRDB. Custodian CCA is responsible for forwarding approved Change to NETC.

- **REVISION:**
 - PPP table Revisions are infrequent. PPP table Revisions generally indicate that the job tasks defined by the table have been analyzed and a restructuring of the table is necessary to reflect new developments.
 - Applies to approved tables only.
 - Can essentially rebuild a table, saving only the title and PTN.
 - All prior Changes are incorporated into a Revision. Change number resets to "0".
 - Delete(s) are gone, line items are renumbered, and can be resequenced.
 - Submitted to custodian CCA listed in TRDB. Custodian CCA responsible for forwarding approved Revision to NETC.

9.2. Training Path System (TPS): The following will help you determine the difference between a Change and Revision to a TPS:

- **CHANGE:**
 - Basically, any alteration to the TPS which does not fall under the conditions of a Revision (below) is a Change. For example, a Change in a PPP table results in some added and deleted line items. This will be reflected in the TLA for the Changed PPP table, and

carried forward into the TLO for any line items used in a course.

- Applies to approved TPS only.
 - In response to PPP table Change, can only add line items or sub-items at the end.
 - In response to PPP table Change, can delete line items (Shows up as "Deleted").
 - Cannot renumber existing line items.
 - Adding a Change does not cancel prior Change inputs; only increments the Change number.
 - Submitted to custodian CCA listed in Training Requirement Data Base (TRDB). Custodian CCA responsible for forwarding approved Change to NETC.
-
- REVISION:
 - A TPS Revision can be introduced at the TPS directly (for example, by a modification of a Navy Training Plan) or come from a Revision to one or more PPP tables. If the TPS supports more than one course, the impact of the TPS Revision must be coordinated by the CCA with other users.
 - Applies to approved TPS only.
 - Can essentially restructure a TPS, saving only the title and TPS Number.
 - All prior Changes are incorporated into a Revision. Change number resets to "0".
 - (Delete) s are gone, Training Level Assessments (TLA) line items are renumbered.
 - Submitted to custodian CCA listed in TRDB. Custodian CCA responsible for forwarding approved Revision to NETC.

SECTION 10 - LESSON PLAN/TRAINEE GUIDE

In terms of frequency of occurrence, Changes to the LP and TG are by far the most common. This is related to the updating of technical documentation, and constant improvements in support materials such as adding, deleting, or changing transparencies, inclusion of new cites in the LP Related Instructor Activity (RIA) column, updating the Fault Applicability List (FAL), etc. Most modifications to the LP/TG have no outside effects. However, it is within the realm of Change that the subjects within the course can be re-sequenced, or times reallocated. Re-sequencing subjects or reallocating times will require a

Change in the TCCD COI and Course Master Schedule. The TCCD is a management document and must accurately reflect the course as taught.

- CHANGE:
 - Can only Change an approved LP/TG.
 - Cannot make any modifications which will affect the Course Learning Objectives (CLO).
 - Can modify the Hazard Awareness Notice. This will carry through to the TG.
 - Can add, delete, combine, and reword DPs as long as TLOs for a topic are accomplished.
 - Can add, delete, reword, update cites in the RIA column. Any cites involving instruction sheets must be followed up with a Change to affected instruction sheet(s) in the TG.

NOTE: The Trainee Guide as a bound volume is not given Change numbers or Revision letters. Only the instruction sheets show Change and Revision.

- Can resequence the order of presentation.
- Can reallocate times between class and labs. Cannot increase or decrease total course time.
- REVISION:
 - Only an approved course can be opened for Revision.
 - A Revision requires an approved TPP. When a course is revised there are likely to be major modifications to the LP/TG. Essentially, all elements of the LP/TG can be modified under the existing CIN.
 - Prior Changes are incorporated into a Revision. The Change number resets to "0".

SECTION 11 - TRAINING COURSE CONTROL DOCUMENT (TCCD)

- The Letter of Promulgation, placed in the TCCD, is issued for new development and Revisions. A Change does not require a Letter of Promulgation; the Change number will be indicated only on the affected curriculum materials.
- As a management document, the TCCD must reflect the current status of the course. This includes the:
 - COI
 - Course Master Schedule

- Course Data
- Trainee Data

SECTION 12 - SUMMARY

Evaluation, surveillance, and training materials modification are performed for the life cycle of all courses. Every TF is responsible for monitoring each course it teaches and proposing modifications to the CCMM as needed. This chapter and NAVEDTRA 135 (series) describe the responsibilities of TFs and CCMMs for these functions.

ADDENDUM A

COURSE MONITORING OUTLINE SHEET

COURSE MONITORING OUTLINE SHEET MONITOR

NAME _____ REPRESENTING _____

DATE _____ UNIT/LESSON TOPIC NUMBER _____

LESSON TOPIC _____

CLASSROOM/LAB ROOM NUMBER OR LOCATION _____

1. Were LESSON PLAN components accurate and in correct format?

- a. Front Matter
- b. Learning Objectives
- c. Discussion Points
- d. Related Instructor Activity
- e. Instructor/Trainee Preparation
- f. Other

2. Were TRAINEE GUIDE components accurate and in correct format?

- a. Front Matter
- b. Outline Sheet
- c. Information Sheets
- d. Assignment Sheets
- e. Job Sheets
- f. Diagram Sheets
- g. Problem Sheets

3. Equipment/Tools:

- a. Was equipment correct and available in sufficient quantity?
- b. Were tools correct and available in sufficient quantity?

4. Support Materials/Instructional Media Material (IMM):
 - a. Was support material relevant to the lesson topic?
 - b. Is the special emphasis provided by support material necessary?
 - c. Are IMM clear and legible?
5. Instructional Accuracy/Adequacy:
 - a. Is the content accurate?
 - b. Is the material presented in a logical sequence?
 - c. Does the lead-in information motivate the student to pursue the material?
 - d. The teaching-learning activities encourage productive learning?
 - e. Is the material written in a manner to allow maximum student participation?
 - f. Is there opportunity for review and practice?
 - g. Does the material effectively teach the behaviors specified in the Learning Objectives?
 - h. General Information Accuracy:
 - (1) Are abbreviations, terms, and symbols accurate?
 - (2) Are operational characteristics, capabilities, and limitations accurate?
 - (3) Is documentation accurate?
 - i. Physical information accuracy:
 - (1) Is information on major and associated components accurate?
 - (2) Is information on displays, controls, and indicators accurate?
 - j. Functional Information accuracy:

- (1) Is information on functional operation accurate?
- (2) Is information of controls and indicators accurate?
- (3) Is information on computer software, operational, and maintenance programs accurate?

k. Interface Information accuracy:

- (1) Is information on physical interface accurate?
- (2) Is information on functional interface accurate?

l. Operational Information:

- (1) Is information on initialization accurate?
- (2) Is information on normal operational tasks accurate?
- (3) Is information on casualty/degraded modes accurate?
- (4) Is information on securing/shutdown accurate?
- (5) Is information on personnel and equipment safety accurate?

m. Maintenance Information:

- (1) Is information on preventive maintenance procedures accurate?

- (2) Is information on operational tests and diagnostic programs accurate?

- (3) Is information on malfunction indicators accurate?

- (4) Is information on fault isolation procedures accurate?

- (5) Is information on alignment, calibration, and adjustment accurate?

- (6) Is information on disassembly, repair, and reassembly accurate?

- (7) Is information on tools and test equipment accurate?

(8) Is information on post-repair procedures accurate?

(9) Is information on personnel and equipment safety accurate?

(10) Is information on maintenance policy accurate?

6. Instruction:

a. Did the instructor(s) demonstrate adequate preparation?

b. Did the instructor(s) demonstrate appropriate instructional methods and techniques?

c. Depth of coverage:

(1) Was the depth of coverage appropriate in relation to the objectives?

(2) Was the depth of coverage appropriate in relation to the experience level of the trainees?

d. Did the instructor(s) demonstrate appropriate questioning techniques?

e. Was the instructor(s) presentation pertinent to Discussion Points (DPs)?

7. Testing:

a. Are tests given which cover too much or too little material?

b. Do tests adequately measure trainee comprehension of learning objectives?

c. Are performance tests indicative of actions performed on the job?

d. Are sufficient test items and alternative forms of tests available?

e. Are all trainees tested under the same conditions?

f. Are performance tests similar to, but not the same as, job assignments?

g. Is test security maintained?

h. Test Data:

(1) Number taking test_____

(2) Number passing test_____

(3) High score_____

(4) Low score_____

(5) Median score_____

(6) Minimum passing score_____

(7) What remedial options (if any) were utilized?

ADDENDUM B

COURSE MONITORING TIME LOG

COURSE TITLE _____ CIN _____

CLASSROOM/LAB NUMBER OR LOCATION _____

MONITOR NAME _____ REPRESENTING _____

DATE	PART/SECT/ TOPIC	CLASSROOM		LABORATORY		NOTES
		Hr. Sched.	Actual	Hr. Sched.	Actual	

COMMENT REQUIRED IF ACTUAL TIME VARIES BY +/-10% FROM SCHEDULED TIME.

ADDENDUM C
LEARNING SITE ADMINISTRATIVE REVIEW
CHECKLIST

**LEARNING SITE
ADMINISTRATIVE REVIEW
CHECKLIST**

MONITOR NAME _____ REPRESENTING _____

DATE _____ UNIT/LESSON TOPIC NUMBER _____

LESSON TOPIC _____

CLASSROOM/LAB ROOM NUMBER OR LOCATION _____

1. FACILITIES:

a. Is the learning process aided by environmental conditions with respect to (Yes/No/Comments):

- (1) Temperature?
- (2) Lighting?
- (3) Space?
- (4) Absence of distractions?

b. Are the laboratory facilities:

- (1) Properly arranged?
- (2) Supportive of skill objective accomplishment?

c. Are Electronic classrooms operational?

- (1) Daily Percentage availability/reliability?

2. PERSONNEL AND EQUIPMENT SAFETY (Yes/No/Comments):

a. Are safety precautions:

- (1) Adequately identified?
- (2) Prominently displayed?
- (3) Stressed in instructional presentations?
- (4) Enforced when performing tasks?

- b. Are existing hazards adequately identified?
 - c. Is standard safety equipment available for use?
3. SECURITY:
- a. Are trainees advised of proper security measures?
 - b. Is the dissemination of classified material or information on a strict "need to know" basis?
 - c. Is the use of classified material confined to classroom or laboratory?
 - d. Is classified material accurately and prominently marked?
 - e. Is access to classroom or laboratory controlled during classified presentations or discussions?
4. ALLOCATIONS:
- a. Are trainee-to-instructor ratios considered optimum within?
 - (1) Classroom?
 - (2) Laboratory?
 - b. Is classroom-to-laboratory time allocation effective?
5. CRITIQUE SHEETS:
- a. Are critique sheets used?
 - b. Do responses on critique sheets indicate the trainees have achieved knowledge and skill requirements?

ADDENDUM D

CURRICULUM DEVELOPER AID

FOR

SYSTEMS

PERSONNEL PERFORMANCE PROFILE

TABLES

PERSONNEL PERFORMANCE PROFILE (PPP) TABLES

- Obtain the following resources:
 - Technical documentation
 - Subject Matter Experts (SMEs)
 - Job Task Inventory
 - E/SS/System PPP (SPPP) Model Statements Table 2
1. Start the development of a SPPP by obtaining two blank pieces of paper, then:
 - a. On one blank piece of paper put the heading "Page A." Immediately below this heading, write "2. System Skills." Below the heading "2. System Skills" write "2-1. Operation."
 - b. On the other blank piece of paper put the heading "Page B." Immediately below this heading write "1. System Knowledge." Below the heading "1. System Knowledge" write "1-5 Operational Description."
 2. Is there any technical documentation required for use with the system?
 - a. If yes, at the bottom of page B write "1-7. Documentation" and select line item 1-7-1 from the Model Statement table and write it on Page B below the heading "1-7 Documentation".
 - b. If no, continue to step 3.
 3. Are there any actions a human must take to make this system perform the purpose it was designed for?
 - a. If yes, select line item 2-1-1 from the Model Statement table and write it below the heading "2-1. Operation" on Page A. Select line item 1-5-1 from the Model Statement table and write it below the heading "1-5. Operational Description" on Page B. Select line item 1-5-2 from the Model Statement table and write it on Page B below the last line item listed.
 - b. If no, write "No operation required below" "2-1. Operation" on Page A and write "No operation required" on Page B below the heading "1-5. Operational Description," then go to step 28b(2).

4. Are there any actions that must be performed on this system prior to operating it?

a. If yes, select sub-item 2-1-1a from the Model Statement table and write it on Page A below line item 2-1-1. Select sub-item 1-5-2a from the Model Statement table and write it on Page B below line item 1-5-2.

b. If no, go to step 7.

5. Are there any routine pre-operational procedures, which must be performed prior to the operational procedures?

a. If yes, select sub-item 2-1-1a (1) from the Model Statement table and write it on Page A below sub-item 2-1-1a. Select sub-item 1-5-2a (1) from the Model Statement table and write it on Page B below sub-item 1-5-2a.

b. If no, continue to step 6.

6. Does this system have to be installed into a specific location prior to operation?

a. If yes, select sub-item 2-1-1a (2) from the Model Statement table and write it on Page A below the last item/sub-item listed. Select sub-item 1-5-2a (2) from the Model Statement table and write it on Page B below the last item/sub-item listed.

b. If no, continue to step 7.

7. Does this system have to be assembled prior to operation?

a. If yes:

(1) Select sub-item 2-1-1a (3) from the Model Statement table and write it on Page A below the last item/sub-item listed. Select sub-item 1-5-2a (3) from the Model Statement table and write it on Page B below the last item/sub-item listed.

(2) Select sub-item 2-1-1b from the Model Statement table and write it on Page A below the last item/sub-item listed. Select sub-item 1-5-2b from the Model Statement table and write it on Page B below the last item/sub-item listed.

b. If no, select sub-item 2-1-1b from the Model Statement table and write it on Page A below the last item/sub-item listed. Select sub-item 1-5-2b from the Model Statement table and write it on Page B below the last item/sub-item listed.

8. Are there any procedures that must be performed after the system has been operated?

a. If yes, select sub-item 2-1-1c from the Model Statement table and write it on Page A below the last item/sub-item listed. Select sub-item 1-5-2c from the Model Statement table and write it on Page B below the last item/sub-item listed.

b. If no, continue to step 9.

9. Are there any critical operator actions required to keep the system operating properly?

a. If yes, select line item 2-1-2 from the Model Statement table and write it on Page A below the last item/sub-item. Select line item 1-5-3 from the Model Statement table and write it on Page B below the last item/sub-item.

b. If no, go to step 15.

10. Does this system have any alarms?

a. If yes, select line item 1-5-3 part (i) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.

b. If no, continue to step 11.

11. Does this system have any indicators?

a. If yes, select line item 1-5-3 part (ii) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.

b. If no, continue to step 12.

12. Does this system have any displays?

a. If yes, select line item 1-5-3 (iii) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.

- b. If no, continue to step 13.
13. Does this system have any readout?
- a. If yes, select line item 1-5-3 part (iv) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.
 - b. If no, continue to step 14.
14. Does this system have any printouts or type outs?
- a. If yes, select line item 1-5-3 part (v) from the Model Statement table and incorporate it into line item 1-5-3 on Page B.
 - b. If no, continue to step 15.
15. Does this system have specific casualty modes of operation?
- a. If yes, select line item 2-1-3 part (i) from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-5-4 part (i) from the Model Statement table and write it on Page B below the last line item/sub-item listed.
 - b. If no, continue to step 16.
16. Does this system have a specifically designated degraded mode of operation?
- a. If yes, select line item 2-1-3 part (ii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (ii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.
 - b. If no, continue to step 17.
17. Does this system have a specifically designated abnormal mode of operation?
- a. If yes, select line item 2-1-3 part (iii) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line

item 1-5-4 part (iii) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.

b. If no, continue to step 18.

18. Does this system have a designated not full mission capable mode of operation?

a. If yes, select line item 2-1-3 part (iv) from the Model Statement table and write it on Page A. Incorporate it with any other part of line item 2-1-3 previously selected. Select line item 1-5-4 part (iv) from the Model Statement table and write it on Page B. Incorporate it with any other part of line item 1-5-4 previously selected.

b. If no, continue to step 19.

19. Is this system a type of computer which produces tapes, or disks?

a. If yes, select line item 2-1-4 from the Model Statement table and write it on Page A below the last line item/sub-item listed.

b. If no, go to step 24.

20. Must these tapes, or disks, be interpreted to support system operation?

a. If yes, select line item 1-5-5 part (i) from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, continue to step 21.

21. Must the function of these tapes, or disks, be understood to support system operation?

a. If yes, select line item 1-5-5 part (ii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any other part of line item 1-5-5 previously selected.

b. If no, continue to step 22.

22. Must the use of these tapes, or disks, be understood to support system operation?

a. If yes, select line item 1-5-5 Part (iii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any other part of line item 1-5-5 previously selected.

b. If no, continue to step 23.

23. Must the format of these tapes, or disks, be understood to support system operation?

a. If yes, select line item 1-5-5 Part (iv) from the Model Statement table and write it on Page B below the last item/sub-item listed. Incorporate it with any other part of line item 1-5-5 previously selected.

b. If no, continue to step 24.

24. Is there any data logging requirements involved with the operation of this system?

a. If yes, select line item 2-1-5 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-5-6 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, go to step 28.

25. Are there specific methods that must be followed to meet data logging requirements?

a. If yes, select line item 1-5-6 Part (i) from the Model Statement table and incorporate it on Page B with the previously selected part of line item 1-5-6.

b. If no, continue to step 26.

26. Are there specific types of data to be logged to support data logging requirements?

a. If yes, select line item 1-5-6 Part (ii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6.

b. If no, continue to step 27.

27. Is knowledge of the disposition of logged data required to support data logging requirements?

a. If yes, select line item 1-5-6 Part (iii) from the Model Statement table and incorporate it on Page B with the previously selected parts of line item 1-5-6.

b. If no, continue to step 28.

28. Are there acceptance tests which must be performed when this system is operated?

a. If yes, select line item 2-1-6 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-5-7 from the Model Statement table and write it on Page B below the last line item/sub-item listed. Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/sub-item listed. Below the last line item/sub-item listed on Page A write "2-2. Maintenance" Below the last line item/sub-item listed on Page B write "1-6. Maintenance Description" Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.

b. If no:

(1) Select line items 2-1-7 and 2-1-8 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line items 1-5-8 and 1-5-9 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

(2) Below the last line item/sub-item listed on Page A write "2-2. Maintenance." Below the last line item/sub-item listed on Page B write "1-6. Maintenance Description." Below the maintenance description heading on Page B write out line item 1-6-1 from the Model Statement table.

29. Is any special tool unique to this system used during either preventive or corrective maintenance?

a. If yes, select line item 2-2-1 Part (i) from the Model Statement table and write it on Page A below the Maintenance

heading. Select line item 1-6-2 Part (i) from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, continue to step 30.

30. Is any test equipment unique to this system used during preventive or corrective maintenance?

a. If yes, select line item 2-2-1 Part (ii) from the Model Statement table and write it on Page A below the Maintenance heading. Incorporate it with any other parts of line item 2-2-1 previously selected. Select line item 1-6-2 Part (ii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any other part of line item 1-6-2 previously selected.

b. If no, continue to step 31.

31. Does this system have required preventive maintenance procedures?

a. If yes, select line 2-2-2 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Based on the Preventive Maintenance System in use for this system, select line item 2-2-2 Part (i), 2-2-2 Part (ii) or 2-2-2 Part (iii) and incorporate it into the previously selected part of line item 2-2-2 on page A. Select line item 1-6-3 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, go to step 34.

32. Are there any records that must be kept for preventive maintenance?

a. If yes, select line item 1-6-3 Part (i) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any parts of line item 1-6-3 previously selected.

b. If no, continue to step 33.

33. Are there any reports which must be made for preventive maintenance?

a. If yes, select line item 1-6-3 Part (ii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any parts of line item 1-6-3 previously selected.

b. If no, continue to step 34.

34. Are there any alignment procedures for this system?

a. If yes, select line item, 2-2-3 Part (i) from the Model Statement table and write it on Page A below the last line item/sub-item selected. Select line item 1-6-4 Part (i) from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, continue to step 35.

35. Are there any adjustment procedures for this system?

a. If yes, select line item 2-2-3 Part (ii) from the Model Statement table and write it on Page A below the last line item/sub-item listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (ii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any parts of line item 1-6-4 previously selected.

b. If no, continue to step 36.

36. Are there any calibration procedures for this system?

a. If yes, select line item 2-2-3 Part (iii) from the Model Statement table and write it on Page A below the last line item/sub-item listed. Incorporate it with any parts of line item 2-2-3 previously selected. Select line item 1-6-4 Part (iii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any parts of the line item 1-6-4 previously selected.

b. If no, continue to step 37.

37. Are there any operational tests performed during preventive or corrective maintenance for this system?

a. If yes, select line item 2-2-4 Part (i) from the Model Statement table and write it on Page A below the last line

item/sub-item listed. Select line item 1-6-5 Part (i) from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, continue to step 38.

38. Are there any diagnostic programs used during preventive or corrective maintenance for this system?

a. If yes, select line item 2-2-4 Part (ii) from the Model Statement table and write it on Page A below the last line item/sub-item listed. Incorporate it with any parts of line item 2-2-4 previously selected. Select line item 1-6-5 Part (ii) from the Model Statement table and write it on Page B below the last line item/sub-item listed. Incorporate it with any parts of line item 1-6-5 previously selected.

b. If no, continue to step 39.

39. Were either Part (i), or Part (ii) of line item 1-6-5 selected?

a. If yes, select line item 1-6-5 Part (iii) from the Model Statement table and incorporate it in the parts of line item 1-6-5 previously listed on Page B. Select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, select line item 2-2-5 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-6-6 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

40. Are there fault isolation procedures contained in the technical documentation for this system?

a. If yes, select line item 2-2-6 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-6-7 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

b. If no, continue to step 41.

41. Does the technical documentation for this system provide documented fault isolation procedures that cover all possible faults?

a. If yes, continue to step 42.

b. If no, select line item 2-2-7 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-6-8 from the Model Statement table and write it on Page B below the last line item/sub-item listed.

42. Are there any procedures which must be performed after the repair of this system?

a. If yes, select line item 2-2-9 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line item 1-6-10 from the Model Statement table and write it on Page B below the last line item/sub-item listed. Select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/sub-item listed. Number all line items on Page A sequentially, starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially, starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.

b. If no, select line items 2-2-10 and 2-2-11 from the Model Statement table and write it on Page A below the last line item/sub-item listed. Select line items 1-6-11 and 1-6-12 from the Model Statement table and write it on Page B below the last line item/sub-item listed. Number all line items on Page A sequentially, starting with number 2-1-1 for operational skills and 2-2-1 for maintenance skills. Number all line items on Page B sequentially, starting with numbers 1-5-1 for line items in the operational description and 1-6-1 for line items in the maintenance description.

43. On a blank piece of paper write the heading "1. System Knowledge." On the same paper write "1-1. General" below the heading. This paper will be referred to as Page 1. On page 1, below the sub-heading, write line item 1-1-1 from the Model Statement table. Number this line item 1-1-1. On page 1, below line item 1-1-1, write line item 1-1-2 from the Model Statement table. Number this line item 1-1-2. Write out the necessary

sub-items as required. These are identified sequentially by small letters (a, b, c, etc).

44. Are there abbreviations unique to this system?

a. If yes, select line item 1-1-3 Part (i) from the Model Statement table and write it on Page 1 below the last line item/sub-item listed.

b. If no, continue to step 45.

45. Are there terms unique to this system?

a. If yes, select line item 1-1-3 Part (ii) from the Model Statement table and write it on Page 1 below the last line item/sub-item listed. Incorporate it into any other parts of line item 1-1-3 previously selected.

b. If no, continue to step 46.

46. Are there symbols unique to this system?

a. If yes, select line item 1-1-3 Part (iii) from the Model Statement table and write it on Page 1 below the last line item/sub-item listed. Incorporate it into any other parts of line item 1-1-3 previously selected. Select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/sub-item listed.

b. If no, select line item 1-1-4 from the Model Statement table and write it on Page 1 below the last line item/sub-item listed.

47. Does this system have different models?

a. If yes, select line item 1-1-5 from the Model Statement table and write it on Page 1 below the last line item/sub-item listed. Select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/sub-item listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.

b. If no, select line item 1-1-6 from the Model Statement table and write it on Page 1 below the last line item/sub-item listed. Ensure all line items listed on Page 1 are numbered sequentially starting with line item 1-1-1. On a blank piece of paper write the following heading: "1-2. Physical Description." This paper will be referred to as Page 2. Select line item 1-2-1 Part (i) from the Model Statement table and write it on Page 2 below the heading.

48. Do the subsystems of this system have specific nomenclature?

a. If yes, below line item 1-2-1 on Page 2 list out all the subsystems that make up the system. These will make up the sub-items to line item 1-2-1. They are identified sequentially by small letters (a, b, c, etc.). Select line item 1-2-1 Part (ii) from the Model Statement table and write it on Page 2 incorporating it into any other part of line item 1-2-1 previously selected.

b. If no, continue to step 49.

49. Is an understanding of the physical appearance of the major and/or associated components, equipments, or subsystems required?

a. If yes, select line item 1-2-1 Part (iii) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected.

b. If no, continue to step 50.

50. Do the major and/or associated components, equipments, or subsystems have reference designators?

a. If yes, select line item 1-2-1 Part (iv) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected.

b. If no, continue to step 51.

51. Is an understanding of the location of the major and/or associated components, equipments, or subsystems required?

a. If yes, select line item 1-2-1 Part (v) from the Model Statement table and write it on Page 2, incorporating it into any other part of line item 1-2-1 previously selected.

b. If no, continue to step 52.

52. Is an understanding of the construction features of the major and/or associated components, equipments, or subsystems required?

a. If yes, select line item 1-2-1 Part (vi) from the Model Statement table and write it on Page 2, incorporating it into any other part of the line item 1-2-1 previously selected.

b. If no, continue to step 53.

53. Does this system have any displays?

a. If yes, select line item 1-2-2 Part (i) from the Model Statement table and write it on Page 2 below the last line item/sub-item listed.

b. If no, continue to step 54.

54. Does this system have any controls?

a. If yes, select line item 1-2-2 Part (ii) from the Model Statement table and write it on page 2 below the last line item/sub-item listed. Incorporate it with any other part of line item 1-2-2 previously selected.

b. If no, continue to step 55.

55. Does this system have any indicators?

a. If yes, select line item 1-2-2 Part (iii) from the Model Statement table and write it on Page 2 below the last line item/sub-item listed. Incorporate it with any other parts of line item 1-2-2 previously selected.

b. If no, continue to step 56.

56. Do the displays, controls, or indicators have reference designators?

a. If yes, select line item 1-2-2 Part (iv) from the Model Statement table and write it on Page 2 below the last line item/sub-item listed. Incorporate it with any other parts of line 1-2-2 previously selected.

b. If no, continue to step 57.

57. Do the displays, controls, or indicators have specific positions?

a. If yes, select line item 1-2-2 Part (v) from the Model Statement table and write it on Page 2 below the last line item/sub-item listed. Incorporate it with any other part of line item 1-2-2 previously selected.

b. If no, continue to step 58.

58. Do the displays, controls, or indicators have specific colors?

a. If yes, select line item 1-2-2 Part (vi) from the Model Statement table and write it on Page 2 below the last line item/sub-item listed. Incorporate it with any other part of line item 1-2-2 previously selected.

b. If no, continue to step 59.

59. Do the displays, controls, or indicators have specific locations?

a. If yes, select line item 1-2-2 Part (vii) from the Model Statement table and write it on Page 2 below the last line item/sub-item listed. Incorporate it with any other parts of line item 1-2-2 previously selected. Ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.

b. If no, ensure the two line items on Page 2 are numbered 1-2-1 and 1-2-2. On a blank piece of paper write the following heading: "1-3. Functional Description." This paper will be referred to as Page 3.

60. Is this system a computer or complex electro-mechanical device with various control circuits?

a. If yes, select line item 1-3-1 (Part B) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1. Select the appropriate terms from the statement and incorporate them into a single statement on Page 3 with the selected Model Statement. Then go to step 65.

b. If no, select line item 1-3-1 (Part A) from the Model Statement table. Write the statement on Page 3 immediately below the heading and label it 1-3-1.

61. Does this system have specific methods of control?

a. If yes, select line item 1-3-1 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-1 previously selected

b. If no, continue to step 62.

62. Is an understanding of signal flow within this system required?

a. If yes, select line item 1-3-1 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-1 previously selected

b. If no, continue to step 63.

63. Does this system operate in a specific sequence?

a. If yes, select line item 1-3-1 Part (iii) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected.

b. If no, continue to step 64.

64. Does this system have any indications that it is operating in various methods/modes, etc?

a. If yes, select line item 1-3-1 Part (iv) from the Model Statement table and write it on Page 3, incorporating it into any other parts of line item 1-3-1 previously selected. Immediately below the last part of line item 1-3-1 listed, list out the subsystems which make up the system. These will be sub-items to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).

b. If no, immediately below the last part of line item 1-3-1 listed, list out the subsystems which make up the system. These will be sub-items to line item 1-3-1. They are identified by sequential small letters (a, b, c, etc.).

65. Does this system have functional loops within it allowing for proper operation?

a. If yes, select line item 1-3-2 from the Model Statement table and write it on Page 3 below the last line sub-item listed. Review line item 1-3-2 from the Model Statement table and select the appropriate terms. Incorporate them into a single statement with line item 1-3-2 on Page 3.

b. If no, continue to step 66.

66. Does this system have any controls?

a. If yes, select line item 1-3-3 Part (i) from the Model Statement table and write it on page 3 below the last line item/sub-item listed.

b. If no, continue to step 67.

67. Does this system have any indicators?

a. If yes, select line item 1-3-3 Part (ii) from the Model Statement table and write it on Page 3 below the last line item/sub-item listed. Incorporate it with any other part of line item 1-3-3 previously listed.

b. If no, continue to step 68.

68. Do the displays, controls, or indicators have any specific positions?

a. If yes, select line item 1-3-3 Part (iii) from the Model Statement table and write it on Page 3 below the last line item/sub-item listed. Incorporate it with any other parts of line item 1-3-3 previously selected.

b. If no, continue to step 69.

69. Do the controls or indicators of this system have specific conditions?

a. If yes, select line item 1-3-3 Part (iv) from the Model Statement table and write it on Page 3 below the last line item/sub-item listed. Incorporate it with any other parts of line item 1-3-3 previously selected.

b. If no, continue to step 70.

70. Do the displays, controls, or indicators have specific colors?

a. If yes, select line item 1-3-3 Part (v) from the Model Statement table and write it on Page 3 below the last line item/sub-item listed. Incorporate it with any other parts of line item 1-3-3 previously selected.

b. If no, continue to step 71.

71. Is this system a computer or other type of device that is programmable?

a. If yes, select line item 1-3-4 from the Model Statement table and write it on Page 3 below the last line item/sub-item listed

b. If no, go to step 73a(2).

72. Do the programs associated with this system have specific numbers?

a. If yes, select line item 1-3-4 Part (i) from the Model Statement table and write it on Page 3, incorporating it into the part of line item 1-3-4 previously selected.

b. If no, continue to step 73.

73. Does the use of any associated programs impose any type of constraints on operational or maintenance procedures?

a. If yes:

(1) Select line item 1-3-4 Part (ii) from the Model Statement table and write it on Page 3, incorporating it into the parts of line item 1-3-4 previously selected.

(2) Number the line items on Page 3 sequentially, beginning with number 13-1. On a blank piece of paper write the following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.

b. If no, number the line items on Page 3 sequentially, beginning with number 1-31. On a blank piece of paper write the

following heading "1-4. Interface Description." On page 4 below the heading write line item 1-4-1 Part (i) from the Model Statement table.

74. Is an understanding of the physical appearance of the physical interface required?

a. If yes, select line item 1-4-1 Part (ii) from the Model Statement table and write it on Page 4, incorporating it into the part of line item 1-4-1 previously selected.

b. If no, continue to step 75.

75. Does the physical interface of this system have reference designators?

a. If yes, select line item 1-4-1 Part (iii) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected.

b. If no, continue to step 76.

76. Does the physical interface of this system have specific locations?

a. If yes, select line item 1-4-1 Part (iv) from the Model Statement table and write it on Page 4, incorporating it into the parts of line item 1-4-1 previously selected. Immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be sub-items to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/sub-item selected.

b. If no, immediately below the last part of line item 1-4-1 listed, list out the physical interface and related external equipment which make up the equipment, subsystem, or system. These will be sub-items to line item 1-4-1. They are identified by sequential small letters (a, b, c, etc.). Select line item 1-4-2 from the Model Statement table and write it on Page 4 below the last line item/sub-item selected.

77. Are there any electrical interfaces between this system and any other equipment, subsystem, or system?

a. Yes, select sub-item 1-4-2a from the Model Statement table and write it on Page 4 below line item 1-4-2.

b. If no, continue to step 78.

78. Are there any electronic interfaces between this system and any other equipment, subsystem, or system?

a. If yes, select sub-item 1-4-2b from the Model Statement table and write it on Page 4 below line item 1-4-2 or sub-item 1-4-2a if it was previously selected.

b. If no, continue to step 79.

79. Are there any pneumatic interfaces between this system and any other equipment, subsystem, or system?

a. If yes, select sub-item 1-4-2c from the Model Statement table and write it on Page 4 below line item 1-4-2 or any sub-item of line item 1-4-2 previously selected.

b. If no, continue to step 80.

80. Are there any hydraulic interfaces between this system and any other equipment, subsystem, or system?

a. If yes, select sub-item 1-4-2d from the Model Statement table and write it on Page 4 below line item 1-4-2 or any sub-item of line item 1-4-2 previously selected.

b. If no, continue to step 81.

81. Are there any mechanical interfaces between this system and any other equipment, subsystem, or system?

a. If yes, select sub-item 1-4-2e from the Model Statement table and write it on Page 4 below line item 1-4-2 or any sub-item of line item 1-4-2 previously selected. Include sublevel (1) or (2) of this sub-item as appropriate.

b. If no, continue to step 82.

82. Place all the pages of this draft PPP in the following order:

- (1) Page 1
- (2) Page 2

- (3) Page 3
- (4) Page 4
- (5) Page B
- (6) Page A

83. Transfer the information from the hand-written pages to the final PPP Table forms. Review the PPP Table for completeness and accuracy.

a. Refer to Table 4 as an example of a completed System PPP Table

PERSONNEL PERFORMANCE PROFILE FOR MOBILE CONSTRUCTION
BATTALION VEHICLES - DEPLOYED

TABLE S1037

MOBILE CONSTRUCTION BATTALION VEHICLES - DEPLOYED

1 JANUARY 1986

SYSTEM MODIFICATION RECORD

None

NEW DESIGN - DRAWING NUMBER

None

S1037-1/S1037-2

Table 4. Example System PPP Table Cover Page

TABLE 4: EXAMPLE SYSTEM PPP TABLE

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
1.	SYSTEM KNOWLEDGE
1-1.	GENERAL
1-1-1.	State the purpose of the Mobile Construction Battalion Vehicles - Deployed system.
1-1-2.	State that the Mobile Construction Battalion Vehicles - Deployed system consists of the following subsystems including the function of each. <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-1-3.	Define the abbreviations, terms, and symbols used with the Mobile Construction Battalion Vehicles - Deployed system.
1-1-4.	State the operational characteristics and capabilities of the Mobile Construction Battalion Vehicles - Deployed system in terms of the parameters and limitations as listed in the applicable technical documentation.
1-1-5.	Describe the differences between the various models of the Mobile Construction Battalion Vehicles - Deployed system.
1-2.	PHYSICAL DESCRIPTION
1-2-1.	Describe all subsystems or major equipments of the Mobile Construction Battalion Vehicles Deployed system. Include the name, nomenclature, physical appearance, reference designation, location, and construction features of each. <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-2-2.	Describe controls, indicators, and displays directly associated with the Mobile Construction Battalion Vehicles - Deployed system. Include name, reference designation, positions, locations, and colors of each.

TABLE 4: EXAMPLE SYSTEM PPP TABLE (CONT'D)

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
1-2-2. (Cont.)	<ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-3.	FUNCTIONAL DESCRIPTION
1-3-1.	<p>Describe how the Mobile Construction Battalion Vehicles - Deployed system works (functional operation). Include, when applicable, the methods of control, operational modes, inputs, and outputs of each.</p> <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-3-2.	<p>Describe the functions of each control, indicator, and display of the Mobile Construction Battalion Vehicles - Deployed system. Include, when applicable, electrical signal flow, fluid flow, steam flow, mechanical transfer, pneumatic control, position, color, or indication of each.</p> <ul style="list-style-type: none"> a. General Utility Vehicles b. Tanked Vehicles c. Earth Moving Vehicles d. Ancillary Vehicles e. Accessory Equipments
1-4.	<p>INTERFACE DESCRIPTION</p> <p>There are no interfaces between the Mobile Construction Battalion Vehicles - Deployed system and any other system.</p>
1-5.	OPERATIONAL DESCRIPTION
1-5-1.	Describe the authority and regulations pertaining to the operation of the Mobile Construction Battalion Vehicles - Deployed system.

TABLE 4: EXAMPLE SYSTEM PPP TABLE (CONT'D)

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
1-5-2.	Describe operational tasks for Mobile Construction Battalion Vehicles - Deployed system. <ul style="list-style-type: none"> a. Pre-operational procedures b. Operational procedures c. Post-operational procedures
1-5-3.	Describe indications which should or may occur during operation of the Mobile Construction Battalion Vehicles - Deployed system. Include alarms, indicators, displays, and readouts.
1-5-4.	Describe casualty/degraded/abnormal/not full mission capable mode(s) of operation for the Mobile Construction Battalion Vehicles - Deployed system.
1-5-5.	Describe data logging requirements for the Mobile Construction Battalion Vehicles - Deployed system. Include logging method, types of data logged, and disposition.
1-5-6.	Describe the personnel and equipment safety precautions which are to be observed during operation of the Mobile Construction Battalion Vehicles - Deployed system.
1-6.	MAINTENANCE DESCRIPTION
1-6-1.	Define the maintenance policy for the Mobile Construction Battalion Vehicles - Deployed system. <ul style="list-style-type: none"> a. Preventive maintenance - the requirement for periodic performance of tasks to minimize malfunctions by doing the following: <ul style="list-style-type: none"> (1) cleaning (2) inspection (3) lubrication (4) painting (5) degradation/deterioration checks (6) performance checks (7) pre-maintenance procedures

TABLE 4: EXAMPLE SYSTEM PPP TABLE (CONT'D)

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
1-6-1. (Cont.)	<p>b. Corrective Maintenance - checks and procedures used to locate and correct malfunctions as determined by the following guides:</p> <p>(1) Authorized repair responsibility to correct malfunctions to the authorized maintenance level.</p> <p>(2) Fault Isolation - location of faults to the level of available spares, and to the authorized repair level including system operational checks and tests, as well as fault isolation tests and procedures.</p> <p>(3) Analytical procedures - isolation of faults using authorized techniques not contained in prescribed maintenance documentation.</p> <p>(4) Post-maintenance procedures - procedures performed after repair.</p>
1-6-2.	Describe the use of special tools and test equipment required for maintenance of the Mobile Construction Battalion Vehicles - Deployed system as prescribed in applicable documentation.
1-6-3.	Describe preventive maintenance procedures for the Mobile Construction Battalion Vehicles Battalion Vehicles - Deployed system. Include recognition and interpretation of indications, records, and reports.
1-6-4.	Describe alignment, adjustment, and calibration procedures for the Mobile Construction Deployed system.
1-6-5.	Describe the operational tests used for maintenance of the Mobile Construction Battalion Vehicles - Deployed system. Include test name, use, and the procedures.
1-6-6.	Describe the recognition and interpretation of all malfunction indications for the Mobile Construction Battalion Vehicles - Deployed system.
1-6-7.	Describe the systematic fault isolation procedures contained in the prescribed maintenance documentation for the Mobile Construction Battalion Vehicles - Deployed system.

TABLE 4: EXAMPLE SYSTEM PPP TABLE (CONT'D)

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
1-6-8.	Describe authorized techniques to isolate faults on the Mobile Construction Battalion Vehicles - Deployed system, which cannot be located using procedures contained in the prescribed documentation.
1-6-9.	Describe the post-repair procedures for the Mobile Construction Battalion Vehicles - Deployed system.
1-6-10.	Describe personnel and equipment safety precautions which are to be observed while performing maintenance on the Mobile Construction Battalion Vehicles - Deployed system.
1-7.	DOCUMENTATION
1-7-1.	Describe the organization, content, and use of all technical documentation provided for use with the Mobile Construction Battalion Vehicles - Deployed system.
2.	SYSTEM SKILLS
2-1.	OPERATION
2-1-1.	Perform tasks for operation of the Mobile Construction Battalion Vehicles - Deployed system. <ul style="list-style-type: none"> a. Pre-operational procedures b. Operational procedures c. Post-operational procedures
2-1-2.	Recognize and interpret all indications occurring during performance of operating procedures and perform appropriate operator actions in proper sequences for the Mobile Construction Battalion Vehicles - Deployed system.
2-1-3.	Perform tasks for casualty/degraded/abnormal/not full mission capable mode(s) of operation of the Mobile Construction Battalion Vehicles - Deployed system.
2-1-4.	Perform data logging requirements for the Mobile Construction Battalion Vehicles - Deployed system.
2-1-5.	Adhere to personnel and equipment safety precautions during operation of the Mobile Construction Battalion Vehicles - Deployed system.

TABLE 4: EXAMPLE SYSTEM PPP TABLE (CONT'D)

TABLE S1037. Mobile Construction Battalion Vehicles - Deployed (System).	
ITEM No.	KNOWLEDGE/SKILL
2-2.	MAINTENANCE
2-2-1.	Use special tools and test equipment required for maintenance of the Mobile Construction Battalion Vehicles - Deployed system.
2-2-2.	Perform preventive maintenance procedures, including quality assurance procedures for the Mobile Construction Battalion Vehicles - Deployed system, as scheduled by the Planned Maintenance System (PMS).
2-2-3.	Perform alignment, adjustment, and calibration procedures on the Mobile Construction Battalion Vehicles - Deployed system.
2-2-4.	Perform operational tests used for maintenance of the Mobile Construction Battalion Vehicles - Deployed system.
2-2-5.	Recognize and interpret all malfunction indications for the Mobile Construction Battalion Vehicles - Deployed system.
2-2-6.	Perform systematic fault isolation on the Mobile Construction Battalion Vehicles - Deployed system, using procedures contained in prescribed maintenance documentation.
2-2-7.	Use authorized methods to isolate faults on the Mobile Construction Battalion Vehicles Deployed system, which cannot be located using the procedures contained in the prescribed maintenance documentation.
2-2-8.	Perform post-repair procedures, including quality assurance procedures, on the Mobile Construction Battalion Vehicles - Deployed system.
2-2-9.	Adhere to personnel and equipment safety precautions when performing maintenance on the Mobile Construction Battalion Vehicles - Deployed system.

PPP TABLE CHECKLISTS

INTRODUCTION

The following tables provide a means of performing a content check on new or updated PPP Tables. E/SS/S and Non-Hardware PPP Table Checklists are included.

Read each category provided in the checklist and compare the new or updated PPP Table that you are working on against the same.

TABLE 6: CHECKLIST FOR EQUIPMENT PPPS

<u>Category/Topic</u>	<u>Category/Topic</u>
1-1 GENERAL (Knowledge Purpose Functional loops of which the equipment is a part Model differences Terminology and abbreviations Operational characteristics (including but not limited to) Capabilities (limitations) Temperature operating ranges Tape storage Logic levels Coordinate systems Word length Timing scheme Arithmetic considerations General/special purpose Types of memory Types of recording	1-2 PHYSICAL DESCRIPTION (Knowledge) Equipment identification/nomenclature Name Physical appearance Reference symbols/designator Location Equipment construction Weight/size requirements Space requirements Major components Associated components/module recognition and mounting Maintenance provisions Chassis slides Tilt mechanisms Access panels Controls, displays, and indicators Name

TABLE 6: CHECKLIST FOR EQUIPMENT PPPS (CONT'D)

<u>Category/Topic</u>	<u>Category/Topic</u>
Frequency ranges	Location
Formatting	Reference designator
Accuracies	Positions and/or colors
Power requirements	Connectors/connections
Security	Signal input/output
1-2 PHYSICAL DESCRIPTION (Knowledge) - Continued	Power
Wire routing	Power supplies and distribution
Shock mounting	Protective devices (fuses, interlocks, etc.)
Hydraulic and pneumatic	Modes of operation (all levels)
Ventilation and cooling	Purpose
1-3 FUNCTIONAL DESCRIPTION (Knowledge)	Conditions for use
Logical functional breakdown (proceeding from the whole to the single functional stage; e.g., amplifier stage, digital logic block, synchros, motors etc.) Functional levels (functional subdivisions at all levels)	Programs
Functional control	Function of each control and/or indicator in each position/condition/color
Mechanization (all levels)	Programming
Functional loops (within the equipment)	Types and uses
Time and phase relationships	Methods of solution
Significant incidents	General
Time and/or mechanical sequences	Glossary of terms and symbols
Signal flow	Instruction complement (repertoire)
Mathematical analysis	Word structure
Functional/physical relationships	Instruction format
Alarm circuits	Coding
Test circuits	Memory maps
	Program flow diagrams
	Program listings
	Special diagrams

TABLE 6: CHECKLIST FOR EQUIPMENT PPS (CONT'D)

Category/Topic	Category/Topic
<p>1-3 FUNCTION DESCRIPTION (Knowledge) - Continued</p> <p>Program, subprogram, routine, subroutine, etc. requirements</p> <p>Analytical description</p> <p>Purpose</p> <p>Capabilities/limitations</p> <p>Modes and sequences</p> <p>Logic functional breakdown</p> <p>Mathematical analysis</p> <p>Mechanization</p>	<p>1-4 INTERFACE DESCRIPTION (Knowledge) - Continued</p> <p>Power requirements/sources</p> <p>Input/output signals</p> <p>Types</p> <p>Interpretation</p> <p>Format</p> <p>Source/destination</p>
<p>1-4 INTERFACE DESCRIPTION (Knowledge)</p> <p>Identification</p> <p>Name</p> <p>Physical appearance</p> <p>Reference symbols/designator</p> <p>Location</p> <p>Physical</p> <p>Electrical</p> <p>Mechanical</p> <p>Hydraulic</p> <p>Pneumatic</p> <p>Functional</p>	<p>1-5 OPERATIONAL DESCRIPTION (Knowledge)</p> <p>Procedures</p> <p>Regulation and authority</p> <p>Pre-operational (includes tape installation, etc.)</p> <p>Typical</p> <p>Emergency/casualty</p> <p>Post-operational</p> <p>Security requirements</p> <p>Data and records</p> <p>Analysis of operation information (displays, readouts, etc.)</p> <p>Use of data (by whom, where, when, why)</p> <p>Logs</p>

TABLE 6: CHECKLIST FOR EQUIPMENT PPPS (CONT'D)

Category/Topic	Category/Topic
<p>1-5 OPERATIONAL DESCRIPTION (Knowledge) - Continued</p> <p>Conditions of external equipment</p> <p>Signals</p> <p>Power Modes</p> <p>Safety</p> <p>If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading.</p>	<p>1-6 MAINTENANCE DESCRIPTION (Knowledge) Continued</p> <p>CM requirements</p> <p>Symptom recognition</p> <p>Diagnosing</p> <p>Procedures</p> <p>Authorized techniques</p> <p>Signal tracing, electrical or mechanical measurements</p> <p>Alignment, adjustment, and calibration</p> <p>Disassembly and reassembly procedures (repair and/or replacement)</p> <p>Safety</p> <p>Security</p>
<p>1-6 MAINTENANCE DESCRIPTION (Knowledge)</p> <p>Maintenance policy</p> <p>Regulations and authority</p> <p>Levels of preventive and corrective maintenance</p> <p>Preventive (schedules and records)</p> <p>Corrective replaceable/repairable philosophy and techniques)</p> <p>Special tools and test equipment</p> <p>PM requirements</p> <p>Inspection</p> <p>Cleaning</p> <p>Lubrication</p> <p>Alignment, adjustment, and calibration</p> <p>Performance checks</p>	<p>1-7 DOCUMENTATION (Knowledge)</p> <p>Documentation (for each consider knowledge of organization, contents, use, classification, function, interpretation, and use of symbols and terminology presented, etc.)</p> <p>Equipment level technical documentation</p> <p>2-1 OPERATION (Skills)</p> <p>Pre-operational</p> <p>Locate controls</p> <p>Initial control settings</p>

TABLE 6: CHECKLIST FOR EQUIPMENT PPS (CONT'D)

Category/Topic	Category/Topic
2-1 OPERATION (Skills) - Continued	2-1 OPERATION (Skills) - Continued
Condition of external equipment	Safety
Signals	Security
Power	If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading.
Loads	
Install tapes/ribbons/paper	
Turn-on	2-2 MAINTENANCE (Skill)
Warm-up	Special tools and test equipment
Initialize	Preventive
Program load	Inspection
Parameter insertion	Cleaning
Checkout procedures	Lubrication
Operational	Alignment, adjustment, and calibration
Modes	Performance checks
Procedures	Corrective
Emergency/casualty	Fault isolation
Modes	Symptom recognition
Procedures	Diagnosing
Post-operational	Procedures
Procedures	Authorized techniques
Shutdown	Signal tracking (electrical/mechanical measurements)
Typical	Alignment, adjustment, and calibration
Emergency/casualty	Removal and replacement (repair)
Data reduction	Disassembly
Log entries	

TABLE 6: CHECKLIST FOR EQUIPMENT PPS (CONT'D)

Category/Topic	Category/Topic
2-2 MAINTENANCE (Skills) - Continued Assembly Post corrective Performance checks	Alignments/adjustments Safety Security

TABLE 7: CHECKLIST FOR SUBSYSTEM PPPS

Category/Topic	Category/Topic
1-1 GENERAL (Knowledge)	Connection or signal flow
Purpose	Time sequence
Major components	Physical/functional relationships
Operational capabilities	Controls and indicators
Operational characteristics	Mathematical analysis
Limitations	Functional loops
Outputs and displays	Function
Model differences	Blocks
Special terminology, symbols, and abbreviations	Signals
Subsystem components	Control
Subsystem functions	Mechanical or optical assemblies
Subsystem tie-in	Sequential modes of operation
System tie-in	Alternate mode description
Operational characteristics	Test modes
Power requirements	Emergency (bypass) capabilities
Signal requirements	Capabilities for operational change in environmental extremes
Security	Programming
1-2 PHYSICAL DESCRIPTION (Knowledge)	1-4 INTERFACE DESCRIPTION (Knowledge)
Arrangement/construction features	Physical interface
Recognition of major components (controls, displays, and indicators)	Hydraulic
1-3 FUNCTIONAL DESCRIPTION (Knowledge)	Pneumatic
Major functional block level	Functional interface
Block names	Power sources/requirements
Signal names	Power characteristics
	Input signal sources

TABLE 7: CHECKLIST FOR SUBSYSTEM PPPS (CONT'D)

Category/Topic	Category/Topic
<p>1-4 INTERFACE DESCRIPTION (Knowledge) - Continued</p> <p>Output signal destinations</p> <p>Interface component locations</p> <p>Interface component identification</p> <p>Interface signals</p> <p>Format of data</p>	<p>Theory</p> <p>Functions</p> <p>Interpretation</p> <p>Safety</p> <p>Security</p> <p>If there are no operation tasks associated with the equipment, the statement "No operation involved" Interpretation of signals will follow the heading.</p>
<p>1-5 OPERATION DESCRIPTION (Knowledge)</p> <p>Operational theory (relationships of subsystem to system purpose)</p> <p>Operational controls (positions)</p> <p>Operational modes</p> <p>Purposes</p> <p>Effects</p> <p>Sequence</p> <p>Conditions for use</p> <p>Interpretation of operational information (displays, readouts, etc.)</p> <p>Operational procedures (include tape, paper installation)</p> <p>Emergency operation procedures</p> <p>Operational logs</p> <p>Operating regulations and authority</p> <p>Operational programs</p>	<p>1-6 MAINTENANCE DESCRIPTION (Knowledge)</p> <p>Maintenance policy</p> <p>Special tools and test equipment</p> <p>Preventive maintenance procedures</p> <p>Indications</p> <p>Records</p> <p>Reports</p> <p>Instructions</p> <p>Alignment, adjustment, and calibration</p> <p>Operational test</p> <p>Corrective maintenance</p> <p>Symptom recognition</p> <p>Fault isolation</p> <p>Alignment, adjustment, and calibration</p> <p>Repair/assembly procedures</p> <p>Safety</p> <p>Security</p>

TABLE 7: CHECKLIST FOR SUBSYSTEM PPS (CONT'D)

Category/Topic	Category/Topic
<p>1-7 DOCUMENTATION (Knowledge)</p> <p>Documentation (for each consider knowledge of organization, contents, use, and classification)</p> <p>Subsystem level technical documentation</p>	<p>Operational communications</p> <p>Post-operational procedures</p> <p>Data reduction (consider interpretation and use)</p> <p>Operational log entry</p> <p>If there are no operation tasks associated with the equipment, the statement "No operation involved" will follow the heading.</p>
<p>2-1 OPERATION (Skills)</p> <p>Operational conditions of external power sources</p> <p>Operational conditions of external signal sources</p> <p>Operational condition of external loads (dummy or real)</p> <p>Pre-operational procedures</p> <p>Safety</p> <p>Security</p> <p>Turn-on procedures</p> <p>Warm-up/standby sequence</p> <p>Typical operation</p> <p>Normal procedures (various modes)</p> <p>Abnormal environment procedures</p> <p>Emergency operation</p> <p>Shutdown</p> <p>Normal</p> <p>Emergency</p>	<p>2-2 MAINTENANCE (Skills)</p> <p>Special tools and test equipment</p> <p>Preventive</p> <p>Alignment, adjustment, and calibration</p> <p>Operational test</p> <p>Corrective</p> <p>Fault isolation</p> <p>Symptom recognition</p> <p>Alignment, adjustment, and calibration</p> <p>Repair procedures</p> <p>Safety</p> <p>Security</p>

TABLE 8: CHECKLIST FOR SYSTEM PPS

Category/Topic	Category/Topic
<p>1-1 GENERAL (Knowledge)</p> <p>Purpose</p> <p>Major components and functions</p> <p>Model/series variations</p> <p>Special terminology, abbreviations, and symbols</p> <p>Operational characteristics and capabilities</p> <p>Power requirements</p> <p>Environmental conditions</p> <p>Accuracies</p> <p>Operational flexibility</p> <p>Security</p> <p>Unique knowledge factors not related to categories 1-2 through 1-7</p>	<p>1-3 FUNCTIONAL DESCRIPTION (Knowledge) -Continued</p> <p>Function of each control and indicator</p> <p>1-4 INTERFACE DESCRIPTION (Knowledge)</p> <p>Interface with other systems</p> <p>Signal source</p> <p>Signal destination</p> <p>Signal characteristics</p> <p>Power requirements</p> <p>Power characteristics</p> <p>1-5 OPERATIONAL DESCRIPTION (Knowledge)</p> <p>Authority and regulations</p> <p>Operational tasks/conditions</p> <p>Readiness condition procedures</p> <p>Modified procedures</p> <p>Monitoring</p> <p>Operational sequence</p> <p>Analysis of indications</p> <p>Alarms</p> <p>Displays</p> <p>Readouts</p> <p>Printouts</p> <p>Data logging requirements</p> <p>Data reduction</p> <p>Safety</p>
<p>1-2 PHYSICAL DESCRIPTION (Knowledge)</p> <p>Identification of system and subsystem components</p> <p>Location and description of displays, controls, and indicators</p>	
<p>1-3 FUNCTIONAL DESCRIPTION (Knowledge)</p> <p>Functional operation/simulation</p> <p>Control</p> <p>Signal flow</p> <p>Sequential modes of operation</p> <p>Indications</p> <p>Programming</p> <p>Functional loops</p> <p>Logical functional breakdown</p>	

TABLE 8 CHECKLIST FOR SYSTEM PPS (CONT'D)

Category/Topic	Category/Topic
<p>1-6 MAINTENANCE DESCRIPTION (Knowledge)</p> <p>Maintenance policy</p> <p>Maintenance procedures</p> <p>System test</p> <p>Malfunction indications</p> <p>Fault isolation</p> <p>Repair</p> <p>Assembly</p> <p>Safety</p> <p>Security</p>	<p>2-1 OPERATION (Skills) - Continued</p> <p>Pre-operational procedures</p> <p>Safety</p> <p>Security</p> <p>Turn-on procedures</p> <p>Warm-up/standby sequence</p> <p>Typical operation</p> <p>Normal procedures (various modes)</p> <p>Abnormal environment procedures</p> <p>Emergency operation</p> <p>Shutdown</p> <p>Normal</p> <p>Emergency</p> <p>Operational communications</p> <p>Post-operation procedures</p> <p>Data reduction</p> <p>Operational log entry</p> <p>If there are no operation tasks associated with the system, the statement "No operation involved" will follow the heading.</p>
<p>1-7 DOCUMENTATION (Knowledge)</p> <p>Documentation (for each consider knowledge of organization, contents, use, classification, etc.)</p> <p>System manual</p> <p>One-function diagram</p> <p>Preventive maintenance management plan</p> <p>Standard maintenance procedures</p> <p>Standard operating procedures</p> <p>System level programs and procedures</p>	<p>2-2 MAINTENANCE (Skills)</p> <p>To be covered in the subsystem/equipment level tables.</p>
<p>2-1 OPERATION (Skills)</p> <p>Operational condition of external power sources</p> <p>Operational condition of external signal sources</p> <p>Operational condition of external loads (dummy or real)</p>	

TABLE 9: CHECKLIST FOR TASK/FUNCTION PPPS

Category/Topic	Category/Topic
1. KNOWLEDGE	Functional description
Task purpose	Safety
Function purpose	2. SKILLS
Abbreviations	Use of tools
Terms	Use of test equipment
Symbols	Procedure performance
Completed Task characteristics	Policy compliance
Completed Function characteristics	Security
Policies	Precaution compliance
Authorities	Safety
Data Usage	Use of documentation
Logs	Security
Records	Tools
Procedures	Test equipment
Physical description	Organization
	Content
	Regulations

TABLE 10 CHECKLIST FOR BACKGROUND PPPS

Category/Topic	Category/Topic
KNOWLEDGE	Symbology
Principles	Terminology
Rules	SKILLS
Concepts	Mental
Phenomena	Physical

ADDENDUM E

DEVELOPMENT USING

EXPANDED TRAINING OBJECTIVE STATEMENTS
(TOS)

AND CREATING THE

TABLE ASSIGNMENT CHART

COORDINATE TASK SET T0/BACKGROUND (B/G) AND TASK/FUNCTION (T/F)

- SKILL/KNOWLEDGE TOS
 - *T0/TOS Category*: Includes the background skill and knowledge which is prerequisite to the understanding of the operation and maintenance of the system, subsystem, or equipment and the task/function skill and knowledge which is not unique to the operation or maintenance of a particular system/subsystem/equipment.
 - *S - B/G Skill*: Completion of training provides the PREREQUISITE (Background), PHYSICAL, or MENTAL Skills necessary to support follow-on training in COORDINATING the operation or maintenance of a system/subsystem/or equipment, or further background training.
 - *B1 - B/G Knowledge*: Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology, and terminology which are PREREQUISITE to comprehension of a task or function.
 - *B2 - B/G Comprehension*: Completion of training provides the comprehension of principles, rules, and concepts necessary to solve given problems and situations and performance.
 - *J - T/F SKILL*: Completion of training provides the PHYSICAL AND/OR MENTAL Skills required to COORDINATE the job or task/function.
 - *Q - T/F KNOWLEDGE*: Completion of training provides the knowledge required to COORDINATE the job or task/function.

COORDINATE TASK SET - E/SS/S FAMILIARIZATION TOS

- F1 - Knowledge: Completion of training provides FAMILIARITY with the:
 - Purpose, operational concepts, location, capabilities, and limitations of a system/subsystem/equipment.
 - Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment.

- F1 Knowledge Training will provide: The coordinator with introductory information required for a basic understanding of the system/subsystem/equipment. This knowledge may be applied to general shipboard coordination duties and preparation for further training. F1 Knowledge may include, but is not limited to, familiarization with the purpose, function, and location of system/subsystem/ equipment and familiarization with supporting documentation.

COORDINATE TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- O1 - Skill - Completion of training provides the ability to coordinate operation and maintenance. The skills related to the duties of the coordinator are identified within this TOS Set as O1. These skills are primarily cognitive exercises and are implemented through the coordination of unit exercises, operations, and system level team training. During these coordination efforts, the coordinator is required to determine the effects that related subsystem and equipment operation, maintenance, or casualties may have on system operation and to ensure adherence to applicable security requirements and safety precautions.
- O1 Skill Training may include, but is not limited to, the following:
 - All applicable security requirements
 - All applicable safety precautions
 - Familiarity with normal and casualty/degraded/abnormal/not full mission capable operation and maintenance procedures
 - Use of applicable publications, data sheets, and records
 - Recognition of the effect of subsystem malfunctions on system operation

COORDINATE TASK SET - E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

- T1 - Knowledge: Completion of training provides the knowledge to coordinate operation and maintenance:
 - Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment
 - T1 Training provides the knowledge required for the coordinator to understand overall system/subsystem/equipment operation and maintenance. This knowledge will support the coordination responsibilities.
- T1 Theory may include, but is not limited to, the following:
 - Purpose, function, and location of system/subsystem/equipment/software package
 - All applicable security requirements
 - All applicable safety precautions
 - Capabilities and limitations of the system/subsystem/equipment
 - Reference data such as weights, dimensions, and nomenclature
 - Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including modes of operation, operational sequences and input and output requirements and interface without coverage of functional circuit details, or program flow diagrams
 - Normal and casualty/degraded/abnormal/not full mission capable operational procedures
 - Maintenance policy and procedures
 - Knowledge of documentation
 - System/subsystem/equipment interface definition
 - Description of the effect of subsystem malfunctions on system operation
 - Knowledge of procedural discipline

DIRECT TASK SET - T0/B/G AND T/F

- SKILL/KNOWLEDGE TOS
 - *T0/TOS Category*: Includes the background skill and knowledge which is prerequisite to the understanding of the operation and maintenance of the system, subsystem or equipment and the task/function skill and knowledge which is not unique to the operation or maintenance of a particular system/subsystem/equipment.
 - *S - B/G Skill*: Completion of training provides the PREREQUISITE (Background), PHYSICAL, or MENTAL Skills necessary to support follow-on training in DIRECTING the operation or maintenance of a system/subsystem/or equipment, or further background training.
 - *B1 - B/G Knowledge*: Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology, and terminology which are PREREQUISITE to comprehension of a task or function.
 - *B2 - B/G Comprehension*: Completion of training provides the comprehension of principles, rules, and concepts necessary to solve given problems and situations and performance.
 - *J - T/F SKILL*: Completion of training provides the PHYSICAL AND/OR MENTAL Skills required DIRECTING the job or task/function.
 - *Q - T/F KNOWLEDGE*: Completion of training provides the knowledge required to DIRECT the job or task/function.

DIRECT TASK SET - E/SS/S FAMILIARIZATION TOS

- F1 - Knowledge: Completion of training provides FAMILIARITY with the:
 - Purpose, operational concepts, location, capabilities, and limitations of a system/subsystem/equipment.
 - Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment.

- F1 Knowledge Training will provide: The supervisor with introductory information required for a basic understanding of the system/ subsystem/equipment. This knowledge may be applied to general shipboard responsibilities and preparation for further training. F1 theory will include familiarization with the purpose, function, and location of system/subsystem/equipment and supporting documentation.

DIRECT TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- 01-Skill: Completion of training provides the ability to direct normal operations.
- 01 Skill Training will provide the supervisor with the basic skills required to direct normal operation of the system/subsystem/equipment.
- 01 Skill Training may include, but is not limited to, the following:
 - Location and function of system/subsystem/equipment controls and indicators related to directing normal operation
 - All applicable security requirements
 - All applicable safety precautions
 - Familiarity with normal operating procedures
 - Use of applicable publications, data sheets, and records

DIRECT TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- 02-Skill: Completion of training provides the ability to direct:
 - Normal operations requiring advanced analysis
 - Abnormal operations (defined as casualty/degraded/not full mission capable)
- 02 Skill Training provides the ability to direct casualty, degraded, abnormal, not full mission capable, and normal operational procedures requiring advanced analysis. 02 Skill Training is supported by T2 knowledge.
- 02 Skill Training may include, but is not limited to, the following:

- Location and function of all system/subsystem/equipment controls and indicators related to casualty/degraded/abnormal/not full mission capable operation and normal operational procedures requiring advanced analysis
- All applicable security requirements
- All applicable safety precautions
- Familiarity with all casualty/degraded/abnormal/not full mission capable operation procedures and all normal operating procedures requiring advanced analysis
- Use of applicable publications, data sheets, and records

DIRECT TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- M1-Skill: Completion of training provides the ability to direct maintenance.
- M1 Skill Training provides the ability to direct all system, subsystem, and equipment maintenance tasks. M1 Skill Training is supported by T2 Knowledge Training.
- M1 Skill Training may include, but is not limited to, the following:
 - All applicable security requirements
 - All applicable safety precautions
 - Special tools, test equipment, and accessory equipment
 - Familiarity with preventive and corrective maintenance procedures
 - Applicable publications, data sheets, and records

DIRECT TASK SET - E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

- T1-Knowledge: Completion of training provides the knowledge to direct normal operations:
 - Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment.
- T1 Training is defined by the requirements of O1 skill and T2 knowledge. In supporting O1, T1 will provide the knowledge to understand all normal operational tasks. In

supporting T2, T1 will provide the basic knowledge required to understand the theory of casualty operation and maintenance.

- T1 Training may include, but is not limited to, the following:
 - Purpose, function, and location of system/subsystem/equipment/ software package
 - All safety requirements applicable to normal operation
 - All applicable security requirement
 - Capabilities and limitations
 - Reference data such as weights, dimensions, and nomenclature
 - Description of the manner in which the system/subsystem/ equipment/software package performs to the functional level, including input and output requirements and interface without coverage of logic, circuits, or program flow diagrams
 - Modes of operation and operational sequences
 - Knowledge of documentation applicable to normal operation
 - System/subsystem/equipment interface definitions

DIRECT TASK SET - E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

- T2-Knowledge: Completion of training provides the knowledge to direct:
 - Normal operations requiring advanced analysis
 - Abnormal operations (defined as casualty/degraded/not full mission capable)
 - Maintenance
- T2 Training is defined by the requirements for O2 and M1 skills. In supporting O2, T2 shall provide the knowledge required to understand casualty/degraded/abnormal/not full mission capable operational tasks and normal operational tasks requiring advanced analysis. In supporting M1, T2 shall provide the knowledge required to understand all maintenance procedures.
- T2 Training may include, but is not limited to, the following:
 - Purpose, function, and location of system/subsystem/ equipment/software package
 - All applicable security requirements

- All applicable safety precautions
- Capabilities and limitations of the system/subsystem/equipment software package
- Reference data unique to casualty operation
- Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including input and output requirements and interface without coverage of logic circuits, or individual program flow diagrams
- Casualty/degraded/abnormal/not full mission capable operation and operational sequences requiring advanced analysis
- Maintenance policy and procedures
- Detailed operational and functional sequences to the extent required to direct diagnosis of malfunctions
- Knowledge of documentation
- System/subsystem/equipment/software package interface definition
- Alignment, adjustment, and calibration procedures contained in publications, data sheets, and records

PERFORM TASK SET - T0/ B/G AND T/F

- SKILL/KNOWLEDGE TOS
 - *T0/ TOS Category:* Includes the background skill and knowledge which is prerequisite to the understanding of the operation and maintenance of the system, subsystem or equipment AND The task/function skill and knowledge which is not unique to the operation or maintenance of a particular system/subsystem /equipment.
 - *S - B/G Skill:* Completion of training provides the PREREQUISITE (Background), PHYSICAL, or MENTAL Skills necessary to support follow-on training in PERFORMING the operation or maintenance of a system/subsystem/or equipment, or further background training.
 - *B1 - B/G Knowledge:* Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology, and terminology which are PREREQUISITE to comprehension of a task or function.
 - *B2 - B/G Comprehension:* Completion of training provides the comprehension of principles, rules, and concepts necessary to solve given problems and situations and performance.

- *J - T/F SKILL:* Completion of training provides the PHYSICAL AND/OR MENTAL Skills required PERFORMING the job or task/function.
- *Q - T/F KNOWLEDGE:* Completion of training provides the knowledge required to PERFORM the job or task/function.

PERFORM TASK SET - E/SS/S FAMILIARIZATION TOS

- F1 - Knowledge: Completion of training provides FAMILIARITY with the:
 - Purpose, operational concepts, location, capabilities and limitations of a system/subsystem/equipment.
 - Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment."
- Completion of F1 Knowledge Training provides: Introductory information required for a basic understanding of the system/subsystem/equipment. This knowledge may be applied to general shipboard responsibilities and preparation for further training. F1 theory will include familiarization with the purpose, function, and location of system/ subsystem/equipment and supporting documentation.

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- O1-Skill: "Completion of training provides the skill to perform normal operations."
- Completion of O1 Skill Training provides: The ability to perform, with supervision, normal operational procedures. O1 skills are performed using step by step procedures during the normal operational modes. These skills do not require advanced analysis. O1 Training is supported by T1 Knowledge and is normally taught in the replacement training environment. O1 Training may include, but is not limited to, the following:
 - Location and function of all system/subsystem/equipment controls and indicators; including names and reference designators, control positions and indicator colors
 - Applicable security requirements
 - Applicable safety precautions
 - Power-on and shutdown procedures

- Preparation, pre-operation, operation, and post-operation
- Use of applicable publications, data sheets, and records

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- O2-Skill: Completion of training provides the skill to perform:
 - "Normal operations requiring advanced analysis"
 - "Abnormal operations (defined as casualty/degraded/not full mission capable)"
- Completion of O2 Skill Training provides: The ability to perform, with supervision, casualty/degraded/abnormal/not full mission capable operational procedures, and normal operating procedures requiring advanced analysis. Advanced analysis related to operational tasks may require the operator to use related skills and knowledge to analyze data and anticipate the subsystem and equipment reactions in different operational modes. For example, certain operational conditions not supported by documented procedures will require advanced analysis. O2 advanced analysis, in general, applies to those complex operational procedures which require additional training. O2 Training may include, but is not limited to, the following:
 - Location and function of all system/subsystem/equipment controls and indicators, including names and reference designators, control positions, and indicator colors
 - Applicable security requirements
 - Applicable safety precautions
 - Power-on and shutdown procedures
 - Preparation, pre-operation, operation, and post-operation
 - Casualty/degraded/abnormal/not full mission capable operational procedures
 - Use of applicable publications, data sheets, and records
 - Normal operational procedures requiring advanced analysis

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- P1-Skill: "Completion of training provides the skill to perform preventive maintenance"
- Completion of P1 Skill Training provides the ability to perform, with supervision, preventive maintenance procedures. P1 Training is supported by T2 knowledge. P1 Training is normally taught in the replacement training environment. P1 Training may include, but is not limited to, the following:
 - All applicable security requirements
 - All applicable safety precautions
 - Special tools, test equipment, and accessory equipment
 - Preventive maintenance procedures contained in publications, data sheets, and records
 - Pre-maintenance and post-maintenance procedures
 - Alignment, adjustment, and calibration procedures contained in publications, data sheets, and records
 - Those operational tests and procedures required to support preventive maintenance

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- C1-Skill: "Completion of training provides the skill to perform to the authorized maintenance level, systematic fault isolation procedures."
- Completion of C1 Skill Training provides the ability to perform, with supervision, basic fault isolation and repairs. Documented procedures associated with the C1 skill provide step by step procedures that do not require advanced analysis. This may include the use of functional block diagrams, built-in test equipment or test program, and automated test programs such as PM/FL, or other maintenance aids not requiring the application of knowledge of detailed logic, circuit analysis, or detailed mechanical breakdown. C1 Training is supported by T2 knowledge. C1 Training is normally taught in the replacement training environment. C1 Training may include, but is not limited to, the following:
 - Recognizing and isolating malfunctions of the system/subsystem/equipment
 - All applicable security requirements
 - All applicable safety precautions
 - Locating and replacing faulty components

- Alignment, adjustment, and calibration procedures
- Special tools, test equipment, and accessory equipment
- Use of procedures contained in applicable publications, such as data sheets, and records, such as diagnostics, fault isolation trees
- Applicable operational tests and procedures required to support documented fault isolation and repair

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- C2-Skill: "Completion of training provides the skill to perform to the authorized maintenance level:
 - "Systematic fault isolation procedures that require advanced analysis."
 - "Authorized techniques to isolate faults that cannot be isolated using procedures contained in prescribed documentation."
- Completion of C2 Skill Training provides the technician with the ability to perform, with supervision, corrective maintenance procedures that are not contained in prescribed documentation or documented procedures requiring advanced analysis. C2 advanced analysis may include documented maintenance procedures in which additional maintenance steps or diagnoses are required. C2 Training is supported by T3 knowledge. C2 Training is normally taught in the advanced training environment. This may include, but is not limited to, the following:
 - Recognizing, diagnosing, and isolating malfunctions
 - All applicable security requirements
 - All applicable safety precautions
 - Locating and replacing faulty components
 - Alignment, adjustment, and calibration procedures
 - Special tools, test equipment, and accessory equipment
 - Use of procedures contained in applicable publications, data sheets, and records
 - Replacement of piece-part components to the level of on board spares in systems/equipments whose primary maintenance policy is module or card replacement
 - Operational tests and procedures required to support un-documented faults isolation and repair and documented faults and isolation and repair requiring advanced analysis

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE SKILL TOS

- C3-Skill: Completion of training provides the skill and knowledge to perform, without supervision:
 - "Diagnosis of equipment malfunctions, fault isolation, and all repairs"
 - "This skill is acquired through on-the-job experience, and reflects a continuous learning process that is supported by the skills and knowledge taught in the formal school environment"
 - "The Training Locator Indicator Code "1" will always be used to show this skill is acquired via "operational experience," i.e., shipboard performance"

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

- T1-Knowledge: Completion of training provides the knowledge to perform normal operations: "Organization, content, and use of the technical documentation provided for use with the system/subsystem/equipment."
- T1 Knowledge Training provides the depth of knowledge required to support performance of normal operational tasks, including only that functional operation necessary to understand normal operation. T1 Knowledge Training is defined by the requirements for O1 Skill Training. In supporting T2, T1 shall provide the basic knowledge required to understand the theory of casualty operation and all maintenance. T1 knowledge is normally taught in the replacement training environment. When applied to documentation, completion of training provides the level of knowledge required to use supporting documentation. T1 Training may include, but is not limited to, the following:
 - Purpose, function, and location of system/subsystem/equipment/software package
 - All applicable security requirements
 - All applicable safety precautions
 - Capabilities and limitations
 - Reference data such as weights, dimensions, and nomenclature
 - Description of the manner in which the system/subsystem/equipment/software package performs to the functional level, including input and output requirements and interface without coverage of logic, circuits, or program flow diagrams

- Modes of operation and operational sequences
- Applicable terminology and symbology
- Normal operational tasks

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

- T2-Knowledge: Completion of training provides the knowledge to perform:
 - "Normal operations requiring advanced analysis"
 - "Abnormal operations (defined as casualty/degraded/not full mission capable)"
 - "Preventive maintenance"
 - "Basic corrective maintenance"
- Completion of T2 Knowledge Training provides the depth of knowledge required to support the performance of the O2 Skills of casualty/degraded/abnormal/not full mission capable operation tasks and normal operational tasks requiring advanced analysis. In supporting the P1 Preventive Maintenance Skills and the C1 Corrective Maintenance Skills, T2 shall provide the depth of knowledge required to support the performance of all routine preventive maintenance and documented fault isolation and repair. T2 Training is defined by the requirements for O2, P1, and C1 Skills and T3 knowledge. In supporting T3, T2 shall provide the basic knowledge required to understand the theory of that corrective maintenance which is undocumented or requires advanced analysis. T2 Knowledge is normally taught in the replacement training environment. T2 Training may include, but is not limited to, the following:
 - Purpose, function, and location of the major subdivisions of the system/subsystem/equipment/software package
 - Applicable security requirements
 - Applicable safety precautions
 - Description of the manner in which the function of each major subdivision within the system/subsystem/equipment/software package is accomplished, including data flow and interfaces without coverage of detailed logic, circuit analysis, or individual program flow diagrams
 - Mechanical, electrical, and electronic characteristics of the major subdivision of the system/subsystem/equipment or program concepts of the software concepts

- Modes of operation and operational sequences, including time or phase relationships
- Procedures for casualty/degraded/abnormal/not full mission capable operation and normal operation requiring advanced analysis
- System/subsystem/equipment interface definition.
- Preventive and corrective maintenance policy and procedures
- Procedures for the use of built-in test equipment
- Procedures for the use of automated test programs and Performance Monitoring/Fault Localization (PM/FL)
- Applicable terminology and symbology
- Alignment, adjustment, and calibration procedures contained in publications, data sheets, and records

PERFORM TASK SET - E/SS/S OPERATION/MAINTENANCE KNOWLEDGE TOS

- T3-Knowledge: "Completion of training provides the knowledge to perform advanced corrective maintenance"
- Completion of T3 Knowledge Training provides the knowledge to support performance of undocumented fault isolation and repair and that documented fault isolation and repair requiring advanced analysis. T3 Training is defined by the requirements for C2 Skill. To identify and determine required T3 Knowledge, the developer must always analyze the maintenance function. For example, adjustment of a power supply may be classified as C2 Corrective Maintenance due to a requirement for advanced analysis; therefore, the knowledge supporting that maintenance will be classified as T3 even though it may describe input/out signals and potentiometer adjustments. T3 Knowledge is normally taught in the advanced training environment. The T3 Training may include, but is not limited to, the following:
 - Purpose, function, and identification of logic elements, circuits, or programs
 - All applicable security requirements
 - All applicable safety precautions
 - Description of the manner in which the function of each block of logic, group of circuits, or program segment is accomplished, including individual logic elements, circuits of program steps, as applicable. T3 Theory shall not cover signal, electron flow, or computer instructions, except for those logic elements or circuits unique to the equipment or program whose understanding is essential to support of maintenance

beyond automated test programs such as PM/FL (that is, those circuits not covered at the background theory level)

- Mechanical, electrical, and electronic characteristics of the logic elements or circuits
- Detailed operational and functional sequences, utilizing applicable documentation to the extent that malfunctions can be diagnosed
- Maintenance policy and procedures, including emergency provisions
- All applicable terminology and symbology
- Authorized alignment, adjustment, and calibration procedures

HOW TO CREATE A TABLE ASSIGNMENT CHART

- The Optional Table Assignment Chart (TAC) results when related courses are displayed in graph form with:
 - their course titles
 - course identification numbers
 - the related PPP Table Titles/Numbers
 - the appropriate TOS Codes
 - sequenced in the order taken
- A TAC is a horizontally arranged block diagram:
 - A series of blocks, or vertical solid or dashed lines, (command/developer preference) divide the TAC into different training areas ("background," "replacement/conversion," "advanced," "onboard," etc.) from one another
 - Blocks, each representing a separate course, are placed within the appropriate training areas in the same sequence as the courses are taken
 - PPP tables covered by the course are listed within the blocks in alpha/numeric order, reading top-to-bottom, left-to-right
 - CIN and course title are written above the block
 - When several courses are interrelated and require a sequence of instruction, the blocks are arranged vertically to indicate sequence, reading top to bottom, and left-to-right
 - When more than one block/course is shown they are also connected by a single line

- When a training area requires more than a single, vertical column of blocks, a second vertical column is started to the right of the first column (a line connects the first column bottom box with the second column top box)
- A PPP Table Index lists the titles of those PPP numbers which have been placed within the blocks:
 - The PPP Table Index is placed on the TAC
 - When the list is extensive, the PPP Table Index may be placed on a separate page
- Conversion training implies training is available in another training path. To show this training, draw a line to enter the TPC at the appropriate block/course, and label the line with the number of that Training Path

APPENDIX F

TRAINING OBJECTIVE STATEMENT

QUICK REFERENCE GUIDE

TOS LEVEL

NON-HARDWARE

BACKGROUND

KNOWLEDGE

B-1: Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology, and terminology which are PREREQUISITE to comprehension.

B-2: Completion of training provides the comprehension of principles, rules and concepts necessary to solve given problems and situations.

SKILL

S: Completion of training provides the PREREQUISITE PHYSICAL or MENTAL Skills necessary to support follow-on training in PERFORMING the operation or maintenance of a system, subsystem, equipment, or further background training.

TASK/FUNCTION

KNOWLEDGE

Q: Completion of training provides the knowledge required to PERFORM the job or task/function.

SKILL

J: Completion of training provides the PHYSICAL and/or MENTAL Skills required PERFORMING the job or function.

HARDWARE

BACKGROUND

KNOWLEDGE

F-1: Completion of training provides familiarity with:

- Purpose, operational concepts, location, capabilities, and limitations of a system, subsystem, equipment

- Organization, content, and use of the technical documentation provided for use with the system, subsystem, equipment.

T-1: Completion of training provides the knowledge to support the performance of normal operations.

T-2: Completion of training provides the knowledge to support the performance of:

- casualty, degraded, not full mission capable operations
- preventive maintenance
- basic corrective maintenance

T-3: Completion of training provides the knowledge to support the performance of undocumented corrective maintenance.

SKILL

O-1: Completion of training provides the skill to perform normal operations with supervision.

O-2: Completion of training provides the skill to perform casualty, de-graded and not full mission capable modes of operation with supervision.

P-1: Completion of training provides the skill to perform preventive maintenance with supervision.

C-1: Completion of training provides the skill to perform documented fault isolation and repair, to the authorized maintenance level, using systematic fault isolation procedures with supervision.

C-2: Completion of training provides the skill to perform undocumented fault isolation and repair, to the authorized maintenance level with supervision.

Background

B1-----None

B2-----S

Task/Function

Q -----J

Hardware

F1-----None

T1-----O1

T2-----O2, P1, C1

T3-----C2