



DEPARTMENT OF THE NAVY
COMMANDER
NAVAL EDUCATION AND TRAINING COMMAND
250 DALLAS STREET
PENSACOLA, FLORIDA 32508-5220

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LETTER OF PROMULGATION FOR NAVEDTRA 138

1. This Naval Education and Training (NAVEDTRA), Naval Education and Training Command-Front End Analysis (NETC-FEA) Management manual, is provided to establish NETC-FEA standardization throughout the Naval Education and Training Command (NETC).
2. The information and guidance in this manual is intended for Learning Centers under NETC cognizance. It outlines the NETC requirement for all training activities to conduct quality NETC-FEAs. A quality NETC-FEA will ensure that a course provided to trainees meets the requirements to achieve the minimum level of knowledge and skills necessary to perform the job for which they are being trained.
3. This manual is available electronically at Navy Knowledge Online (NKO) on NETC N75's Homepage.
4. Corrections and comments concerning this manual are invited and should be addressed to NETC, attention: N7.
5. Reviewed and approved.



D. P. QUINN



Naval Education and
Training Command

NAVEDTRA 138
October 2012

NAVAL EDUCATION AND TRAINING COMMAND- FRONT END ANALYSIS MANAGEMENT MANUAL



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NOTICE TO ONLINE USERS OF THIS MATERIAL

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Only printed pages are contained online.

FOREWORD

NAVEDTRA SERIES MANUALS:

The following is a listing of the current NAVEDTRA series of manuals:

- NAVEDTRA 130: Task Based Curriculum Development Manual
- NAVEDTRA 131: Personnel Performance Profile Based Curriculum Development Manual
- NAVEDTRA 132: Navy School House Testing Management Manual
- NAVEDTRA 133: Navy Human Performance Requirements Review Management Manual
- NAVEDTRA 134: Navy Instructor Manual
- NAVEDTRA 135: Navy School Management Manual
- NAVEDTRA 136: Naval Education and Training Command Integrated Learning Environment Course Development and Life-cycle Maintenance Manual
- NAVEDTRA 137: Job Duty Task Analysis Management Manual
- NAVEDTRA 138: Front End Analysis Management Manual

The NAVEDTRA series of manuals provide fundamental direction, within the Naval Education and Training Command (NETC), 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 these 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.

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

SCOPE:

NAVEDTRA 138 (series): The purpose of the NETC-Front End Analysis (NETC-FEA) Management Manual is to establish a repeatable, defensible, and standardized process that will identify a training requirement gap, appropriate media types, and media delivery modes to satisfy new training requirements or improve performance of existing training.

NOTE

Acquisition communities perform Front End Analyses (FEAs) as delineated in OPNAVINST 1500.76 (series) during the development of a Navy Training Systems Plan (NTSP) to satisfy Navy and Marine Corps Acquisition Category Programs. FEAs performed to support acquisition programs are acceptable for use to support associated NETC training requirements.

This manual is referenced by NETCINST 1500.6 (series) and standardizes the NETC-FEA process as an integral part of the NETC End-to-End process, to systematically determine the best methodology to develop and deliver training content.

The NETC-FEA uses Job Duty Task Analysis (JDTA) data elements and supporting preliminary learning objectives to provide relevant and thoroughly analyzed data elements used as inputs during the Business Case Analysis (BCA) process. JDTA, FEA, and BCA data element alignment will enable Requirement Sponsors to make sound training decisions within budgetary and other constraints.

Terms used in the manual are defined in the glossary.

CONTRACTUAL USE OF THIS MANUAL: Throughout NAVEDTRA 138, examples are provided to illustrate and clarify the points being discussed. It is important to note in the case of an item identified as an "example," this item is not intended to be copied exactly in all situations, but rather provided to help clarify the information being discussed. The content for items shown as examples are representative and may be tailored by the user for specific situations.

Within this manual, the following terms are used to mean the following:

Term:	Meaning:
shall, must	This action/behavior/construct is required by the guidelines.
will	Refers to an action to be done by the Navy (i.e., Curriculum Control Authority (CCA)), or more general descriptive wording in examples, rather than a requirement under the guidelines.
may, should	This action/behavior/construct is allowed (i.e., permitted), but not required.
can	Refers to the inherent behavior of software and/or computer languages, rather than to an issue of permission or allowance under the guidelines.
shall not, must not, may not	This action/behavior/construct is prohibited by the guidelines.

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CHAPTER 1

NAVAL EDUCATION AND TRAINING COMMAND-FRONT END ANALYSIS (FEA) PROCESS OVERVIEW

SECTION 1 - INTRODUCTION

The purpose of the Naval Education and Training Command-Front End Analysis (NETC-FEA) Management Manual is to establish a standardized process to identify training requirement gaps; determine media types and media delivery mode recommendations to close the training gaps. The NETC-FEA is an integral part of the Course Development and Revision Process (End-to-End (E2E)) (Figures 1A and 1B). The E2E illustrates the programmatic governance for content development and revision within the NETC domain. The FEA formal report with recommendation(s) and alternative courses of action (COA) will support the BCA process in accordance with NETCINST 1510.3 (series).

NOTE

FEA processes and policy supporting Acquisition Category (ACAT) programs are referenced within OPNAVINST 1500.76 (series), Navy Training System Requirements, Acquisition, and Management.

NOTE

To view Figures 1 and 2, zoom to 200 percent or more, or select page(s) and print selection for improved viewing capability.

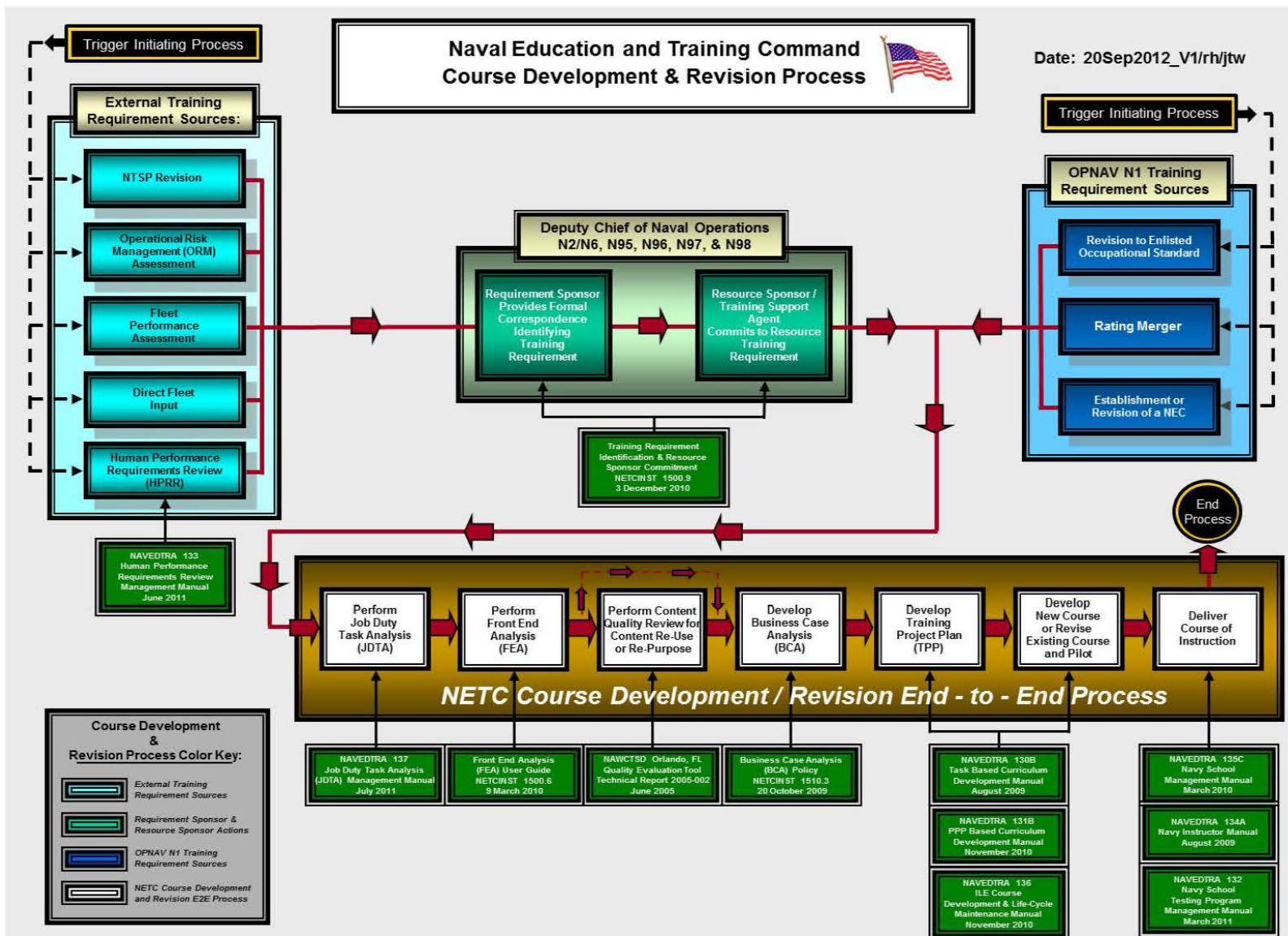


FIGURE 1A: NAVAL EDUCATION AND TRAINING COMMAND COURSE DEVELOPMENT AND REVISION PROCESS (END-TO-END) 1 OF 2

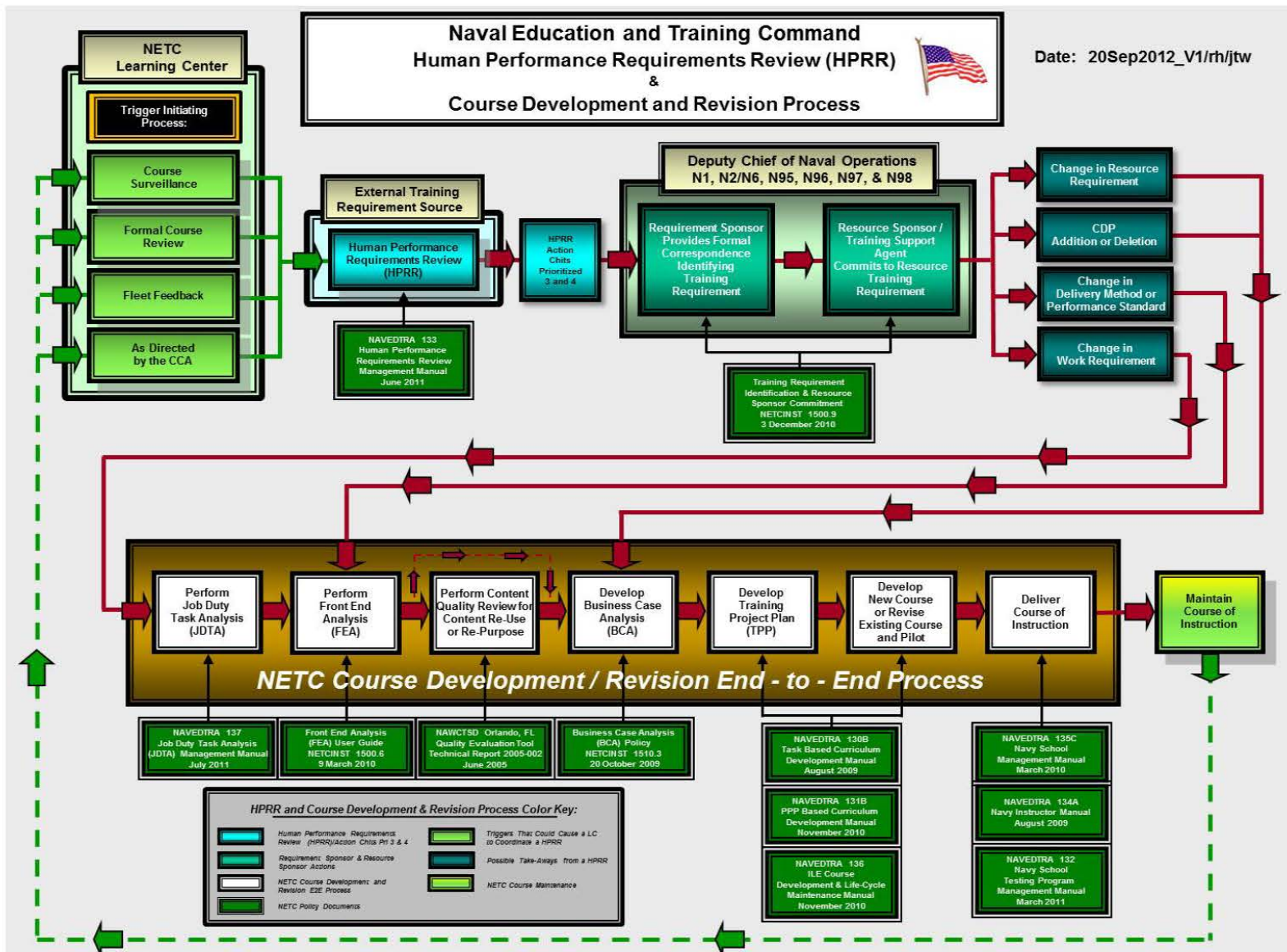


FIGURE 1B: NAVAL EDUCATION AND TRAINING COMMAND COURSE DEVELOPMENT AND REVISION PROCESS (END-TO-END) 2 OF 2

SECTION 2 - NETC-FEA PROCESS

The FEA process is typically performed after a Job Duty Task Analysis (JDTA) has been conducted. The JDTA process begins when a trigger event occurs (described in Chapter 2). The NETC-FEA process analyzes each learning objective (LO), along with the conditions, standards, skills, and knowledge requirements to determine if a training gap exists. The NETC-FEA will result in media type and media delivery mode solution recommendations based on the options identified and defined in NAVEDTRA 135, Chapter 4, Curriculum Management, Table 4-1-1, Training Delivery Method codes.

Although the scope and magnitude of NETC-FEAs may vary, completion of the following steps is required to satisfy the NETC-FEA process:

- Document the reason for conducting a NETC-FEA.
- Document the "AS-IS" training requirements or comparative baseline course.
- Document "TO-BE" training requirements.
- Compare existing "AS-IS" training requirements with "TO-BE" training requirements.
- Search existing course(s) to determine if there is any curriculum material for reuse, repurpose, and reference (R3).
- Determine the "TO-BE" training requirement media type and media deliver mode that will achieve the identified performance outcome.
- Provide recommendations and solutions to close the training gap.
- Prepare and finalize NETC-FEA document.
- Curriculum Control Authority (CCA) approves NETC-FEA and forwards NETC-FEA documentation and NETC-FEA final approval notification letter to NETC N7 for review of compliance with NAVEDTRA series guidance.

Chapters 2 through 10 provide the guidelines for the nine steps of the NETC-FEA. The NETC-FEA process is depicted in NETC-FEA Process diagram steps 1 through 5 (Figure 2A) and NETC-FEA Process diagram steps 6 through 9 (Figure 2B).

NETC-FRONT END ANALYSIS PROCESS STEPS 1 - 5

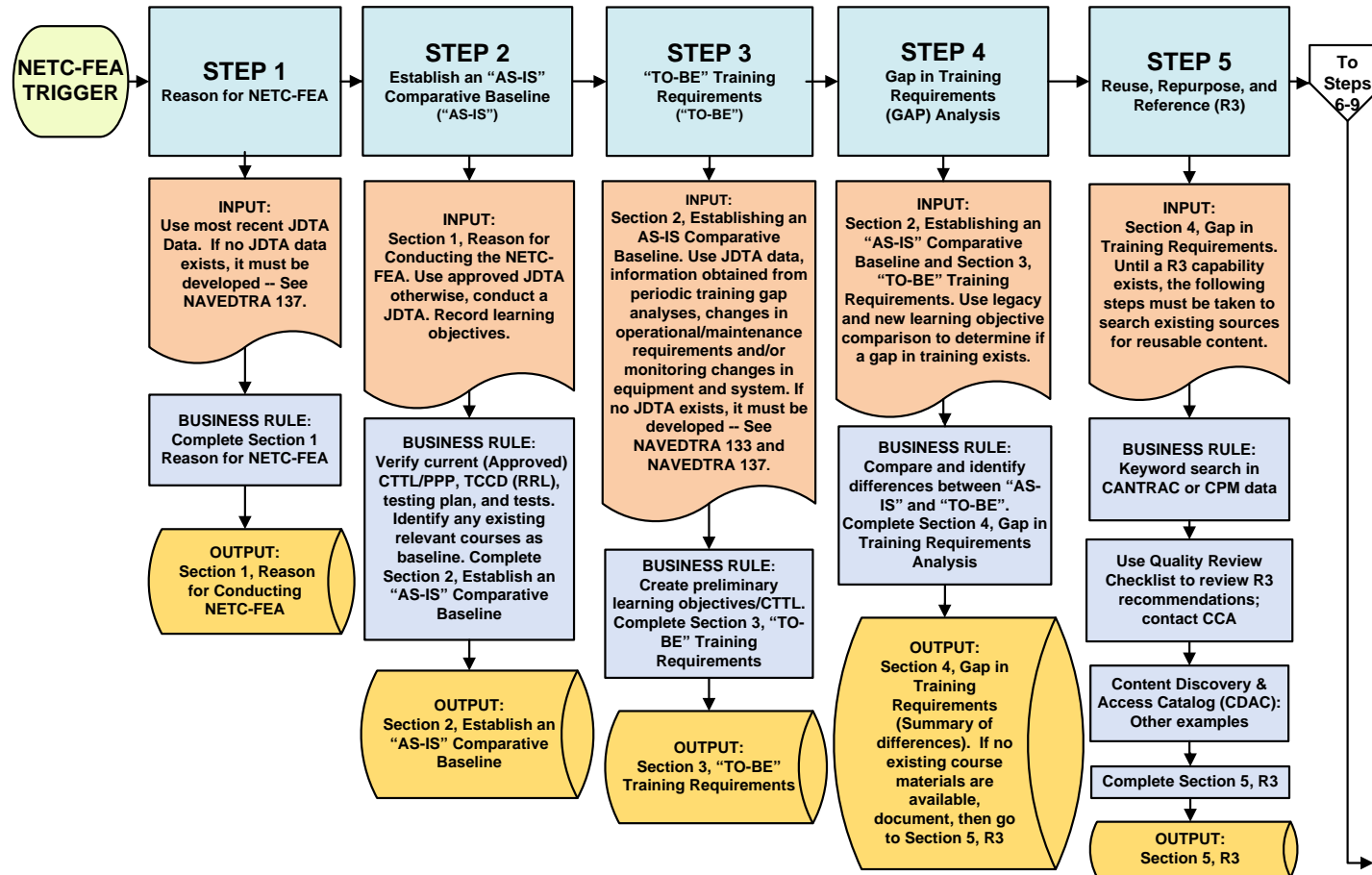


FIGURE 2A: NETC-FRONT END ANALYSIS PROCESS STEPS 1 THROUGH 5

NETC-FRONT END ANALYSIS PROCESS STEPS 6 - 9

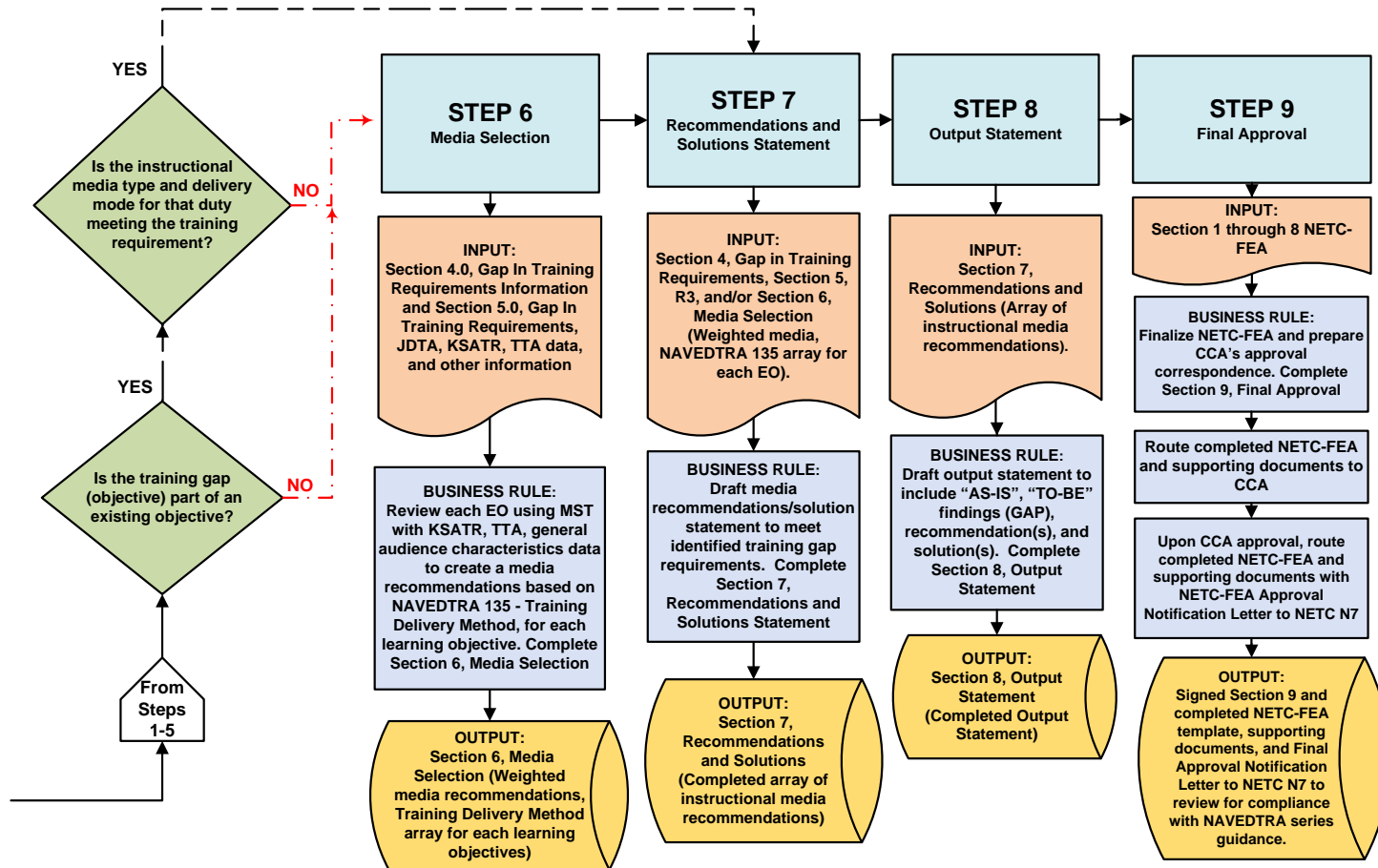


FIGURE 2B: NETC-FRONT END ANALYSIS PROCESS STEPS 6 THROUGH 9

SECTION 3 - PROGRAM PARTICIPANTS

In addition to the roles and responsibilities listed in OPNAVINST 1500.76 and NAVEDTRA series, the following apply:

NETC:

- **Commander, NETC:**
 - Establishes policies, procedures, and techniques for the establishment and operation of assigned education and training programs.
 - Provides policy and guidance for the Course Development and Revision process (E2E).

- **Director, Learning and Development Division (N7):**
 - Standardizes curriculum development, revision, maintenance, and evaluation processes through Navy Training Systems Plans (NTSP), technical training equipment (TTE), training devices (TD), and training project plans (TPPs) coordinating work with NETC Division Directors and Special Assistants (DD/SAs), Enterprise, Type Commander (TYCOM), and program sponsors.
 - Oversees the execution and management of the course development and revision process (NETC E2E process).
 - Provides oversight of the policy and guidance for E2E process.
 - Monitors Learning Centers (LCs) and Learning Sites (LSs) compliance with NETC-FEA process.
 - Reviews NETC-FEA recommendations.

- **Production Requirements Management Branch (N72):**
 - Assists other NETC and LC personnel on Instructional Technology and Delivery, identifying the best delivery method for instruction relative to target learning groups, environment, training constraints, and available resources.
 - Serves as NETC program manager for OPNAV training system acquisition policy, allocation, placement, utilization, life-cycle support, configuration control, modernization, and quality assurance.
 - Provides oversight and management of Depot Level Repairables (DLR), Contractor Operation and Maintenance

Services (COMS), TTE/TD overhaul, and repair program funding.

- Ensures sufficient data is present to perform the NETC Business Case Analysis (BCA) as part of the E2E process.

- **Learning Standards Branch (N74):**

- Provides JDTA/Content Planning Module (CPM)/LO subject matter experts (SME) support during NETC-FEA process.
- Provides governance and oversight in performing JDTA.
- Coordinates the development and standardization processes and products using the Authoring Instructional Materials (AIM)/CPM toolsets.

- **Training Systems Integration Branch Head (N75):**

- Supports OPNAV Acquisition Leads (N1, N2/N6, N4, N8, and N9), United States Fleet Forces (USFF), NETC LCs, and TYCOM/Enterprises to identify future training requirements.
- Provides policy and guidance to LCs and new program and/or acquisition program offices to ensure an accurate FEA supporting training requirements gaps, associated LOs, and instructional media/media delivery interventions, for new and revised NETC formal training requirements.
- Ensures NETC-FEA process policy and guidance are current.
- Ensures NETC LCs, Ls, detachments, and participating activities comply with NETC-FEA process policy and guidance.
- Provides assistance/expertise as necessary to conduct NETC-FEAs in accordance with NETC policy.

NETC LC:

- **Commanding Officer (CO):**

- Serves as CCA unless otherwise designated (authority may be delegated to another training manager).
- Initiates NETC-FEA to be performed as required.
- Approves preliminary NETC-FEA results.
- Forwards preliminary approved NETC-FEA and supporting documents to NETC N7.

NOTE

Refer to NAVEDTRA 135 for additional CCA responsibilities. The CCA is the approval authority for instructional materials. This is typically a LC function (for the purpose of this manual, the term LC is defined as any command functioning as a CCA, but may also be assigned to training activities that develop and deliver their own curriculum to satisfy stakeholder requirements).

- **Learning Standards Officer (LSO), Instructional Systems Specialist (ISS), or Training Specialist (TS):**
 - Acts as NETC-FEA project manager.
 - Ensures NETC-FEA is conducted according to NETC-FEA guidance.

- **Project Team:**
 - Team with a recommended composition consisting of:
 - NETC-FEA project manager, LSO, ISS, and/or TS.
 - Course Curriculum Model Manager or course supervisor.
 - SME.
 - Composition of the team is determined by the cognizant LC.
 - LCs may assign project team members that will serve in multiple capacities throughout the NETC-FEA project. LSO/ISS skills will provide continuity and expertise in areas of standards and compliance with NAVEDTRA series guidance.
 - Members share responsibility for completing each of the required steps of the NETC-FEA process and are essential elements for continuity from start to project completion.
 - Obtains necessary documentation to support the NETC-FEA.
 - Monitors JDTA or Human Performance Requirements Review (HPRR) for NETC-FEA triggers.

- **Project Manager:**
 - Recommend project manager be LSO, ISS, or training specialist.

- Is responsible for the overall planning, coordination, and execution oversight for a NETC-FEA project.
- Shall request SMEs. The project manager may need to contact outside activities to provide needed SMEs.

Stakeholders:

- Members of organizations who have a significant interest in the training outcome, and are responsible for identifying, validating, and resourcing Fleet training requirements.
- Include, but not limited to:
 - Requirement Sponsor(s)
 - Resource Sponsor(s)
 - Technical Warrant Holder(s)
 - Warfare Sponsor(s)
 - Enlisted Community Manager(s) (ECMs)
 - SMEs
- Roles in the NETC-FEA process include, but are not limited to, providing SMEs as required.

SECTION 4 - APPLICABLE DOCUMENTS

The documents listed here are the primary resources used by NETC-FEA project managers and developers in the NETC-FEA process. NETC-FEA project requirements and resource sponsors may require additional documents as required.

1. DODI 1322.26, *Development, Management, and Delivery of Distributed Learning*
2. MIL-HDBK-29612 (series)
 - A. 1A, *Guidance for Acquisition of Training Data Products and Services (Part 1 of 5 parts)*
 - B. 2A, *Instructional Systems Development/Systems Approach to Training and Education (Part 2 of 5 parts)*
 - C. 3A, *Development of Interactive Multimedia Instruction (IMI) (Part 3 of 5 parts)*
 - D. 4A, *Glossary for Training (Part 4 of 5 parts)*
 - E. 5, *Advanced Distributed Learning (ADL) Products and Systems (Part 5 of 5 parts)*

3. NAVAIRWARCENTRASYSINST 3910.4D, *Preparation of Training System Functional Description*
4. Naval Education and Training Command (NETC) *Guide to Copyright Law*. Naval Education and Training Command, Office of General Counsel, 20 October 2009
5. NAVEDTRA 130, *Task Based Curriculum Development Manual*
6. NAVEDTRA 131, *Personnel Performance Profile Based Curriculum Development Manual*
7. NAVEDTRA 132, *Navy School Testing Program Management Manual*
8. NAVEDTRA 133, *Human Performance Requirements Review Management Manual*
9. NAVEDTRA 135, *Navy School Management Manual*
10. NAVEDTRA 136, *Naval Education and Training Command Integrated Learning Environment Course Development and Life-cycle Maintenance Manual*
11. NAVEDTRA 137, *Job Duty Task Analysis Management Manual*
12. NETCINST 1500.6, *Naval Education and Training Command Front End Analysis (NETC-FEA)*
13. NETCINST 1500.9, *Training Requirement Identification and Resource Sponsor Commitment*
14. NETCINST 1510.3, *Business Case Analysis Policy*
15. OPNAVINST 1500.76, *Navy Training System Requirements, Acquisition, and Management*
16. Technical Report 2005-002, *Quality Evaluation Tool*, Naval Air Warfare Center Training Systems Division (NAWCTSD)

SECTION 5 - SUMMARY

This chapter has provided a high-level overview of the contents of this document, which collectively comprise the elements necessary to manage and conduct the NETC-FEA Process.

CHAPTER 2

REASON FOR CONDUCTING NETC-FEA

(STEP 1)

SECTION 1 - INTRODUCTION

Step 1 of the Naval Education and Training Command-Front End Analysis (NETC-FEA) process (Figure 3) documents the reason for conducting a NETC-FEA. The reason for conducting the NETC-FEA may be the result of a new requirement, system change, or Human Performance Requirements Review (HPRR) action. This information is identified and documented as the basis for the FEA in Section 1. This information defines the scope of the project under consideration.

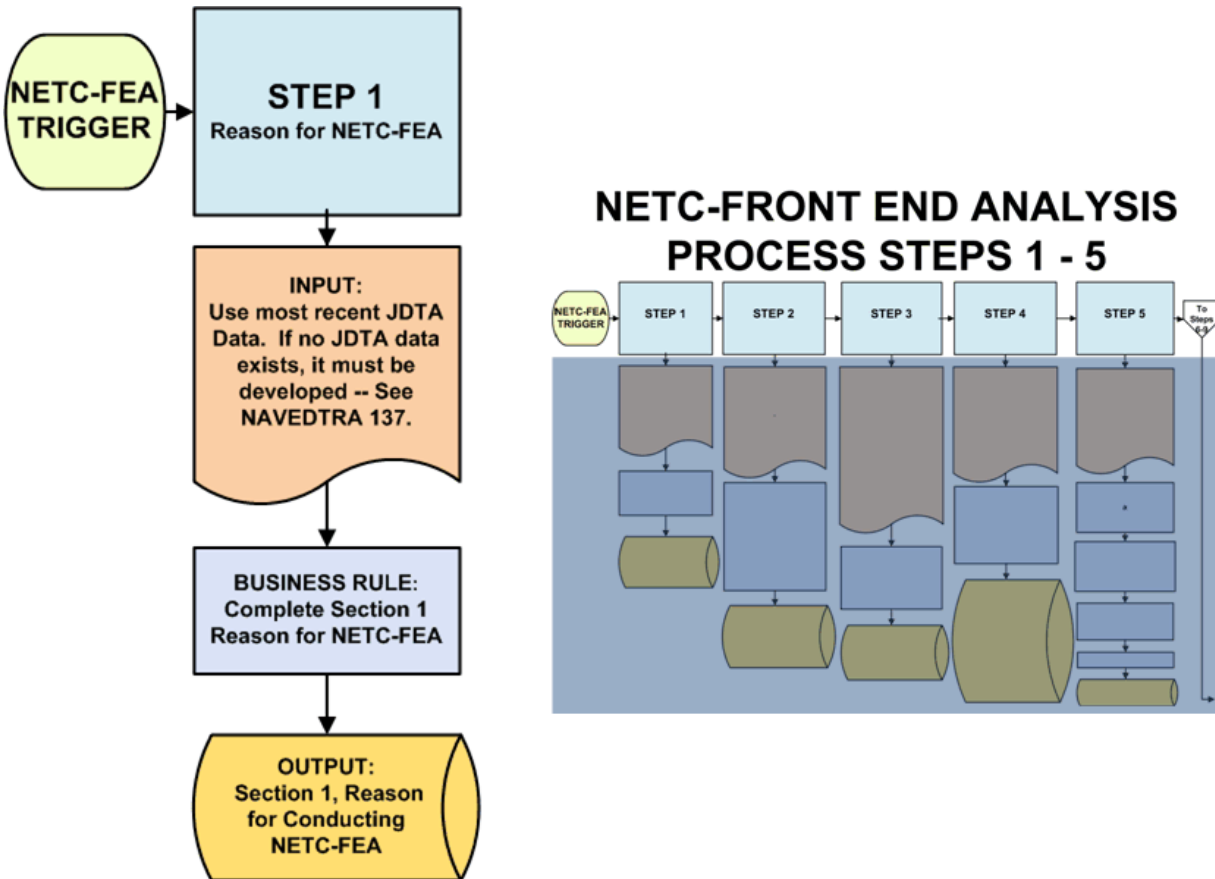


FIGURE 3: STEP 1, REASON FOR CONDUCTING THE NETC-FEA

SECTION 2 - REASON FOR CONDUCTING THE NETC-FEA: INPUTS AND OUTPUTS

The Input, Output, and Tools table (Table 1) contains the most common sources of information, required output, and tools. Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 1 occur during Step 1.

TABLE 1: STEP 1, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 1
Trigger event and supporting artifacts documenting the reason for conducting the NETC-FEA. Identity of project team members. JDTA data.
OUTPUTS FROM NETC-FEA STEP 1
Section 1.0, Reason for Conducting the NETC-FEA. See the NETC-FEA (Appendix A).
TOOLS THAT SUPPORT NETC-FEA STEP 1
Content Planning Module (CPM), JDTA data

SECTION 3 - DOCUMENTING THE REASON FOR CONDUCTING THE NETC-FEA

Several events can trigger a NETC-FEA and provide data that will be used for documenting the reason for conducting the NETC-FEA. Examples of artifacts from the trigger event may include:

- Direction from higher authority.
- HPRR action chits requiring additional training, etc.
- JDTA output with validated training requirements approved by requirement/resource sponsor(s).
- Signed Training Requirement Identification and Resource Sponsor Commitment, NETCINST 1500.9.

The process for conducting Step 1 of the NETC-FEA is depicted in Figure 4.

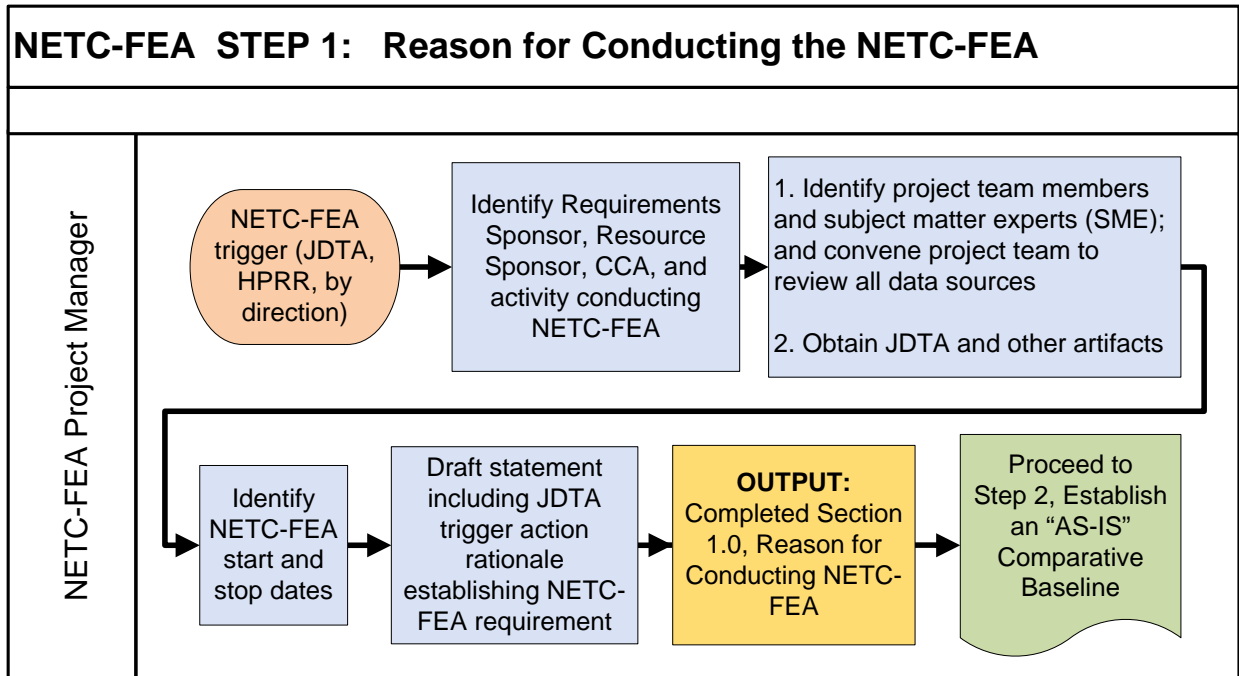


FIGURE 4: REASON FOR CONDUCTING THE NETC-FEA

The NETC-FEA template (Appendix A) will be used as a tool to document each step of the NETC-FEA process. Section 1.0 of the NETC-FEA must include the following:

- Requirement sponsor(s)
- Resource sponsor(s)
- CCA
- Activity conducting NETC-FEA/project team members
- Planned NETC-FEA start and stop dates
- Trigger initiating the NETC-FEA project

NOTE

Both the requirements sponsor and the resource sponsor will be recorded in the validated JDTA artifacts within the signed Training Requirement Identification and Resource Sponsor Commitment, NETCINST 1500.9.

Using inputs from the higher authority direction, HPRR, or JDTA complete Section 1.0, Reason for Conducting NETC-FEA (Appendix A). An example of a completed Section 1.0 of the NETC-FEA is shown in Figure 5. When Section 1.0 is complete, proceed to Step 2, "AS-IS" process, described in Chapter 3.

1.0	NETC-FRONT END ANALYSIS REASON FOR CONDUCTING THE NETC-FEA	
1.1	<u>Requirements Sponsor:</u> <i>OPNAV</i>	<u>Resource Sponsor:</u> <i>NETC</i> <u>Name:</u> <i>NETC</i> <u>Rank/Title:</u> <i>NETC</i> <i>N7</i> <u>Phone:</u> <i>(XXX) XXX-XXXX</i> <u>Email:</u> <i>XXXXXX@navy.mil</i>
1.2	<u>Curriculum Control Authority:</u> <i>Center for Surface Combat Systems (CSCS)</i> <u>Learning Center:</u> <i>Center for Surface Combat Systems (CSCS)</i>	
1.3	<u>Activity Conducting NETC-FEA/Project Team Members:</u> Center for Surface Combat Systems (CSCS) (<i>CCMM: LSO, ISS, SME, course supervisor, others as needed</i>)	
1.4	<u>NETC-FEA Start Date (MM/DD/YY):</u> <i>10/11/11</i>	
1.5	<u>NETC-FEA End Date (MM/DD/YY):</u> <i>01/13/13</i>	
1.6	<u>Reason for conducting NETC-FEA:</u> Is NETC-FEA for a new or revised course? <input type="checkbox"/> <input type="checkbox"/> New Revised (check appropriate box) <u>Description of the NETC-FEA:</u> The reason for this NETC-FEA is identifying training gaps in ELECTRONICS TECHNICIAN (ET) 'A' SCHOOL A-100-0149 and associated interventions. Electronics Technician Organizational Level Technician occupational standards (OCCSTDS) impacting ELECTRONICS TECHNICIAN (ET) 'A' SCHOOL have been updated to include common job tasks and formal training requirements supporting the General Purpose Electronic Test Equipment (GPETE). Upon review, common job tasks and formal training requirements supporting the operation of GPETE for a minimum of 14 additional ratings, (e.g., ET, IC, FC, GM, STG, MN, GSE, EM, AS, AT, AE, AO, CTM, CTT, MT, and STS) were identified. This content will specifically support duties and tasks associated with GPETE formal training task requirements.	

FIGURE 5: COMPLETED SECTION 1.0, REASON FOR CONDUCTING THE NETC-FEA

SECTION 4 - SUMMARY

Data from Section 1.0, Reason for Conducting NETC-FEA, will be used to establish NETC-FEA project parameters and to identify requirements sponsor, resource sponsor, activity conducting the NETC-FEA, project team members, and approval authorities. The products of Step 1 and approval authority are identified in Table 2.

TABLE 2: STEP 1, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 1.0, Reason for Conducting the NETC-FEA	Project Team

CHAPTER 3

ESTABLISH AN "AS-IS" COMPARATIVE BASELINE

(STEP 2)

SECTION 1 - INTRODUCTION

Step 2 of the Naval Education and Training Command-Front End Analysis (NETC-FEA) process determines the "AS-IS" baseline (Figure 6) of what exists today. The requirements for the training are determined using information from the approved Job Duty Task Analysis (JDTA) data, Formal Course Review (FCRs), Course Training Task List (CTTL)/Personal Performance Profile (PPP) table, and Training Course Control Document (TCCD).

NOTE

Content from existing NETC-FEA data may be used in the development of a new NETC-FEA. However, only the NETC Learning Center (LC) that created the NETC-FEA may revise an existing NETC-FEA.

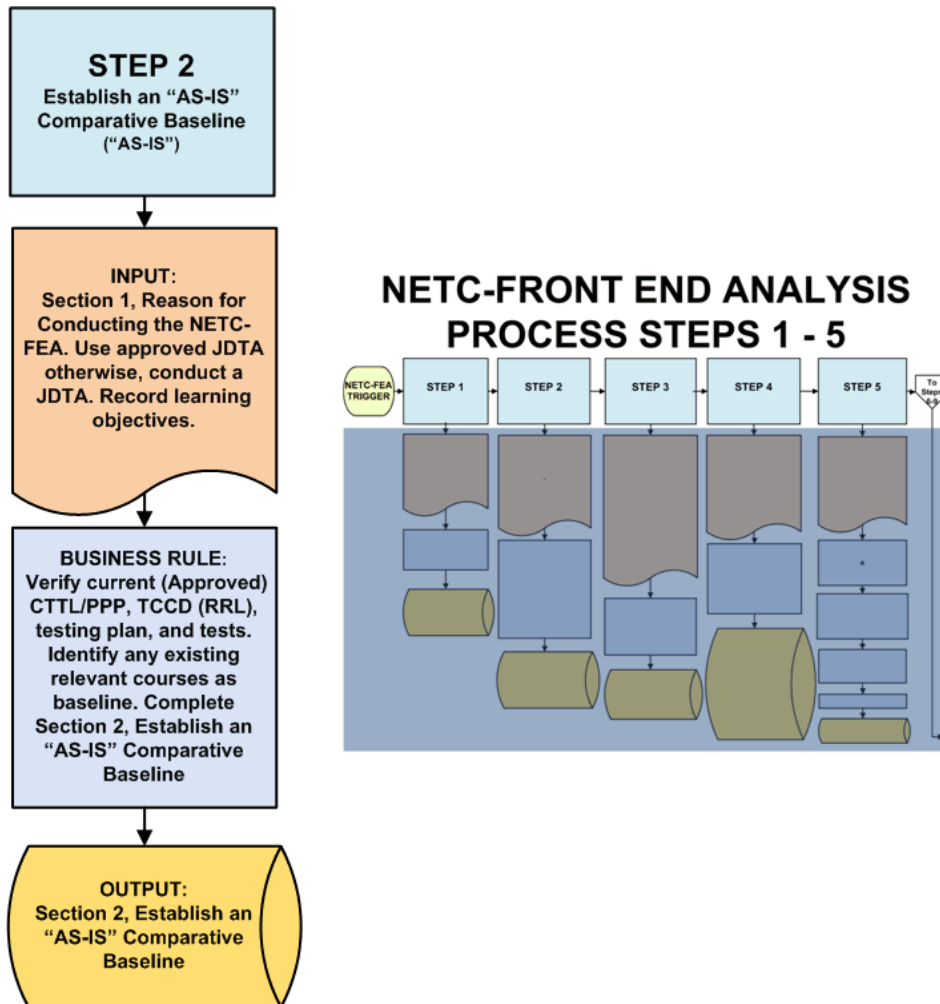


FIGURE 6: STEP 2, ESTABLISH AN "AS-IS" COMPARATIVE BASELINE

SECTION 2 - ESTABLISH AN "AS-IS" COMPARATIVE BASELINE: INPUTS AND OUTPUTS

Below is an example of an Inputs, Outputs, and Tools table:

TABLE 3: STEP 2, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 2
Section 1.0, NETC-FEA, approved JDTA, FCR, CTTL/PPP table, and TCCD information to be used as baseline.
OUTPUTS FROM NETC-FEA STEP 2
Section 2.0, "Establish an "AS-IS" Comparative Baseline". See the NETC-FEA (Appendix A).
TOOLS THAT SUPPORT NETC-FEA STEP 2
Content Planning Module (CPM), Authoring Instructional Materials (AIM I and II), Navy Training Systems Plan (NTSP), etc.

SECTION 3 - ESTABLISH AN "AS-IS" COMPARATIVE BASELINE

Step 2 in the NETC-FEA process identifies existing "AS-IS" training requirements. This step is necessary to Establish an "AS-IS" Comparative Baseline (Figure 7) for NETC-FEA projects.

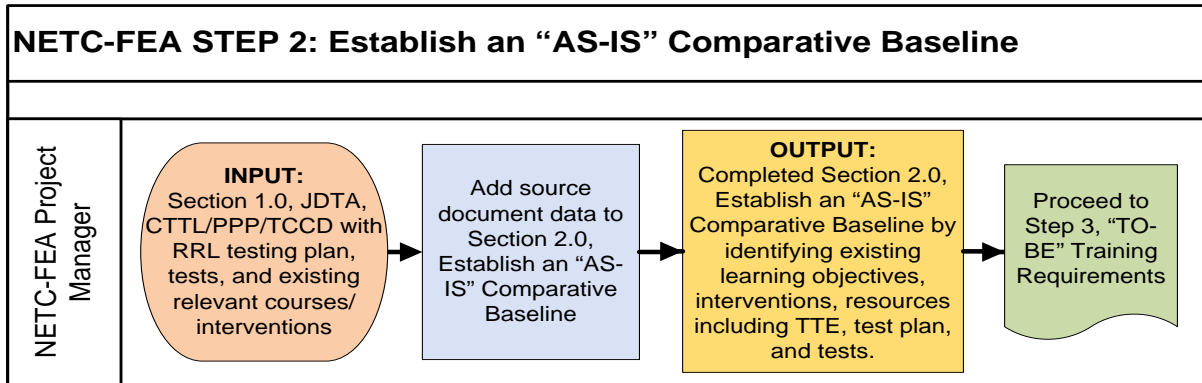


FIGURE 7: ESTABLISH AN "AS-IS" COMPARATIVE BASELINE

Step 2 consists of completing Section 2.0, Establish an "AS-IS" Comparative Baseline in the NETC-FEA. Document the "AS-IS" Comparative Baseline, listing existing JDTA, FCR, CTTL or PPP table, and TCCD data (Figure 8).

2.0	ESTABLISH AN "AS-IS" COMPARATIVE BASELINE
2.1	<p>Baseline JDTA Data</p> <ul style="list-style-type: none"> • Job: Electronics Technician Organizational • Duty: Auxiliary Equipment and Support Systems <ul style="list-style-type: none"> ○ Task: Identify function, uses, and troubleshooting techniques used with common test equipment. ○ KSATRs: Identify the knowledge, skills, abilities, tools, and references used with the common test equipment.
<p>Baseline CTTL follows:</p> <p style="text-align: center;">COURSE TRAINING TASK LIST (CTTL) ELECTRONICS TECHNICIAN (ET) 'A' SCHOOL A-100-0149</p> <p>Scope: Provides the concepts to comprehend communications principles, radar principles, and basic troubleshooting of the following systems down to the component and module levels: Basic Radar, Basic Communications System, and Plan Position Indicator. Troubleshooting concepts are taught using Built-in Test Equipment (BITE) and General Purpose Electrical and Electronic Test Equipment (GPETE).</p>	
<ul style="list-style-type: none"> • Job: Electronics Technician Organizational • Duty: Auxiliary Equipment and Support Systems <ul style="list-style-type: none"> ○ Task: IDENTIFY function, uses, and troubleshooting techniques used with common test equipment. <ul style="list-style-type: none"> ➤ TLO: IDENTIFY troubleshooting techniques used with GPETE ➤ ELO: IDENTIFY common controls of a typical analog oscilloscope. <p style="text-align: center;">Objective type: fact KPL: KPL1 SPL: N/A</p>	

- ELO: DESCRIBE procedure to set up an oscilloscope.

Objective type: procedure

KPL: KPL1

SPL: N/A

- ELO: DESCRIBE the types of measurements with an oscilloscope.

Objective type: concept

KPL: KPL1

SPL: N/A

- ELO: DEFINE the common techniques for troubleshooting with an oscilloscope.

Objective type: fact

KPL: KPL1

SPL: N/A

FIGURE 8: COMPLETED SECTION 2.0, ESTABLISH AN "AS-IS" COMPARATIVE BASELINE

If a JDTA baseline does not exist supporting a course, a JDTA must be completed and approved before moving forward with the NETC-FEA process. In Section 2 state, "Current course does not have JDTA data. JDTA will be completed before (Date). Proceed to Section 3." The new JDTA data and CTTL shall be populated in Section 3, "TO-BE" Training Requirements of the NETC-FEA.

NOTE

For NETC-FEAs that do not require a new JDTA, such as a trigger from a Human Performance Requirements Review (HPRR) that requires training performance improvements for existing curriculum, use existing JDTA data that establishes the training requirements and proceed to Step 4, "Gap in Training Requirements" analysis.

SECTION 4 - SUMMARY

The output of Step 2 in the NETC-FEA process is comprised of existing JDTA task requirements, CTTL line items or PPP tables, and TCCD that become the "AS-IS" baseline. The products of Step 2 and approval authority are identified in Table 4.

TABLE 4: STEP 2, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 2.0, Establish an "AS-IS" Comparative Baseline, including supporting documents (JDTA, approved training requirements information, FCRs, CTTL, TCCD, testing plan, and tests, etc.) (Appendix A)	Project team

CHAPTER 4

"TO-BE" TRAINING REQUIREMENTS

(STEP 3)

SECTION 1 - INTRODUCTION

"TO-BE" training requirements are determined during Step 3 of the "TO-BE" Naval Education and Training Command-Front End Analysis (NETC-FEA) Process (Figure 9). There are several ways to identify "TO-BE" training requirements. These include, but are not limited to, periodic training gap analysis, reviews of changes to operational or maintenance requirements, and monitoring of changes to equipment or systems. Regardless of how the training requirements are identified, the foundation of the new or "TO-BE" baseline is the most current, approved Job Duty Task Analysis (JDTA). New training tasks derived from new JDTA data will be used in the development of preliminary learning objectives.

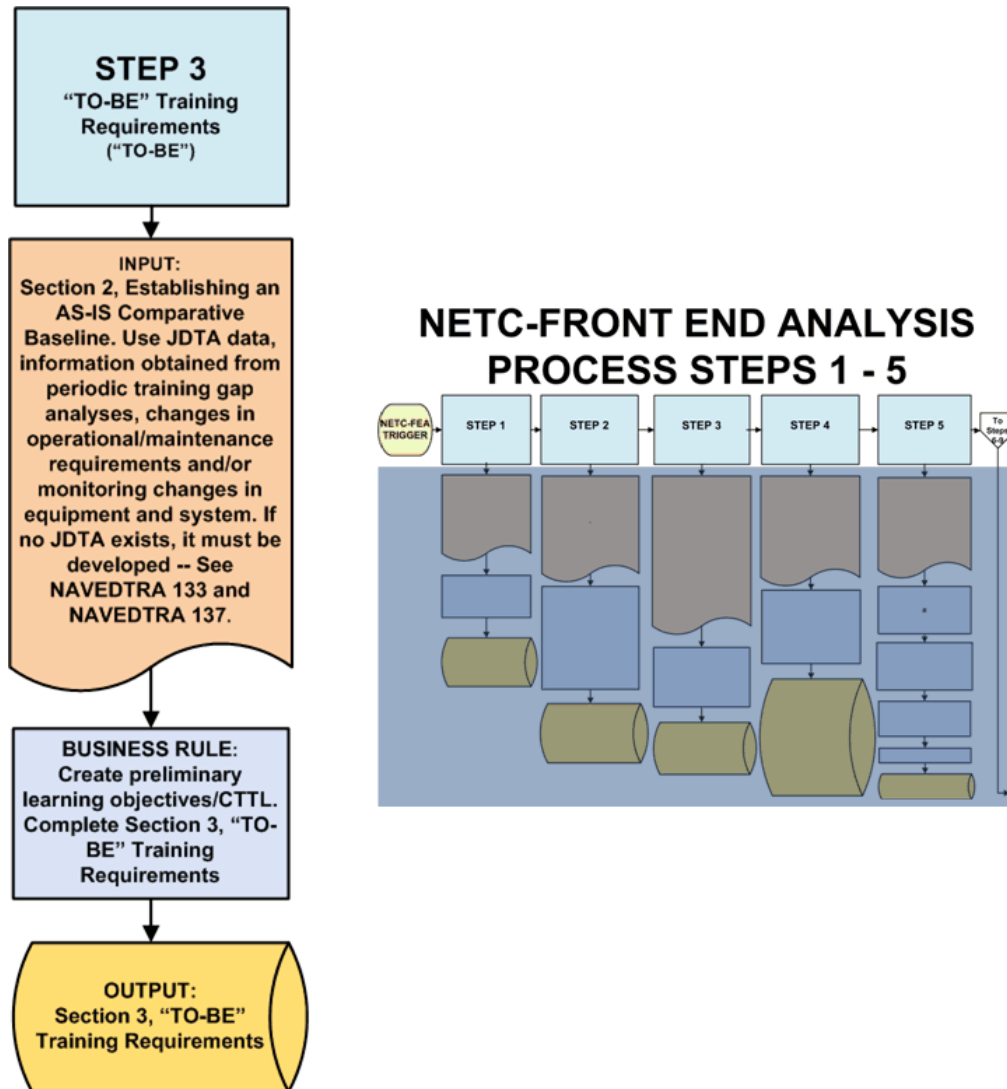


FIGURE 9: STEP 3, "TO-BE" TRAINING REQUIREMENTS

SECTION 2 - "TO-BE" TRAINING REQUIREMENTS: INPUTS AND OUTPUTS

Depending on the scope and magnitude of the training requirement, the inputs and outputs listed in Table 5 occur during Step 3.

TABLE 5: STEP 3, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 3
New approved JDTA data, Navy Training System Plan (NTSP) (as appropriate), and draft/preliminary learning objective.
OUTPUTS FROM NETC-FEA STEP 3
Section 3.0 "TO-BE" Training Requirements (Appendix A).
TOOLS THAT SUPPORT NETC-FEA STEP 3
Content Planning Module (CPM), etc.

SECTION 3 - DETERMINING "TO-BE" TRAINING REQUIREMENTS

Step 3 consists of completing Section 3.0, "TO-BE" Training Requirements (Figure 10) in the NETC-FEA. The "TO-BE" process depicted in Step 3 will include all of the tasks selected and approved as formal training requirements by the Resource/Requirements Sponsor. NETC-FEA project members must include all specific tasks supporting the documented reasons for conducting the NETC-FEA (Step 1). The final approved list will serve as the basis for comparison with the "AS-IS" requirements when compiling the summary of differences during the Gap in Training Requirements Analysis, Step 4 of the NETC-FEA.

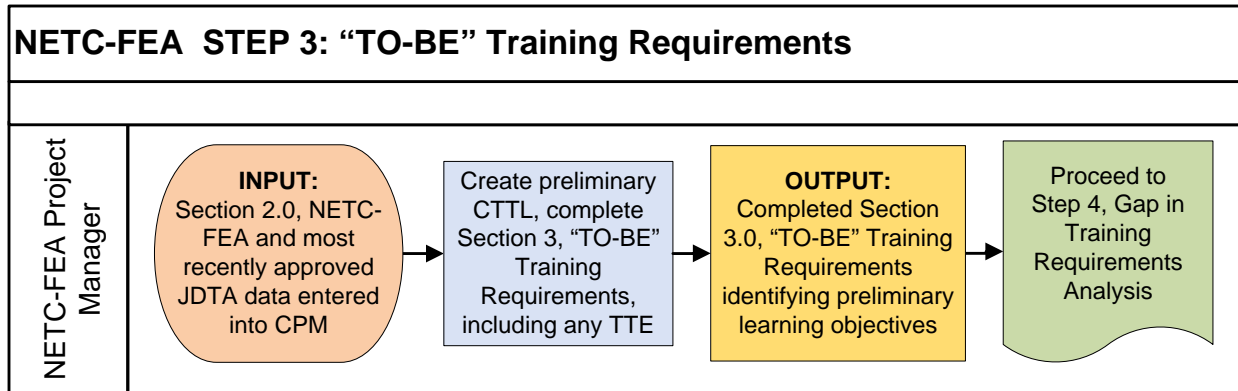


FIGURE 10: "TO-BE" TRAINING REQUIREMENTS

Begin Step 3 by identifying the JDTA tasks determined as formal training requirements. These tasks will comprise the basis for a CPM project CTTL. LOs supporting JDTA requirements are developed upon the approval of JDTA. These LOs are developed according to NAVEDTRA series using the "TO-BE" CTTL. Enter the "TO-BE" training requirements in Section 3.0, "TO-BE" Training Requirements (Figure 11) in an order of precedence that supports a logical course sequence or hierarchy.

3.0	"TO-BE" TRAINING REQUIREMENTS
	<p><u>"TO-BE" Training Requirements:</u></p> <ul style="list-style-type: none"> • <u>Job:</u> Electronics Technician (3) <ul style="list-style-type: none"> • <u>Duty:</u> Auxiliary Equipment and Support Systems <ul style="list-style-type: none"> ◦ <u>Task:</u> Operate General Purpose Electronic Test Equipment (GPETE)
3.1	<p><u>KSATRs</u></p> <ul style="list-style-type: none"> • Knowledge: (Functional) How GPETE functions • Knowledge: (General) Basic test equipment • Knowledge: (General) Electrical safety • Knowledge: (Interface) How test equipment interfaces with other systems • Skill: (Operation/Skill) Correct use of test equipment • Knowledge: (Operational) Knobs, switches, and settings • Knowledge: (Physical) Use of test equipment • Tool: Test equipment (multi-meter, oscilloscope, time domain reflectometer, fluke) <p>TLO: OPERATE GPETE IN ACCORDANCE WITH APPLICABLE DIRECTIVES WHILE OBSERVING ALL SAFETY PRECAUTIONS (Sections: 1-6)</p> <p>Section 1: GPETE Types</p> <p>ELO: IDENTIFY THE TYPES OF GPETE</p> <p>Objective type: concept</p> <p>KPL: KPL1</p> <p>SPL: N/A</p>

Section 2: Safety Considerations

ELO: LIST THE SAFETY CONSIDERATIONS FOR OPERATING GPETE

Objective type: fact

KPL: KPL1

SPL: N/A

Section 3: GPETE Components

ELO: LIST THE COMPONENTS OF GPETE

Objective type: fact

KPL: KPL1

SPL: N/A

Section 4: GPETE Functions

ELO: EXPLAIN THE FUNCTIONS OF GPETE

Objective type: fact

KPL: KPL1

SPL: N/A

Section 5: GPETE Interfaces

ELO: LIST THE SYSTEMS THAT USE GPETE

Objective type: fact

KPL: KPL1

SPL: N/A

Section 6: GPETE Operation

ELO: LIST THE PROCEDURES FOR PROPER OPERATION OF GPETE

Objective type: fact

KPL: KPL1

SPL: N/A

Section 7: GPETE Operation Lab

ELO: OPERATE GPETE (multi-meter, oscilloscope, time domain reflectometer, fluke, etc.)

<p>Objective type: procedure</p> <p>KPL: N/A</p> <p>SPL: SPL2</p> <p>Section 8: Application of Combat Systems Operating Sequencing System (CSOSS) Procedures Lab</p> <p>ELO: APPLY CSOSS PROCEDURES FOR ENERGIZE, DE-ENERGIZE, AND NORMAL OPERATION OF GPETE (oscilloscope)</p> <p>Objective type: procedure</p> <p>KPL: N/A</p> <p>SPL: SPL2</p>

FIGURE 11: COMPLETED SECTION 3.0, "TO-BE" TRAINING REQUIREMENTS

SECTION 4 - SUMMARY

"TO-BE" training requirements are based on approved JDTA data. When there is JDTA baseline data, "AS-IS" provides the data for a comparison to the "TO-BE" Training Requirements (NETC-FEA Step 5). The products of Step 6 and approval authority are identified in Table 6.

TABLE 6: STEP 3, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 3.0, "TO-BE" Training Requirements (Appendix A)	Project team

CHAPTER 5

GAP IN TRAINING REQUIREMENTS ANALYSIS

(STEP 4)

SECTION 1 - INTRODUCTION

The Gap in Training Requirements Analysis (Figure 12), Step 4, determines the existing gap in training by comparing the "AS-IS" to the "TO-BE" learning objectives (LOs).

NOTE

The training gap may identify obsolete training requirements from existing "AS-IS" LOs data, or it may identify new training requirements as derived from "TO-BE" LOs. In either case, the output of Step 4 shall be used as the basis for developing new content or the revision of existing content.

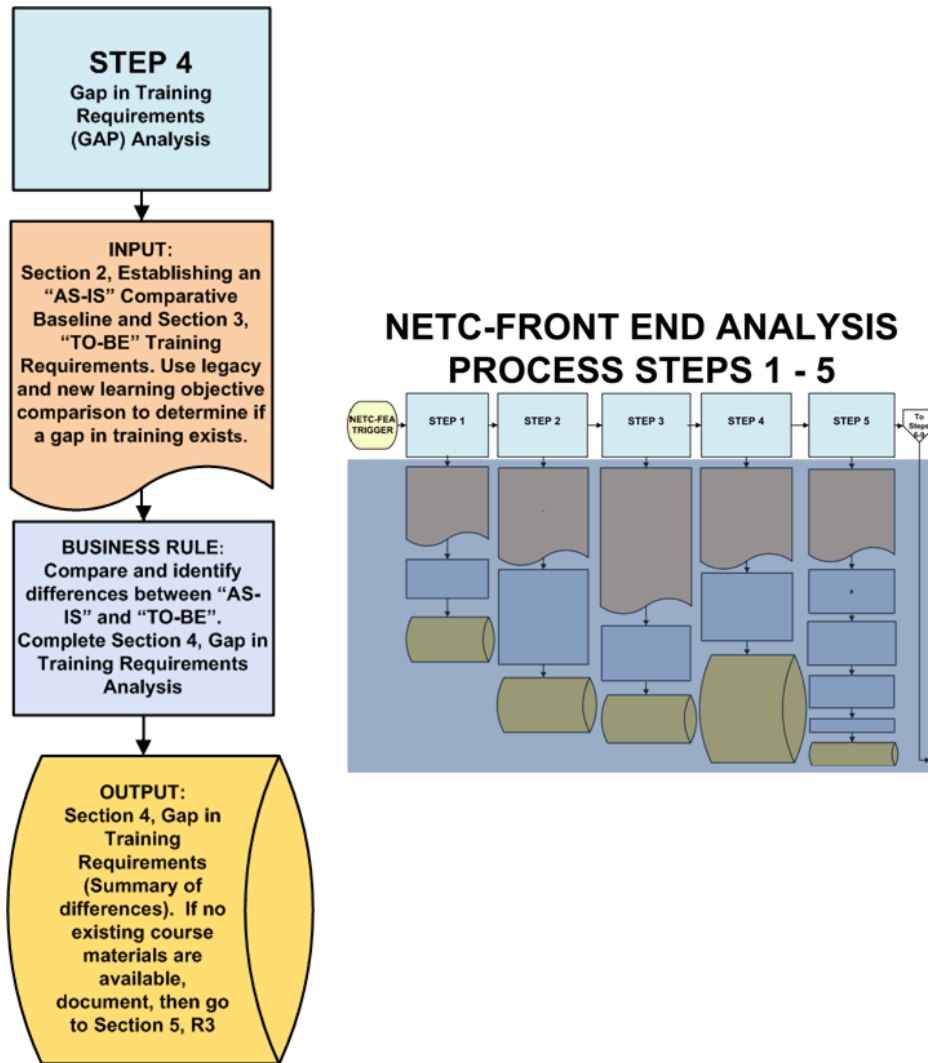


FIGURE 12: STEP 4, GAP IN TRAINING REQUIREMENTS ANALYSIS PROCESS

SECTION 2 - GAP IN TRAINING REQUIREMENTS ANALYSIS: INPUTS AND OUTPUTS

Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 7 occur during this step.

TABLE 7: STEP 4, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 4
Section 2.0, Establish an "AS-IS" Comparison Baseline and Section 3.0, "TO-BE" Training Requirements (Appendix A)
OUTPUTS FROM NETC-FEA STEP 4
Section 4.0, Gap In Training Requirements (Appendix A)
TOOLS THAT SUPPORT NETC-FEA STEP 4
Content Planning Module (CPM), Authoring Instructional Material (AIM I and II)

SECTION 3 - GAP IN TRAINING REQUIREMENTS ANALYSIS PROCESS

The gap in training requirements is determined by a comparison of existing "AS-IS" LOs to the "TO-BE" LOs. Compare the "AS-IS" JDTA requirements and the "TO-BE" Job Duty Task Analysis (JDTA) requirements for a summary of differences in order to determine gaps when no LOs are available.

The gap in training requirements analysis process flow is depicted in Figure 13.

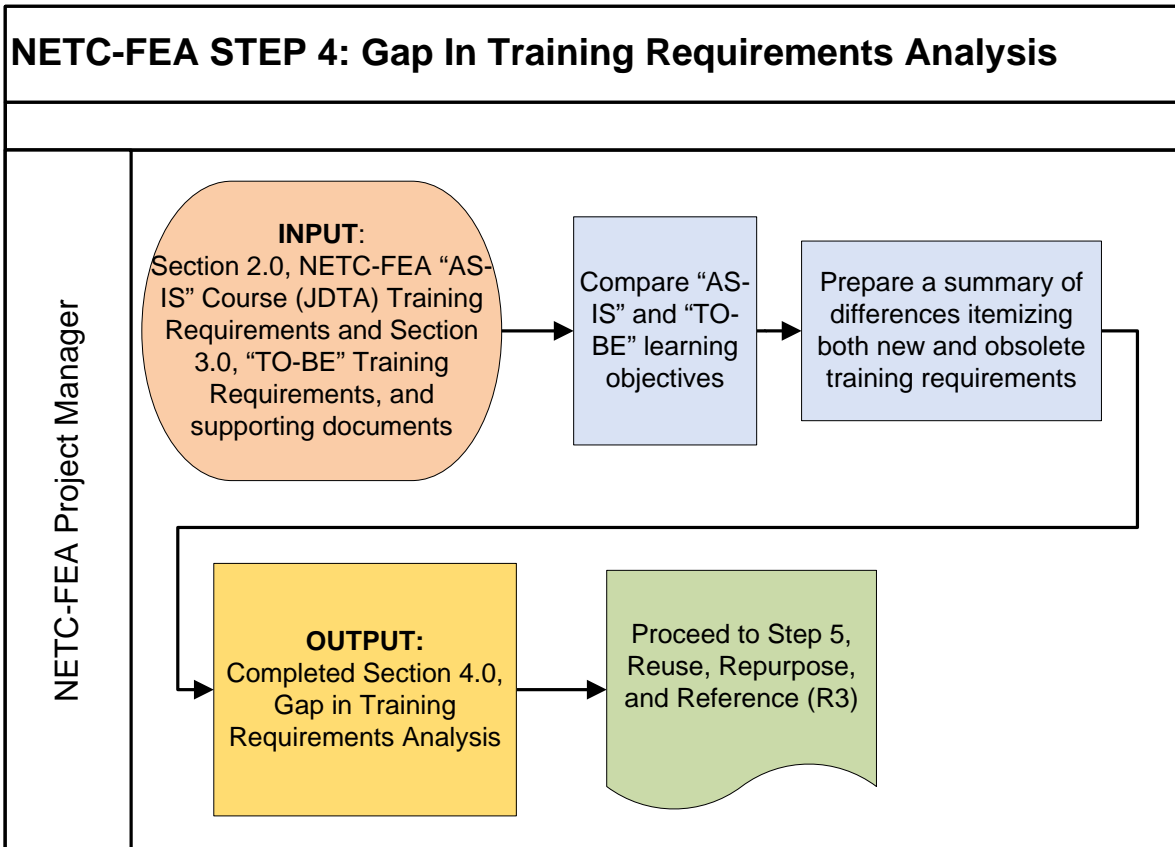


FIGURE 13: GAP IN TRAINING REQUIREMENTS ANALYSIS

The comparison will identify all differences between existing and newly identified LOs, conditions, and standards and supporting LOs. In some instances, it will become apparent that existing training requirements are no longer valid (e.g., job tasks not identified and approved during the JDTA). New training requirements identified during the latest JDTA will also become evident.

During Step 4, the training gap analysis will result in a summary of differences that itemizes and differentiates LOs recommended for addition or deletion to course content. The summary of differences provides additional data considerations used in the NETC-FEA. When a gap exists, provide an itemized list of changes to training requirements and complete Section 4.0, Gap in Training Requirements (Appendix A). If no gap in training requirements is discovered, indicate there is no gap in Section 4.2 (Figure 14).

NOTE

Course content requirements may increase, decrease, or remain the same. There may be corresponding effects on course length and resource requirements that must be factored into the analysis. The data collected in the summary of differences is used during the media selection process and in the development of the recommendations and the output statement. The data entered in Section 4.0 should resemble the data gathered in Sections 2.0 and 3.0 for existing "AS-IS" and "TO-BE" training requirements.

4.0	GAP IN TRAINING REQUIREMENTS ANALYSIS	
4.1	<p><u>"AS-IS" Comparative Baseline:</u></p> <p>* JDTA data unavailable for legacy course KSATR/TTA does not exist</p> <ul style="list-style-type: none"> • Job: Electronics Technician Organizational • Duty: Auxiliary Equipment and Support Systems • Task: Identify function, uses, and troubleshooting techniques used with common test equipment. <p>TLO: IDENTIFY troubleshooting techniques used with GPETE</p> <p>ELO: IDENTIFY common controls of a typical analog oscilloscope.</p> <p>ELO: DESCRIBE procedure to set up an oscilloscope.</p> <p>ELO: DESCRIBE the types of measurements with an oscilloscope.</p>	<p><u>"TO-BE" Training Requirements:</u></p> <ul style="list-style-type: none"> • Job: Electronics Technician (3) • Duty: Auxiliary Equipment and Support Systems • Task: Operate General Purpose Electronic Test Equipment (GPETE) <p>TLO: OPERATE GPETE IN ACCORDANCE WITH APPLICABLE DIRECTIVES WHILE OBSERVING ALL SAFETY PRECAUTIONS Section/s: 1-8</p> <p>Section 1: GPETE Types ELO: NAME THE TYPES OF GPETE (Oscilloscope is the GPETE in this content module) other GPETE include:</p> <ul style="list-style-type: none"> • Multimeter - to include volt, ohm, Ammeter, and Continuity • Signal generator • Digital pattern generator • Pulse generator • Frequency counter • Logic analyzer

	<p>ELO: DEFINE common techniques for troubleshooting with an oscilloscope.</p>	<ul style="list-style-type: none"> • Spectrum analyzer • Protocol analyzer • Time-domain/Optical Time-domain reflectometer • Receptacle tester • Probes <p>Section 2: Safety Considerations ELO: LIST THE SAFETY CONSIDERATIONS FOR OPERATING GPETE (oscilloscope)</p> <p>Section 3: GPETE Components ELO: LIST THE COMPONENTS/FEATURES OF GPETE (oscilloscope)</p> <p>Section 4: GPETE Functions ELO: EXPLAIN THE FUNCTIONS OF GPETE (oscilloscope)</p> <p>Section 5: GPETE Interfaces ELO: DESCRIBE THE SYSTEMS THAT USE GPETE (oscilloscope)</p> <p>Section 6: General Purpose Electronic Test Equipment Operation ELO: EXPLAIN PROPER OPERATION OF GENERAL PURPOSE ELECTRONIC TEST EQUIPMENT (oscilloscope)</p> <p>Section 7: GPETE Operation Lab ELO: PERFORM THE STEPS TO USE GPETE FOR TESTING ELECTRONIC SYSTEMS AND CIRCUITRY (oscilloscope)</p> <p>Section 8: Application of Combat Systems Operating Sequencing System (CSOSS) Procedures Lab</p>
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		ELO: APPLY CSOSS PROCEDURES FOR ENERGIZE, DE-ENERGIZE, AND NORMAL OPERATION OF GPETE (oscilloscope)
4.2	<p><u>Summary of Differences:</u></p> <p>Currently, the formal training course of instruction exists to support advanced skills training for ET "A" School personnel. Students do not perform GPETE (oscilloscope) comprehensive operational skill training tasks (e.g., pre-operational setup procedures), and there is no evaluation/assessment of student performance skills proficiency.</p> <p>DELTA = TLO: OPERATE GPETE IN ACCORDANCE WITH APPLICABLE DIRECTIVES WHILE OBSERVING ALL SAFETY PRECAUTIONS Objective type: procedure KPL: N/A SPL: SPL2</p> <p>Section 7: GPETE Operation Lab ELO: PERFORM THE STEPS TO USE GPETE FOR TESTING ELECTRONIC SYSTEMS AND CIRCUITRY (oscilloscope) Objective type: procedure KPL: N/A SPL: SPL2</p> <p>Section 8: Application of CSOSS Procedures Lab ELO: APPLY CSOSS PROCEDURES FOR ENERGIZE, DE-ENERGIZE, AND NORMAL OPERATION OF GPETE (oscilloscope) Objective type: process KPL: N/A SPL: SPL2</p>	

FIGURE 14: COMPLETED SECTION 4.0, GAP IN TRAINING REQUIREMENTS

SECTION 4 - SUMMARY

The output of a gap in training requirements analysis will be an itemized summary of differences, listing training gap LO requirements derived from the comparison of the "AS-IS" and "TO-BE" outputs. The products of Step 4 and approval authority are identified in Table 8.

TABLE 8: STEP 4, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 4.0, Gap In Training Requirements (Appendix A)	Project Team

CHAPTER 6

REUSE, REPURPOSE, AND REFERENCE (R3) CONTENT

(STEP 5)

SECTION 1 - INTRODUCTION

The Reuse, Repurpose, and Reference (R3) (Step 5) (Figure 15) identifies and analyzes existing course content material that may be available. Users shall search existing course(s) material or databases in order to identify and utilize content for R3.

NOTE

Copyright is federal law covered under Title 17 of the US Code. If you have a concern or question about copyright material you have, want to use, etc. - find out (!) - as "I didn't know..." does not release you of the responsibility to comply with U.S. Copyright Law. If in doubt about the use of copyright materials, consult Naval Education and Training Command (NETC) Legal Staff and/or your Command Legal Staff. Additional information for reference on the use of copyright material can be found at:

- o Copyright and fair use.
<http://www.cs.orst.edu/~cook/copyr.html>
- o Copyright term and the public domain in the United States. http://www.copyright.cornell.edu/training/Hirtle_Public_Domain.htm
- o Fair use of copyrighted materials.
<http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm>
- o Getting permission. <http://www.utsystem.edu/OGC/IntellectualProperty/permisn.htm>
- o Getting permissions. <http://www.cod.edu/library/services/copyright/permissions.htm>
- o How to determine whether a work is in the public domain. <http://www.public.asu.edu/~dkarjala/publicdomain/SearchC-R.html>
- o Naval Education and Training Command (NETC) guide to copyright law. Naval Education and Training Command, Office of General Counsel. 20 October 2009. https://wwa.nko.navy.mil/portal/manpowerpersonneltraining_education/netc/netcn7branches/home/n74learningstandards
- o New rules for using public domain materials.
http://copylaw.com/new_articles/PublicDomain.html
- o The law - Fair use. Website Copyright.
<http://www.benedict.com/info/Law/FairUse.aspx>

SECTION 2 - REUSE, REPURPOSE, AND REFERENCE (R3) CONTENT "TO-BE": INPUTS AND OUTPUTS

Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 9 occur during Step 5.

TABLE 9: STEP 5, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 5
Section 4.0, NETC-FEA: Gap In Training Requirements

OUTPUTS FROM NETC-FEA STEP 5
Section 5.0, NETC-FEA: R3 Content (Appendix A)

TOOLS THAT SUPPORT NETC-FEA STEP 5
All of the following may support R3:
<ul style="list-style-type: none">• Authoring Instructional Materials (AIM I and II)• Content Planning Module (CPM)• Corporate enterprise Training Activity Resource System (CeTARS) Catalog of Navy Training Courses (CANTRAC)• Defense Imagery Management Operations Center (DIMOC) (http://www.defenseimagery.mil/index.html)<ul style="list-style-type: none">▪ Defense Media Activity (DMA)<ul style="list-style-type: none">o Content Discovery & Access Catalog (CDAC)o NOTE: Defense Automated Visual Information System/Defense Instructional Technology Information System (DAVIS/DITIS) moved under DMA in 2008 and was renamed to CDAC.• MEDIATrax (https://asmcw.nmci.navy.mil/MTrax/index.aspx)• NAVEDTRA 135, Training Delivery Codes• Navy Training Management and Planning System (NTMPS)/Fleet Training Management and Planning System (FLTMPS)• Quality Evaluation Tool for Interactive Multimedia Instruction (IMI)
Additionally, verify content is not available from:
<ul style="list-style-type: none">• Commercial off-the-shelf (COTS)• Department of Homeland Security (DHS) agencies• Federal Emergency Management Agency (FEMA)• Military Sealift Command (MSC)• National Oceanic and Atmospheric Administration (NOAA)• Other Department of Defense (DoD)

SECTION 3 - REUSE, REPURPOSE, AND REFERENCE (R3) CONTENT

A user may R3 an existing intervention once the project team has approved it. Users shall search existing course(s) material or databases in order to identify and utilize content for R3:

- Reuse - using an existing object in a new learning event without any modification to its instructional treatment, context, or content.
- Repurpose - using an existing object in a new learning event with some to little modification to its instructional treatment, context, or content.
- Reference - using an existing object as an information source or resource for generating ideas for new learning events.

NOTE

DODI 1322.26 and Naval Education and Training Command-Front End Analysis (NETC-FEA) processes require all organizations to search existing content for possible R3 prior to new development of courseware. Content may be found within the Learning Center (LC)/Learning Site (LS) or may be located in outside activities (i.e., CANTRAC, AIM/CPM, DoD, World Wide Web, Defense Imagery, public or private sector databases, and libraries for existing course materials, other federal agencies, or COTS).

The process for determining R3 potential consists of a preliminary search with the subject project rating or job followed by a search for R3 potential from search results of external sources (Figure 16). The R3 search should query the specific task/subtask/relative learning objective (LO). Upon review of R3 content, the project team should attempt to identify the percentage of the training gap that R3 content may fulfill.

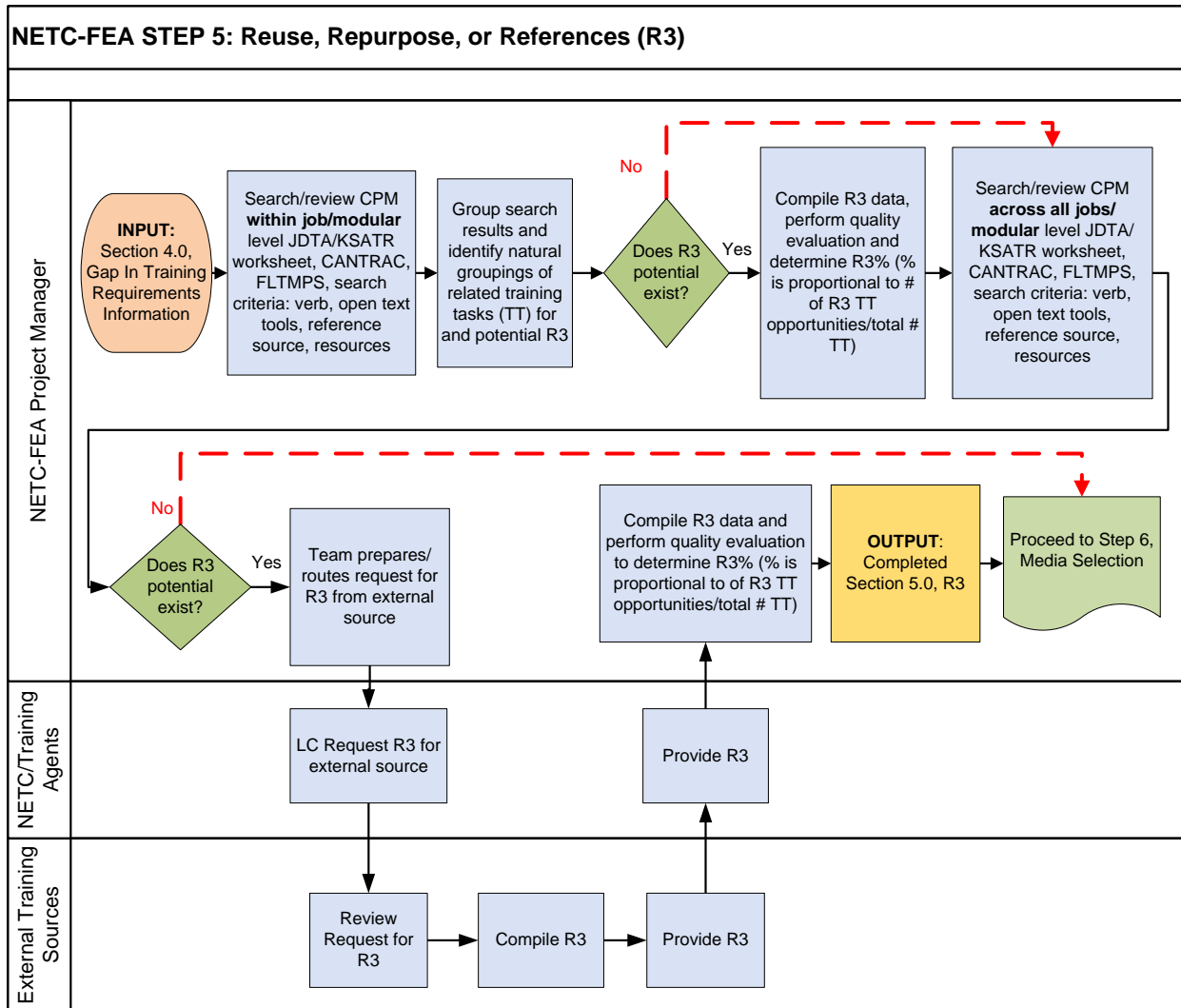


FIGURE 16: REUSE, REPURPOSE, AND REFERENCE (R3) CONTENT

If existing course material is available, evaluate for potential use in new training requirements and document in Section 5.0 (Figure 17), R3 Content (Appendix A). When complete, proceed to Step 6.

NOTE

The CPM (<http://aim.aimereon.com/cpm/>) supports the reuse and repurposing of content by allowing searching of and reporting on tasks (to view Existing Interventions), LOs, and associated data elements.

Requests for external R3 shall be processed by LCs and is subject to the requirements of external R3 control source. Upon identification and receipt of potential R3 sources, the Naval

Air Warfare Center Training Systems Division (NAWCTSD) Technical Report 2005-002, Quality Evaluation Tool, shall be used to conduct an evaluation of IMI supporting the R3 of applicable course materials. At present, there is no similar tool for other types of content. Project team shall determine suitability of course material for reuse.

NOTE

The Quality Evaluation Tool may be obtained from NAWCTSD and is referenced as Technical Report 2005-002 or Navy Knowledge Online (NKO) (https://wwa.nko.navy.mil/portal/manpowerpersonneltraining_education/netc/netcn7branches/home/netcn75trainingsystemsintegrationF). This evaluation tool contains items and scales that will help determine the quality of interactive multimedia instruction course materials and serves as an aid to determine how much work will be required to convert it.

If there are no existing course materials for R3, document no existing course materials in Step 5, and proceed to Step 6.

5.0	REUSE, REPURPOSE, AND REFERENCE (R3) CONTENT
5.1	<p><u>Reuse:</u></p> <p><u>Repurpose:</u></p> <p><u>Reference:</u></p> <ul style="list-style-type: none"> • C-198-6671 GENERAL PURPOSE ELECTRONIC TEST EQUIPMENT REPAIR/CALIBRATION

FIGURE 17: COMPLETED SECTION 5.0, R3 CONTENT

SECTION 4 - SUMMARY

During the NETC-FEA process, every attempt is made to R3 content. A search is made for existing course(s) material across multiple communities, agencies, and commercial sources for R3 to support "TO-BE" training requirements. The Quality Evaluation Tool (Navy Knowledge Online (NKO) (https://wwa.nko.navy.mil/portal/manpowerpersonneltraining_education/netc/netcn7branches/home/netcn75trainingsystemsintegration)) shall be used to assess the quality and suitability of the

training materials for IMI. The products of Step 5 and approval authority are identified in Table 10.

TABLE 10: STEP 5, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 5.0, R3 Content (Appendix A)	Project Team

CHAPTER 7

MEDIA SELECTION

(STEP 6)

SECTION 1 - INTRODUCTION

Instructional strategies, media types, and media delivery modes are formally developed during the design phase of the Plan, Analysis, Design, Develop, Implementation, and Evaluation + Life-cycle Maintenance Phase (PADDIE+M) Process, outlined in the Instructional Media Design Package of the NAVEDTRA 136 (series). However, in order to provide inputs for the development of the Naval Education and Training Command (NETC) Business Case Analysis (BCA), a preliminary assessment of draft learning objectives (LOs) supporting the requirements must take place before the Naval Education and Training Command-Front End Analysis (NETC-FEA).

LO development is an iterative process beginning upon the approval of the Job Duty Task Analysis (JDTA) and formalized during the design phase. The media types and media delivery mode selection process (Figure 18) will incorporate the use of JDTA data and supporting LO, and Media Selection Tool (MST) output to determine recommendations for meeting training requirements.

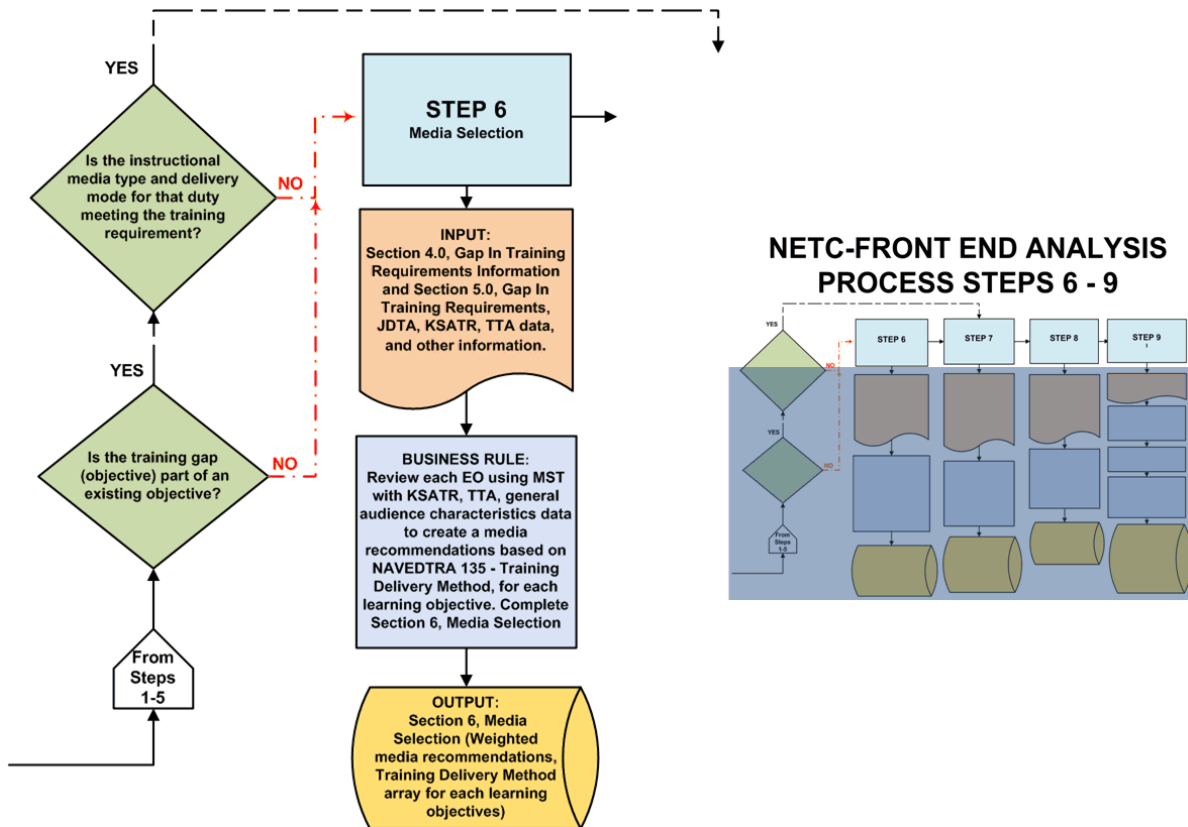


FIGURE 18: STEP 6, MEDIA SELECTION PROCESS

SECTION 2 - MEDIA SELECTION: INPUTS AND OUTPUTS

NOTE

In order to provide inputs for the development of the NETC BCA, a preliminary assessment of those requirements must take place during NETC FEA.

Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 11 occur during Step 6.

TABLE 11: STEP 6, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 6
Section 4.0, Gap In Training Requirements, Section 5.0, Gap In Training Requirements, JDTA, knowledge, skills, abilities, tools, and resources (KSATR) data, training task analysis (TTA) data, skill/knowledge proficiency level data, supporting LO, and general audience characteristics
OUTPUTS FROM NETC-FEA STEP 6
Section 6.0, Media Selection (Appendix A)
TOOLS THAT SUPPORT NETC-FEA STEP 6
Content Planning Module (CPM), Authoring Instructional Material (AIM I and II), and media selection tool

SECTION 3 - MEDIA SELECTION

Historically, selection of instructional strategies, media types, and media delivery modes has primarily been made based on existing precedents. Most training is conducted using some form of traditional or programmed instruction. The decision to perform the media type and media delivery mode selection process hinges on two fundamental criteria:

First, does something already exist?

- Is the task an inherent part of an existing duty currently being trained?
 - If yes, then new gap in training requirement(s) should be integrated with existing media types and media delivery modes.

- Is the instructional strategy meeting the training performance requirement objective(s)?
 - If yes, then new gap in training requirement(s) should be integrated with existing instructional strategy.
 - If no, determine if the new requirements necessitate a new instructional strategy along with new media types and media delivery modes.

Second, if not in existing course(s):

- Provide media types and media delivery method recommendations to meet new training performance requirements.

Behaviors, conditions, standards, KSATR, and TTA attributes are derived during the JDTA Process. These data elements are the direct link from work composition that are used to support the development of LOs required to perform media type, and media delivery modes recommendations. These variables along with task knowledge/skill proficiency level, Formal Course Review (FCR), and testing plan and tests, are baselines that will determine instructional strategy, media type selection, and media delivery modes recommendations, (e.g., NAVEDTRA 135 - Chapter 4, Curriculum Management, Table 4-1-1 Training Delivery Method).

It is essential to clarify the functional description of both media types and media delivery modes as applied in the NETC-FEA Process. MIL-HDBK-29612 (series) states that media types are the delivery vehicles used to present instructional material or provide the basic sensory stimulus presented to a trainee to promote learning. Simply put, media types are the means used to give information to trainees.

Some examples of media types include simulation, classroom instructor or tutor, interactive multimedia, traditional digital-printed materials, trainers, training devices, and advanced distributed learning products. While not all-inclusive, MIL-HDBK-29612-2A identifies six categories of prevalent training media types:

- Instructor/Tutor including:
 - Lecturer
 - Demonstrator
 - Tutor/Coach

- Traditional Digital or Print Materials including:
 - Workbooks
 - Study guides
 - Job aids
 - Training manuals
 - Programmed instruction booklets
 - Technical orders

- Traditional Audiovisuals including:
 - Whiteboards

- Interactive Multimedia Instruction (IMI) Products including:
 - Interactive courseware (ICW)
 - Electronic publications
 - Electronic guides
 - Interactive electronic technical manuals (IETMs)
 - Electronic technical manuals (ETMs)
 - Electronic testing
 - Simulation/Stimulation (SIM/STIM)
 - Electronic management systems
 - Electronic performance support system (EPSS)
 - Computer aided instruction (CAI)
 - Learning management system (LMS)
 - Computer managed instruction (CMI)
 - Course management system (CMS)
 - Electronic job aids (e.g., templates, macros)

- Trainers/Training Devices including:
 - SIM/STIM
 - Platform and component trainers
 - Combination platform and component and simulator (hybrid trainers)

- Advanced Distributed Learning (ADL) Products including:
 - On-line (e.g., Internet, intranet, extranet) courses including:
 - Web-ready (e.g., Hypertext Markup Language (HTML), Extensible Markup Language (XML), synchronous)

- o Web-deliverable Web-based (i.e., asynchronous and synchronous instruction)
- o Web-downloadable (i.e., content for off-line instruction)
- o Compact Disc-Read Only Memory (CD-ROM), Digital Versatile Disc (DVD), and other digital storage devices
- o Video tele-training (VTT)
- o Video conferencing
- o Audio conferencing

MIL-HDBK-29612 (series) defines instructional delivery modes as the communication format (e.g., computer based, instructor led, and laboratory) which will be used to distribute the instruction.

NOTE

Media delivery modes will be documented by using the NAVEDTRA 135 - Chapter 4 Curriculum Management, Table 4-1-1, Training Delivery Method. Training Delivery Method codes will vary depending upon the course of instruction. Determine which code is the best code for training. When NAVEDTRA 135 Training Delivery Methods codes have been determined, complete Section 6.0, Media Selection (Appendix A).

Work must be decomposed at a minimum to the task level, and may be further decomposed to subtask and step levels, in accordance with NAVEDTRA 137. The media types and media delivery modes analysis process (Figure 19) will be applied to LOs supporting appropriate task level training gap requirements.

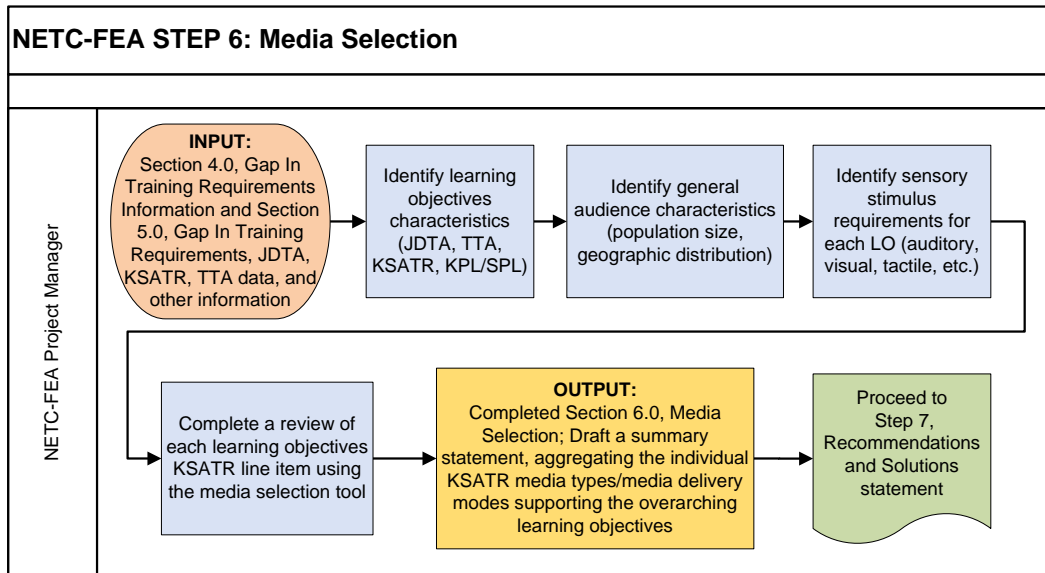


FIGURE 19: MEDIA SELECTION

To perform media types and media delivery modes analysis, a MST is available at NKO: https://www.nko.navy.mil/portal/manpowerpersonneltraining_education/netc/netcn7branches/home/netcn75trainingsystemsintegration. The media selection tool has been designed to provide a weighted array of media types and media delivery method recommendations.

A series of questions are used to review each task and are designed to reflect consideration of the following factors:

- Learning domains
- Learning objectives
- Sensory requirements
- Logistics
- Delivery/Distribution
- Audience characteristics

Media types and media delivery modes weighting is assigned based on a score derived from each question as ranked by NETC-FEA project team members. Typically, the weighting reveals that several media types may be considered, as all media delivery modes are potentially applicable when reviewing a large scope of training tasks/LOs. The analysis must include a consideration of the advantages and limitations of using each media type or combination of media types (for guidelines associated with media advantages and limitations see the Media Attribute charts A and

B in the MST). These considerations must be factored into the recommendations and output statements for any particular media.

Using the MST, review each individual training task and supporting LO by completing the following steps:

- Identify Task characteristics using completed (JDTA, TTA, KSATR, Knowledge Proficiency Level (KPL)/Skill Proficiency Level (SPL), CPM skills hierarchy report) data.
- Generate a prioritized Course Training Task List (CTTL) including supporting LOs based on an order of precedence. The decision for order of precedence may be derived by the project team Learning Standards Officer (LSO), Instructional System Specialist (ISS), and Subject Matter Expert (SME) using TTA and JDTA data (e.g., criticality, skill decay, number of repetitions required to achieve desired proficiency level).
- Identify general audience characteristics (e.g., approximate annual throughput, pay grade, geographic dispersion).
- Identify sensory stimulus requirements for each task/LO (e.g., auditory, visual, and psychomotor/tactile).
- The following steps will be performed in order to establish functional requirements for FEA Technical Training Equipment (TTE)/Training Device (TD) Media Recommendations:
 - Identify knowledge and skills needed to operate, maintain, etc., the weapon system or operational equipment.
 - Describe technical operational and maintenance concepts to be reflected in the TTE/TD specification.

Use MIL-HDBK-29612-1A, Chapter 5, as reference for detailed analysis of functional requirements for TTE/TD. A sample of additional information on analysis of functional requirements for TTE/TD can be found in NAVAIRWARCENTRASYSINST 3910.4D, Preparation of Training System Functional Description, and is available on NKO (https://www.nko.navy.mil/portal/manpowerpersonneltraining_education/netc/netcn7branches/home/netcn75trainingsystemsintegration).

To perform media types and media delivery modes analysis, a MST is available at NKO (<https://www.nko.navy.mil/portal/>

manpowerpersonneltraining_education/netc/netcn7branches/home/netcn75trainingsystemsintegration). The MST has been designed to provide a weighted array of media types and media delivery mode recommendations using a Microsoft Excel workbook.

Complete a review of each duty/task and supporting LO, using the MST, KSATR, general audience characteristics, and KPL/SPL data associated to identify media types, and media delivery modes. A summary tab within the MST will delineate the weighting for both the individual LO supporting the task, and a cumulative weighting of all LOs examined.

The MST is set up to calculate the media recommendations for 1 to 50 enabling LOs. Each enabling objective (EO) will be looked at separately and the scores recorded on media analysis worksheets. More than one workbook shall be used to complete the media selection analysis for more than one terminal objective.

The directions for completing the MST are included on the first worksheet in the workbook. Definitions are included in the comments in the workbook as well as in the glossary. Mouse-over block with comment to view comment.

The weighted course summary worksheet calculates the recommended media types and media delivery modes based on the number of EOs that are entered into cell A3 and the combined calculation of the EO 1 through 50 media analysis worksheets. The recommendation percentage is not based on a comparison to the other media delivery modes; it is based on the answers to the questions that were answered earlier and reflect the ability of each specific delivery mode to meet the requirements of that objective. This is a criteria referenced, not norm referenced, percentage. Any and all of the three choices will work for most objectives. However, the best option would be the one with the highest percentage, and the least desirable would be the one with the lowest percentage, not including other constraints. The selections are not mutually exclusive.

Assess the weightings for each individual EO and draft a summary statement, aggregating the individual LO media types/media delivery mode types that support overarching terminal learning objective (TLO). Completion of Step 6 in the NETC-FEA is captured in Figure 20.

6.0	MEDIA SELECTION
6.1	<p><u>General Audience Characteristics:</u></p> <ul style="list-style-type: none"> • <u>Approximate annual throughput >2,000 per year</u> • <u>E-3 and above</u> • <u>Wide geographical disbursement</u> <p><u>Sensory Requirements:</u></p> <ul style="list-style-type: none"> • Include audio, visual, tactile senses <hr/> <ul style="list-style-type: none"> • <u>Job:</u> Electronics Technician • <u>Duty:</u> Auxiliary Equipment and Support Systems <ul style="list-style-type: none"> • <u>Task:</u> Operate general purpose electronic test equipment (GPETE) (SPL 1/2, KPL 1/2) <hr/> <p><u>KSATR Data:</u></p> <ul style="list-style-type: none"> • Knowledge: (Functional) GPETE functions • Knowledge: (General) Basic test equipment • Knowledge: (General) Electrical safety • Knowledge: (Interface) How test equipment interfaces with other systems • Skill: (Operation/Skill) Use of test equipment to test and troubleshoot equipment • Knowledge: (Operational) Knobs, switches, and settings • Knowledge: (Physical) Use of test equipment • Tool: Test equipment (oscilloscope) <hr/> <p><u>Knowledge Interactivity Components include:</u></p> <ul style="list-style-type: none"> • Procedure learning to perform step-by-step actions in the proper sequence (identify # of procedures) • Discrimination learning to group similar and dissimilar items according to their distinct characteristics • Problem-Solving to synthesize lower levels of knowledge to resolve problems <hr/> <p><u>Skills Interactivity Components include:</u></p> <ul style="list-style-type: none"> • Continuous movement learning to track or make compensatory movements based on feedback • Perception (encoding) of sensory stimuli that translate into mental performance • Readiness learning to have readiness to take a particular action • Guided response learning of a complex mental skill

<p>by copying a demonstration</p> <ul style="list-style-type: none"> • Mechanism learning to perform a complex mental skill with confidence and proficiency • Adaptation learning to modify a complex mental skill to accommodate a new situation • Origination learning to create a new complex mental skill to accommodate a new situation
<p>IMI level 3/4 interactivity is required and must support capability for: (from 29612)</p> <ul style="list-style-type: none"> • Providing complex branching paths based on trainee selections and responses • Presenting or emulating complex procedures with explanations of equipment operation • Simulation of performance in the operational setting <p>Computer evaluation of trainee procedural performance includes the capability to generate time and error scores for performance test items</p>
<p><u>Media Type:</u></p> <p>Based on media analysis the instructional strategy recommendations for the oscilloscope is:</p> <ul style="list-style-type: none"> • Advanced distributed learning (79.17%) • Instructor/Tutor (65.17%) • Traditional print and digital materials (65.17%) • Traditional audio/visual (64.06%) • Interactive multimedia instruction (58.83%) • Trainers/Training devices (57.50%)
<p><u>Media Delivery Modes:</u></p> <ul style="list-style-type: none"> • Computer based training (CBT) (78.35%) • Instructor led training (ILT) (55.27%) • Laboratory (LAB) (53.75%)

FIGURE 20: COMPLETED SECTION 6.0, MEDIA SELECTION

SECTION 4 - SUMMARY

The quality of the data used in the NETC-FEA media selection process is directly related to the expertise and collaboration of LSO and project team participants. Instructional strategies, media types, and media delivery modes must be complementary of one another. No single medium is the most appropriate choice for every training situation. Proper media selection must ensure that information is presented to the trainees by the most effective and cost-efficient means possible to achieve the LO. The products of Step 6 and approval authority are identified in Table 12.

TABLE 12: STEP 6, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 6.0, Media Selection (Appendix A)	Project team

CHAPTER 8

RECOMMENDATION AND SOLUTION STATEMENT

(STEP 7)

SECTION 1 - INTRODUCTION

The Recommendation and Solution Statement, Step 7, in the Naval Education and Training Command-Front End Analysis (NETC-FEA) Process (Figure 21) provides recommendation and solution statements for closing the identified gap in training requirements. The recommendations and solutions statement is an initial estimate of what the course of instruction should do, what it should look like, and how it is delivered in order to meet training requirements.

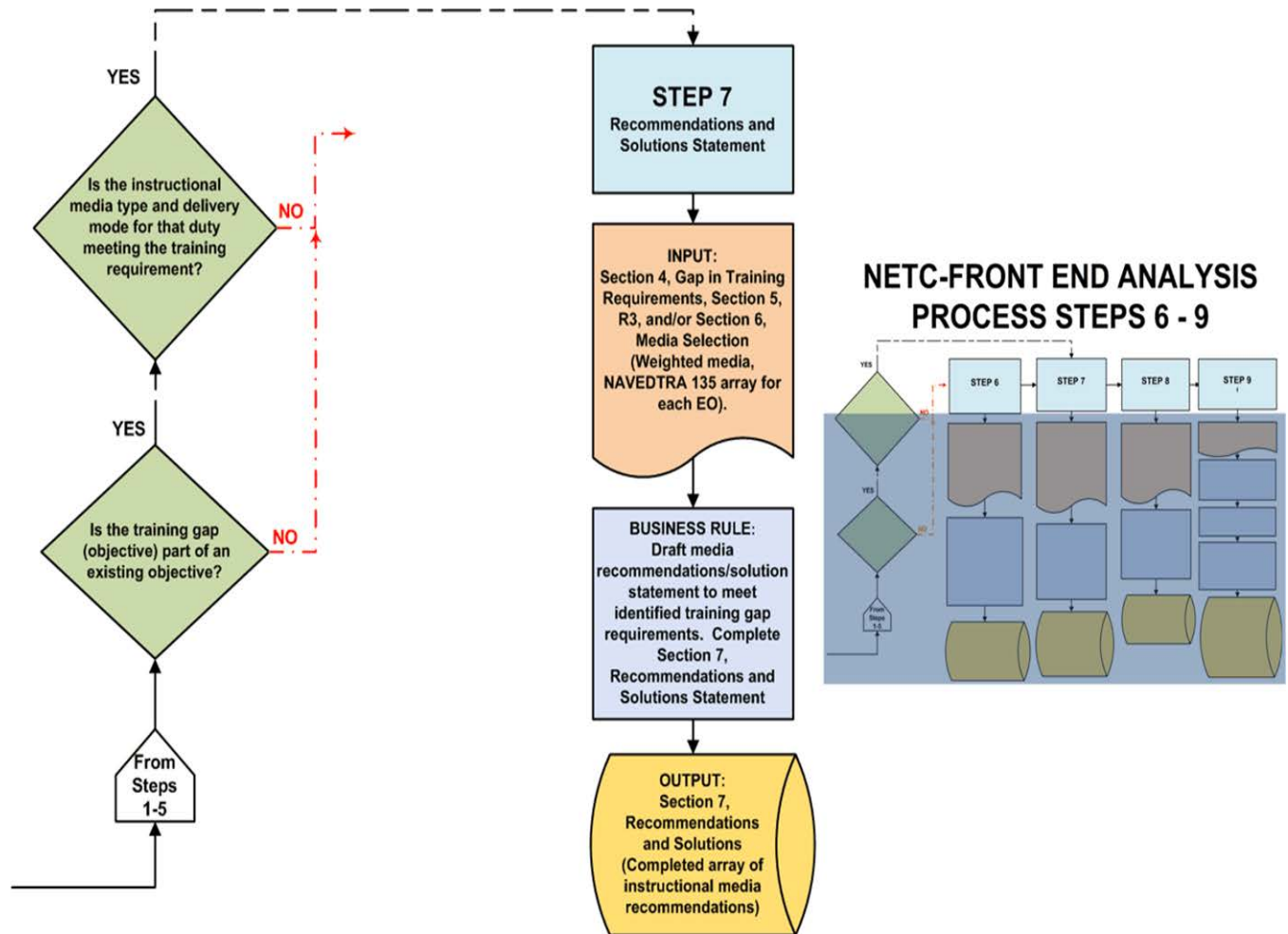


FIGURE 21: STEP 7, RECOMMENDATIONS AND SOLUTION STATEMENT PROCESS

SECTION 2 - RECOMMENDATIONS AND SOLUTION STATEMENT: INPUTS AND OUTPUTS

Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 13 occur during this step.

TABLE 13: STEP 7, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 7
Section 4: Gap In Training Requirements Analysis, Section 5.0, Gap In Training Requirements, and Section 6.0, Media Selection (Weighted media, NAVEDTRA 135 array for each Enabling Objective (EO)). (Appendix A)
OUTPUTS FROM NETC-FEA STEP 7
Section 7.0, Recommendations and Solutions Statement to close the gap in training (Appendix A)
TOOLS THAT SUPPORT NETC-FEA STEP 7
Content Planning Module (CPM), Authoring Instructional Material (AIM I and II), and media selection tool

SECTION 3 - RECOMMENDATIONS AND SOLUTIONS STATEMENT

When developing the recommendations and solutions statement, a primary factor is determining an instructional strategy and supporting rationale that will enable identification of appropriate learning situations. Instructional strategy will include:

- A description of the learner behaviors, characteristics, and knowledge.
- A description of the prerequisite/pre-instructional activities and assessments.
- An indication of the sequence of instruction.
- A brief description of the proposed instructional content planned for each objective.

The purpose of the instructional strategy is to provide a framework before starting the development or selection of instructional content.

The process for developing the recommendations and solutions statement is depicted in Figure 22.

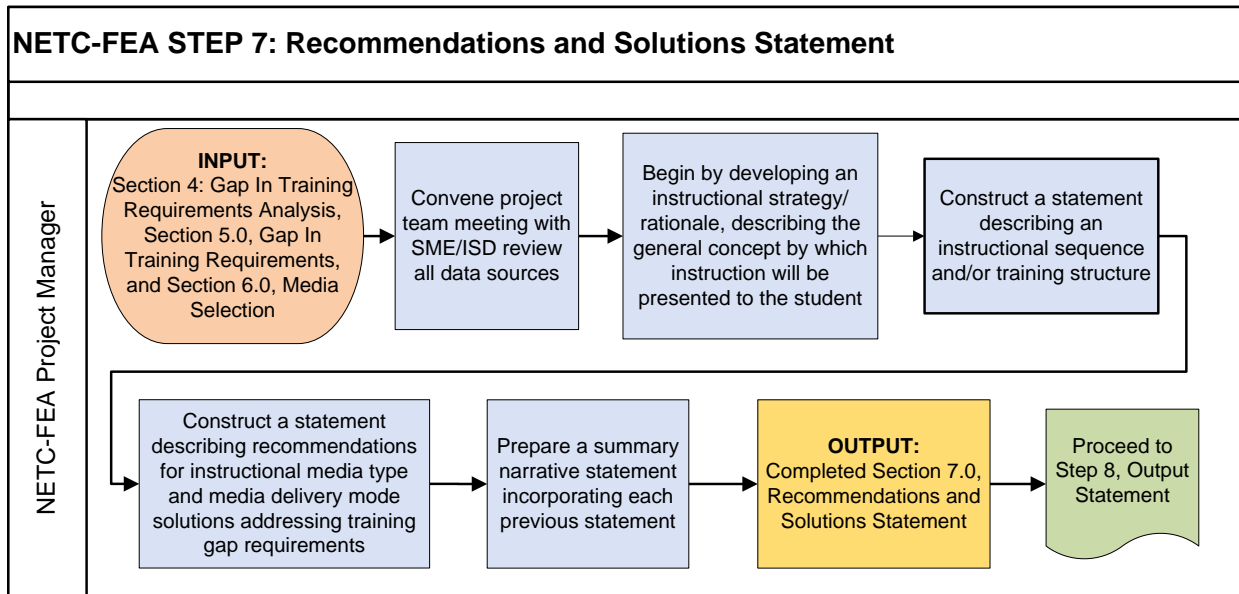


FIGURE 22: RECOMMENDATIONS AND SOLUTIONS STATEMENT

Begin by developing an instructional strategy or rationale, describing the general concept by which instruction will be presented to the trainee (e.g., programmed instruction, traditional instruction, exercise, small group learning, group-paced learning, self-paced, mentoring, apprenticeship training, blended instruction). General audience characteristics such as throughput requirements and geographic dispersion are examples of information to consider when determining a strategy or rationale. Major factors, that have an impact on the choice of an instructional strategy, include:

- Job task environment (i.e., a job task requiring the use of computers, peripherals, software, and associated resources) and should be considered in the lesson strategy.
- Experience level of the trainee (i.e., journeyman-coordinator/inspector).
- Level of proficiency desired (Skill Proficiency Level (SPL)/Knowledge Proficiency Level (KPL) 1, 2, 3) of the trainee after training is completed (i.e., simply perform the task, sustain the skill to perform the task on your own, teach others to perform the task, or actively seek others to teach them how to perform the task).

- Provide rationale as to why operational equipment/ Technical Training Equipment (TTE)/Training Devices (TD) used in the training setting is the best method to achieve the training objectives (safety, non-availability, cost, environmental factors, estimated training effectiveness, etc.).

Following the instructional strategy and/or rationale description, construct a statement describing an instructional sequence and/or training structure. In this portion of the recommendation, determine a rough order of magnitude of the learning hierarchy or organization of instruction. This should reflect logical sequencing/groupings of content that will facilitate learning (e.g., knowledge attainment, practical practice, and assessment).

Following the instructional sequence and/or training structure, construct a statement describing recommendations for instructional media types and media delivery modes solutions addressing training gap requirements. Include all possible recommended media and instructional strategy for each learning objective (LO) assigned. Refer to policy and guidance including NAVEDTRA series, MIL-HDBK-29612(Series), and United States Distance Learning Association (USDLA) guidance for general description effectiveness guidelines.

Media types and media delivery modes selection is dependent on multiple task requirement variables. These variables should:

- Consider instructional concept, course, and lesson strategy.
- Effectively support the training tasks at the appropriate learning levels.
- Allow individualization of training when appropriate.
- Support anytime anywhere training, as required.
- Be time and cost-efficient.

Using the Instructional System Development (ISD) Considerations area of CPM, include all possible recommended media and the instructional strategy for each LO assigned. When all recommendations to close the gap in training have been identified, complete Section 7.0, Recommendations and Solutions Statement (Figure 23).

7.0	RECOMMENDATIONS AND SOLUTIONS STATEMENT
7.1	<p><u>Learner Population:</u></p> <p>The learner population consists of enlisted E-3 through E-5 ETs, approximate throughput and location are based on:</p> <p>Graduates must demonstrate electronic technician journeyman level oscilloscope operator skills, applying advanced oscilloscope analysis skills and techniques. Imitation SPL 1 and Repetition SPL 2 (re: NAVEDTRA 132) corrective maintenance problem solving performance skills must be presented and assessed incorporating multiple visual, auditory, and tactile sensory inputs. As an ET, the audience must be able to operate, test, and troubleshoot equipment, using General Purpose Electronic Test Equipment (GPETE) (oscilloscope) to support combat system, subsystems, auxiliary equipment, and support systems.</p>
7.2	<p><u>Recommendations and Solutions:</u></p> <p>Upon completion of this NETC-FEA, it is recommended that a blended learning training solution be developed and implemented to provide training for the delivery of oscilloscope-unique knowledge and skills necessary to support ET occupational standards. The associated tasks and proposed learning content provide the basic framework to support the job tasks associated with ET billet requirements.</p> <p>The blended learning training solution is the instructional strategy for these training tasks and supporting LOs as it provides maximum opportunity for overtraining. Overtraining, practice to proficiency, of practical applications of knowledge and skills reinforce memory and retard skill decay as well as improve learner confidence and satisfaction. Interactive multimedia instructions (IMI) coupled with guided and independent practice (e.g., instructor-led training (ILT) with computer-aided instruction (CAI), interactive courseware (ICW)/simulations level 2/3) will enable trainees to achieve skill and knowledge proficiency level assessment standards. Instruction will be enhanced by instructor/tutor-learner interaction, and context will be provided through exercises requiring hands-on application utilizing actual resources trainees will use on the job.</p>

The sequencing design of content establishes learn - practice (guided/independent) - proficiency assessment presentation content modules in a linear learning hierarchy of simple to complex skills and knowledge.

Skill proficiency level requirements are Proficiency Level 2 - (Repetition). During this level of training, the trainee is allowed to practice alone and/or with the instructor to practice the skill over and over, with feedback from the instructor until mastering the basic skill. The trainee is able to ask questions, receive feedback, and practice in a safe environment. The skill proficiency expectation for practice is: can proficiently perform a task. This level's attribute is "work requires no supervision."

Knowledge Proficiency Level requirements are Proficiency Level 2 - (Application/Analysis). Knowledge proficiency expectations are: application - can use a concept in a new situation or unprompted use of an abstraction (applies what was learned in the classroom into novel work situations); analysis - can separate material or concepts into component parts so that its organizational structure may be understood (distinguishes between facts and inferences). Principles and concepts are added to processes and procedures.

Based on media and media delivery method analysis the instructional strategy recommendations for the ET GPETE oscilloscope content module are for a blended learning solution Media types consisting of:

- Instructor/tutor
- IMI with ICW/SIM/Electronic Management Systems - CAI, LMS/Electronic publications
- Traditional Print and Digital Materials
- Trainers/Training Devices - Platform component trainers

IMI level 3 (re: MIL-HDBK-29612-3A, 6.1.1.3.4.2) interactivity is required and must support capability for:

- Providing complex branching paths based on trainee selections and responses.

- Presenting or emulating complex procedures with explanations of equipment operation.
- Simulation of performance in the operational setting.
- Computer evaluation of trainee procedural performance includes the capability to generate time and error scores for performance test items.

Knowledge interactivity components include:

- Procedure learning to perform step-by-step actions in the proper sequence (identify number of procedures).
- Discrimination learning to group similar and dissimilar items according to their distinct characteristics.
- Problem-solving to synthesize lower levels of knowledge to resolve problems.

Skills interactivity components include:

- Continuous movement learning to track or make compensatory movements based on feedback.
- Perception (encoding) of sensory stimuli that translate into mental performance.
- Readiness learning to have readiness take a particular action.
- Guided response learning of a complex mental skill by copying a demonstration.
- Mechanism learning to perform a complex physical or mental skill with confidence and proficiency.
- Adaptation learning to modify a complex mental skill to accommodate a new situation.
- Origination learning to create a new complex mental skill to accommodate a new situation.
- Media Delivery Modes :
 - ILT (55.27%)
 - LAB (53.75%)
 - CBT (78.25%)

Potential reuse, repurpose, and reference (R3) of content exists within parallel development projects for the following rate related courses of instruction candidates:

	<ul style="list-style-type: none"> • C-100-2018 Avionics Technical "A" School • A-100-0149 Electronics Technician (ET) "A" School • A-100-0101 GSE Apprentice Technical Training • A-100-0102 EM Apprentice Technical • A-100-0103 IC Apprentice Technical Training • A-100-0104 GM Apprentice Technical Training • A-100-0105 FC Apprentice Technical Training • A-100-0106 ET Apprentice Technical Training • A-100-0107 STG Apprentice Technical Training • A-100-0117 MN Apprentice Technical Training • A-100-0118 MT Apprentice Technical Training • A-100-0316 ATT Electronics Core • C-100-0109 AE Apprentice Technical Training • C-100-0110 AT I Apprentice Technical Training • C-100-0111 AO Apprentice Technical Training • C-100-0112 AT O Apprentice Technical Training • C-100-0113 AS Apprentice Technical Training • C-100-0116 CTM Apprentice Technical Training • C-100-0120 CTT Apprentice Technical Training • A-198-0054 Basic Electronic Test Equipment • C-198-6671 General Purpose Electronic Test Equipment Repair/Calibration
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FIGURE 23: COMPLETED SECTION 7.0, RECOMMENDATIONS AND SOLUTIONS STATEMENT

SECTION 4 - SUMMARY

Recommendations and Solution statements will identify appropriate instructional sequencing, assessment level, and media types/media delivery method strategies and provide an explanation for how the choices are integral components of the instructional strategy/rationale to close the training requirement gap or fulfill the reason for conducting the NETC-FEA. The products of Step 7 and approval authority are identified in Table 14.

TABLE 14: STEP 7, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 7.0, Recommendations and Solutions Statement to close the gap in training (Appendix A)	Project team

CHAPTER 9

OUTPUT STATEMENT

(STEP 8)

SECTION 1 - INTRODUCTION

The Output Statement, Step 8 of the Naval Education and Training Command-Front End Analysis (NETC-FEA) Process, provides the Curriculum Control Authority (CCA) with a high-level summary of recommendation(s) for alternative courses of action that support the Business Case Analysis (BCA) (NETCINST 1510.3) (Figure 24). The output statement will include the main points from the earlier sections completed in the NETC-FEA.

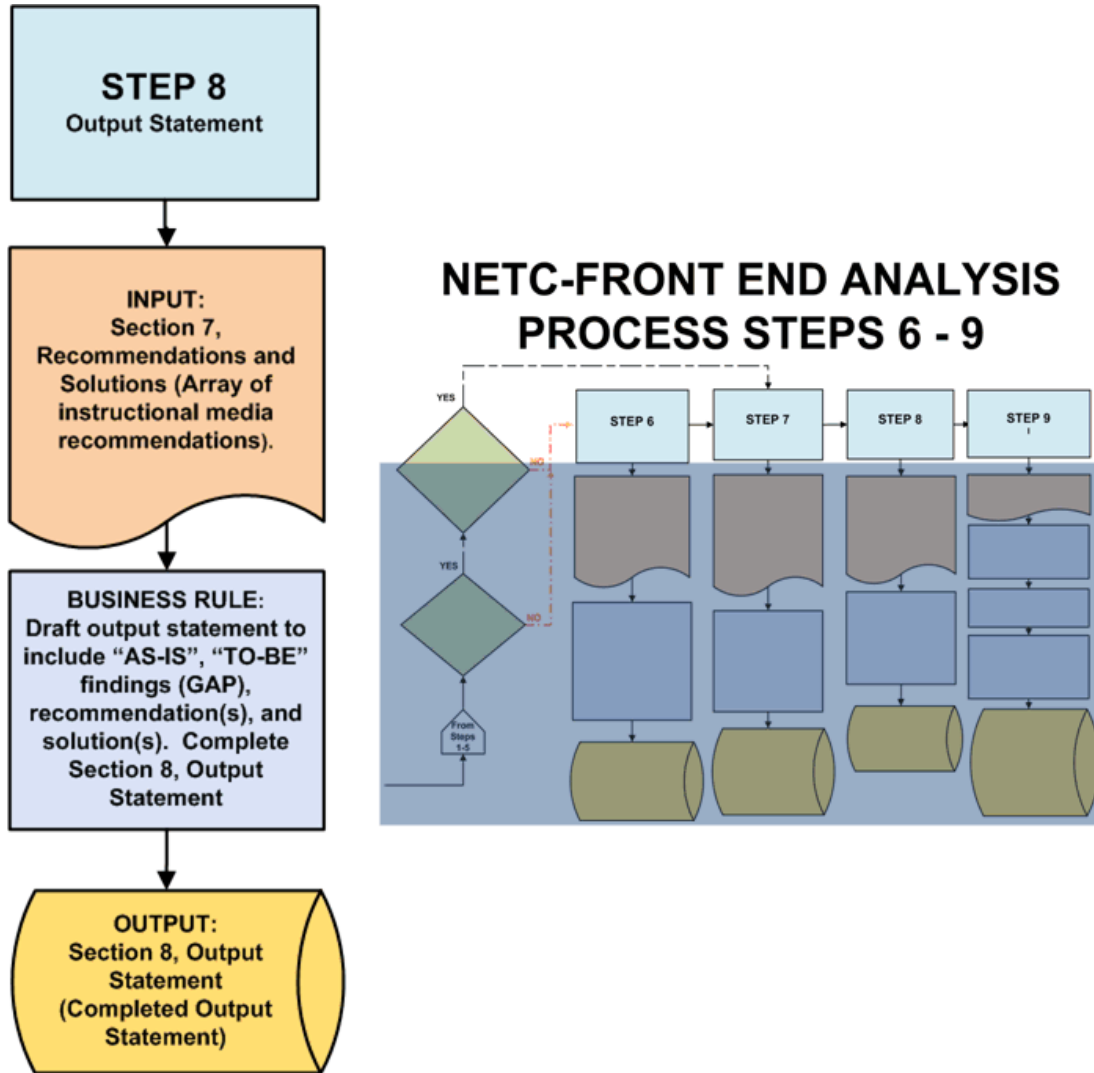


FIGURE 24: STEP 8, NETC-FEA OUTPUT STATEMENT

SECTION 2 - OUTPUT STATEMENT: INPUTS AND OUTPUTS

Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 15 occur during Step 8.

TABLE 15: STEP 8, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 8
Section 7.0, Recommendations and Solutions Statement (Appendix A), Job Duty Task Analysis (JDTA), knowledge, skills, abilities, tools, and resources (KSATR) Training Task Analysis (TTA), gap analysis, R3 recommendations, and solutions to close the gap in training
OUTPUTS FROM NETC-FEA STEP 8
Section 8.0, Output Statement (Appendix A)
TOOLS THAT SUPPORT NETC-FEA STEP 8
Content Planning Module (CPM), Authoring Instructional Material (AIM I and II), and media selection tool

SECTION 3 - DEVELOPING THE OUTPUT STATEMENT

The NETC-FEA output statement contains a brief description of the gap in training, the recommended solutions, and rationale for instructional strategy, sequence of instruction, media type selection, and media delivery modes for closing the training gap (Figure 25).

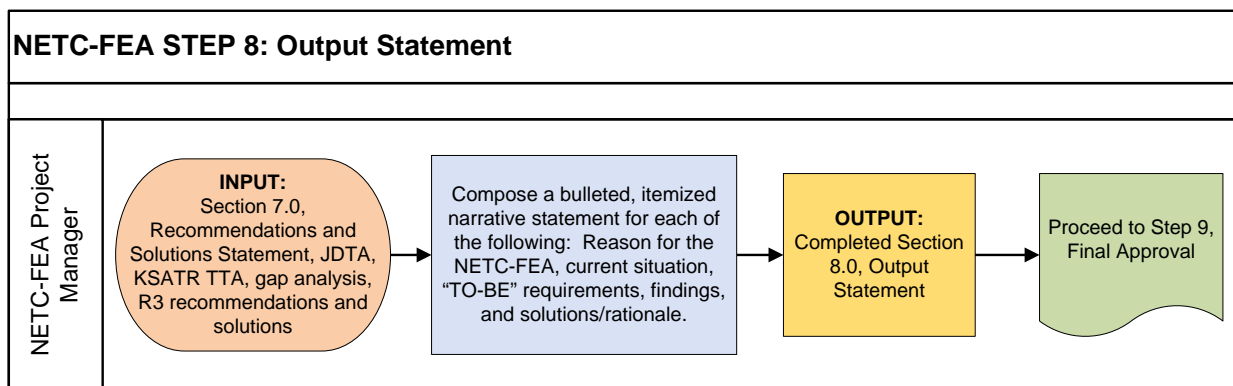


FIGURE 25: NETC-FEA OUTPUT STATEMENT

In Section 8 of Figure 26, compose and establish an "AS-IS" Comparative Baseline (current situation), "TO-BE" Training Requirements (new situation), findings, recommendation, and solutions. Every effort should be made to ensure all recommendations and solutions proposed comply with associated

information documented throughout each step of the NETC-FEA process.

8.0	OUTPUT STATEMENT INFORMATION
8.1	<p data-bbox="326 401 1122 432"><u>Establish an "AS-IS" Comparative Baseline:</u></p> <p data-bbox="326 485 1357 579">The Baseline Course Training Task List (CTTL) used for this is ELECTRONICS TECHNICIAN (ET) 'A' SCHOOL, A-100-0149.</p> <hr/> <p data-bbox="326 653 894 684"><u>"TO-BE" Training Requirements:</u></p> <p data-bbox="326 737 1276 800">Requirements identified during NETC's JDTA and listed in Section 3, TO-BE.</p> <hr/> <p data-bbox="326 863 1276 936"><u>Findings: (Gap in Training Requirements/Summary of Differences):</u></p> <p data-bbox="326 978 1390 1335">Currently a formal training course of instruction exists to support advanced skills training for ET "A" School personnel. However, it does not include training tasks or learning objectives (LOs) supporting the operation of General Purpose Electronic Test Equipment (GPETE) (see section 3). Consequently, the course does not include objectives or the opportunity for students to practice proficiency nor for the assessment or evaluation of student performance of GPETE operational skill tasks (e.g., pre-operational setup procedures).</p>
8.2	<p data-bbox="326 1398 1341 1472"><u>Recommendations and Solution Statement (rationale for closing the gap):</u></p> <p data-bbox="326 1524 1357 1776">It is recommended that a blended learning training solution be developed and implemented to provide training for the delivery of oscilloscope-unique knowledge and skills necessary to support occupational standards. The associated tasks and proposed learning content provide the basic framework to support the job tasks associated with requirements.</p>

	<p>The blended learning training solution is the instructional strategy for these training tasks and supporting LOs as it provides maximum opportunity for overtraining.</p> <p>Based on media types and media delivery modes analysis the instructional strategy recommendations for the GPETE oscilloscope content module are for a blended learning solution media types consisting of:</p> <p>Instructor/tutor</p> <ul style="list-style-type: none"> • IMI with ICW/SIM/electronic management systems - CAI, LMS/electronic publications. • Traditional print and digital materials. • Trainers/training devices-component trainers. <p>Knowledge interactivity components include:</p> <ul style="list-style-type: none"> • Problem-solving to synthesize lower levels of knowledge to resolve problems. • Media delivery modes: <ul style="list-style-type: none"> ▪ CBT (78.35%) ▪ ILT (55.27%) ▪ LAB (53.75%)
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FIGURE 26: COMPLETED SECTION 8.0, OUTPUT STATEMENT INFORMATION

NOTE

Before routing the NETC-FEA and supporting documents to the CCA for final approval, complete the NETC-FEA Approval Notification Letter (Appendix B) and attach to the NETC-FEA.

SECTION 4 - SUMMARY

The NETC-FEA Output Statement is a narrative summary of the previous NETC-FEA process steps. The statement must convey a complete, and logical presentation of "AS-IS," "TO-BE," training gap findings, reuse, repurpose, and reference (R3) opportunities, and media type/media delivery method recommendations that complement and support an integrated instructional strategy. Of foremost importance, the output statement must clearly align itself with the reason for

conducting the NETC-FEA and thoroughly mitigate each gap in training requirements. The product of Step 8 and approval authority are indentified in Table 16.

TABLE 16: STEP 8, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
Section 8.0, Output Statement (Appendix A)	CCA to CCMM coordinates with Course Supervisor and Learning Standards Officer (LSO)

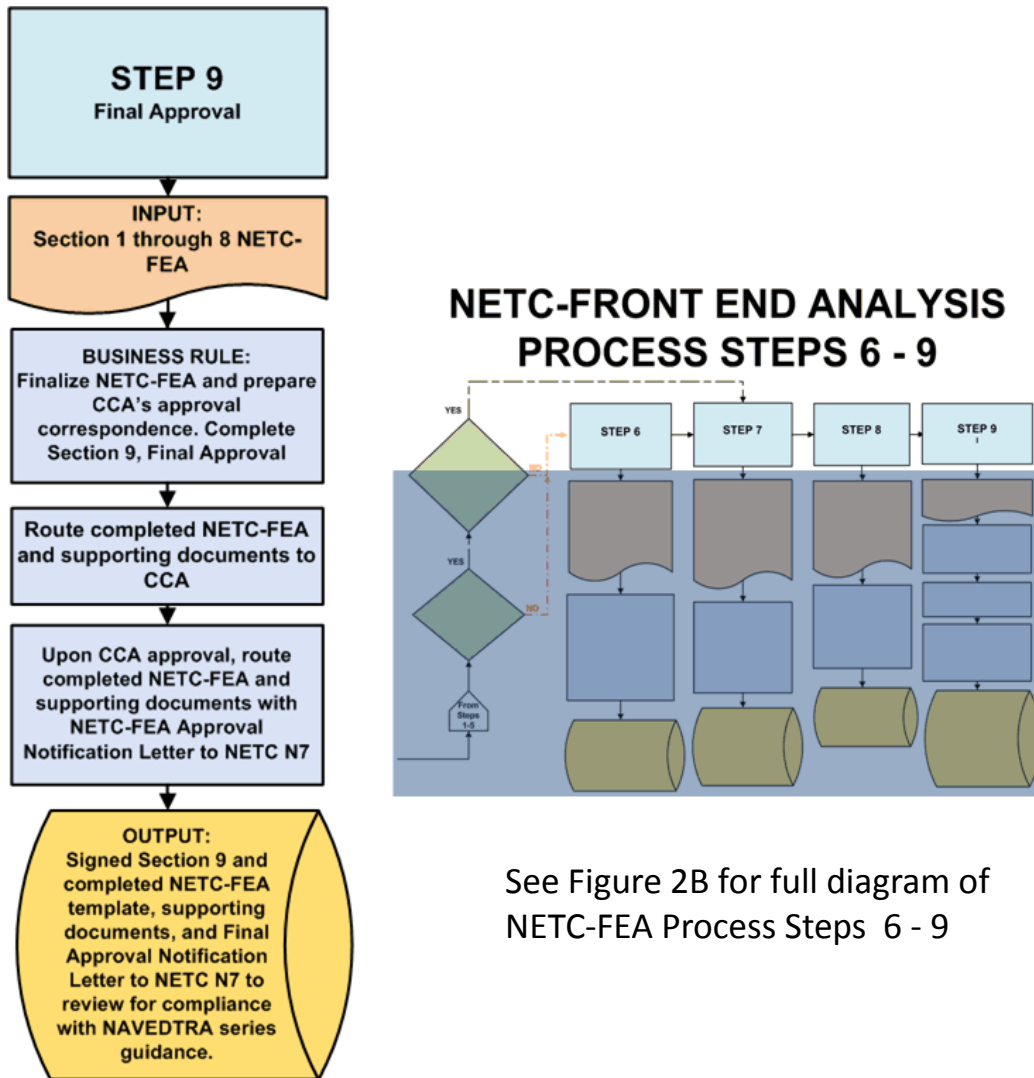
CHAPTER 10

FINAL APPROVAL

(STEP 9)

SECTION 1 - INTRODUCTION

The Final Approval, Step 9 in the Naval Education and Training Command-Front End Analysis (NETC-FEA) Process (Figure 27), identifies the source of the data used, training task analysis, training gap findings, instructional media types, and media delivery modes recommendations compiled in the NETC-FEA output statement. This step consists of preparing the completed NETC-FEA (Appendix A) with all associated source documents, (Job Duty Task Analysis (JDTA), project Course Training Task List (CTTL), Training Course Control Documents (TCCD) with annexes) and the NETC-FEA Final Approval Notification Letter (Appendix B) for routing to the Curriculum Control Authority (CCA) for final approval.



See Figure 2B for full diagram of NETC-FEA Process Steps 6 - 9

FIGURE 27: STEP 9, FINAL APPROVAL PROCESS

SECTION 2 - FINAL APPROVAL: INPUTS AND OUTPUTS

Depending on the scope and magnitude of the training requirement, the following inputs and outputs listed in Table 17 occur during this step.

TABLE 17: STEP 9, INPUTS, OUTPUTS, AND TOOLS

INPUTS TO NETC-FEA STEP 9
Sections 1 through 8.0, Output Statement (Appendix A)

OUTPUTS FROM NETC-FEA STEP 9
Section 9.0, Final Approval (Appendix A), NETC-FEA Final Approval Notification Letter

TOOLS THAT SUPPORT NETC-FEA STEP 9
Content Planning Module (CPM) and Authoring Instructional Material (AIM I and II)

SECTION 3 - FINAL APPROVAL

The NETC-FEA Final Approval process culminates the NETC-FEA. A NETC-FEA Approval Package shall be prepared and accomplished by following the Routing and Approval process (Figure 28).

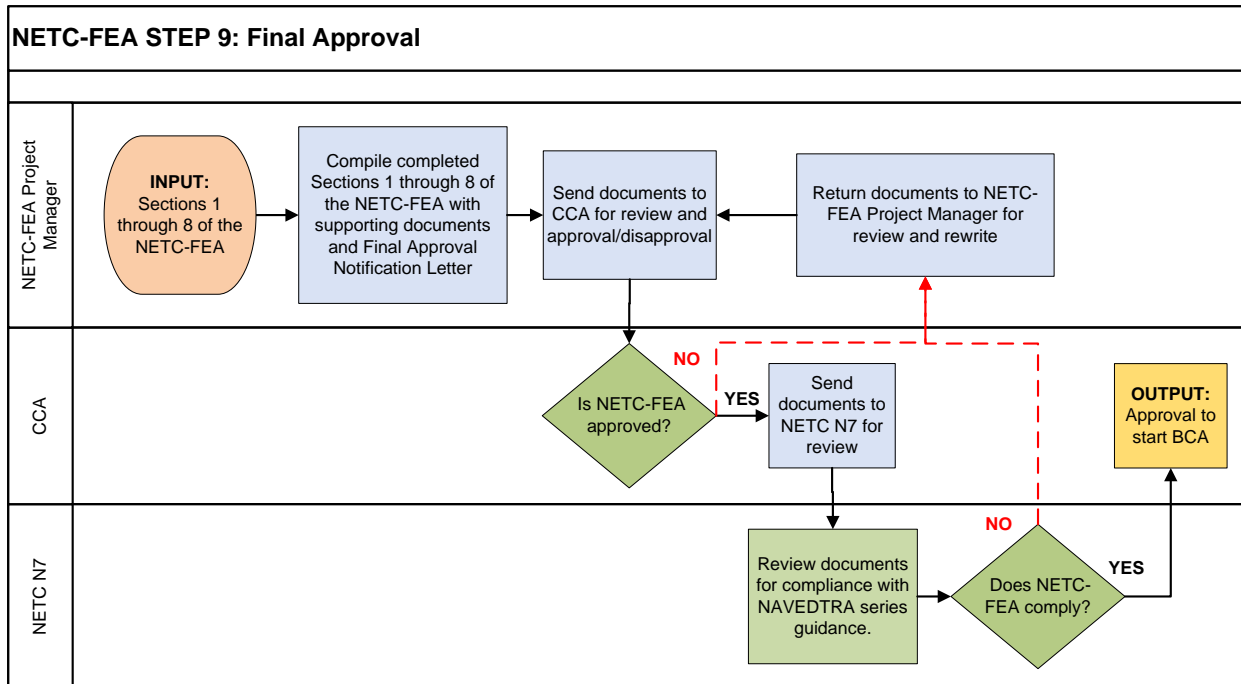


FIGURE 28: FINAL APPROVAL

To begin, the project team must compile the approval package to include a completed NETC-FEA and all supporting documentation. The approval package is routed with the NETC-FEA Approval Notification Letter to the CCA for approval.

The CCA shall use the completed NETC-FEA document to either "approve or disapprove" the NETC-FEA (Figure 29). In the event the CCA disapproves the NETC-FEA, the NETC-FEA document will be returned to the project team with an explanation of the reason(s) for disapproval. The Learning Center (LC)/Learning Site (LS) will resolve the disapproval criteria and will resubmit the completed NETC-FEA document with a resolution to the issue that caused disapproval as required.

The CCA approved NETC-FEA becomes the "trigger" event for the Business Case Analysis (BCA) to begin. A copy of the completed NETC-FEA and supporting documentation shall be routed to the NETC N7 for review of compliance with NAVEDTRA series guidance.

9.0	FINAL APPROVAL
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9.1	<u>CCA signature:</u> <i>Jane Doe</i> Approved: <input checked="" type="checkbox"/> Disapproved: <input type="checkbox"/>
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FIGURE 29: COMPLETED SECTION 9, FINAL APPROVAL

SECTION 4 - SUMMARY

The NETC-FEA process establishes a structured, standardized, repeatable, and defensible process that examines training requirements and identifies alternative approaches for training job tasks. The final output of the NETC-FEA Process is a recommendation of appropriate media selection and instructional strategies supporting formal training of each task or objective considered in the plan for the training program being developed. The output recommends instructional strategies that reflect the efficient and effective use of training resources. The NETC-FEA process output provides relevant and thoroughly analyzed data inputs required for the BCA process; that will enable Resource/Requirement Sponsors to make sound training decisions within budgetary and other constraints. The products of Step 9 and approval authority are identified in Table 18.

TABLE 18: STEP 9, PRODUCTS AND APPROVAL AUTHORITY

Products	Approval Authority
NETC-FEA, supporting documents, and approval letter	CCA approves NETC-FEA and forwards copy of NETC-FEA and supporting documents to NETC N7 to review for compliance with NAVEDTRA series guidance

ACRONYMS

ACAT	Acquisition Category
ADL	Advanced Distributed Learning
AIM	Authoring Instructional Materials
ATG	Afloat Training Group
BCA	Business Case Analysis
BITE	Built-In Test Equipment
CAI	Computer-Aided Instruction
CANTRAC	Catalog of Navy Training Courses
CBT	Computer Based Training
CCA	Curriculum Control Authority
CCMM	Course Curriculum Model Manager
CDAC	Content Discovery and Access Catalog
CD-ROM	Compact Disc-Read Only Memory
CeTARS	Corporate enterprise Training Activity Resource System
CMI	Computer Managed Instruction
CMS	Course Management System
CNETC	Commander, Naval Education and Training Command
CO	Commanding Officer
COA	Courses of Action
COMS	Contractor Operation and Maintenance Services
COTS	Commercial off-the-Shelf
CPM	Content Planning Module
CSOSS	Combat Systems Operating Sequencing System
CTTL	Course Training Task List
DAVIS	Defense Automated Visual Information System
DD/SA	Division Directors and Special Assistants
DHS	Department of Homeland Security
DIMOC	Defense Imagery Management Operations Center
DITIS	Defense Instructional Technology Information System
DLR	Depot Level Repairables
DMA	Defense Media Activity
DOD	Department of Defense
DVD	Digital Video Disc
E2E	End-to-End
ELO	Enabling Learning Objective
EO	Enabling Objective
EPSS	Electronic Performance Support System
ETM	Electronic Technical Manual
FCR	Formal Course Review
FEA	Front End Analysis
FEMA	Federal Emergency Management Agency

FLTMPS	Fleet Training Management and Planning System
GPETE	General Purpose Electronic Test Equipment
HPRR	Human Performance Requirements Review
HTML	Hypertext Markup Language
ICW	Interactive Courseware
IETM	Interactive Electronic Technical Manuals
ILE	Integrated Learning Environment
ILT	Instructor Led Training
IMDP	Instructional Media Design Package
IMI	Interactive Multimedia Instruction
ISD	Instructional System Development
ISS	Instructional System Specialist
ITRO	Inter-service Training Review Organization
JDTA	Job Duty Task Analysis
JTA	Job Task Analysis
KPL	Knowledge Proficiency Level
KSATR	Knowledge, Skills, Abilities, Tools, and Resources
LC	Learning Centers
LCMS	Learning Content Management System
LMS	Learning Management System
LO	Learning Objective
LOS	Learning Object Statement
LS	Learning Site
LSO	Learning Standards Office
MSC	Military Sealift Command
MST	Media Selection Tool
NAVEDTRA	Naval Education and Training
NAWCTSD	Naval Air Warfare Center Training Systems Division
NEC	Navy Enlisted Classification
NEOCS	Navy Enlisted Manpower and Personnel Classifications and Occupational Standards
NETC	Naval Education and Training Command
NETCINST	Naval Education and Training Command Instruction
NKO	Navy Knowledge Online
NOAA	National Oceanic and Atmospheric Administration
NTMPS	Navy Training Management and Planning System
NTSP	Navy Training System Plan
OCCSTDS	Occupational Standards
ORM	Operational Risk Management
PADDIE+M	Plan, Analysis, Design, Develop, Implementation, and Evaluation + Life-Cycle Maintenance Phase
PPP	Personnel Performance Profile
R3	Reuse, Repurpose, and Reference
RRL	Resource Requirements List

SCORM	Sharable Content Object Reference Model
SKL	Skill Knowledge Level
SIM/STIM	Simulation/Stimulation
SME	Subject Matter Expert
SPL	Skill Proficiency Level
TCCD	Training Course Control Documents
TDMC	Type Delivery Method Codes
TLO	Terminal Learning Objective
TO	Terminal Objective
TPP	Training Project Plan
TT	Training Task
TTA	Training Task Analysis
TTAP	Technical Training Audit Program
TTE	Technical Training Equipment
TYCOM	Type Commander
U.S.C.	United States Code
USDLA	United States Distance Learning Association
USFF	United States Fleet Forces
VI	Visual Information
VTT	Video Tele-training
XML	Extensible Markup Language

NAME OF URL:	URL:
Navy Knowledge Online (NKO)	https://wwa.nko.navy.mil/portal/home/
Authoring Instructional Media Content Planning Module (AIM CPM)	http://aim.aimereon.com/cpm/
MEDIATrax	(https://asmcw.nmci.navy.mil/MTrax/index.aspx)

GLOSSARY

The terms used within the NAVEDTRA 138 are defined as follows:

Ability. Power to perform an act, either innate or the result of learning and practice.

Abilities. Abilities are the enduring attribute(s) that enable an individual to perform an act. It is either innate or the result of learning and practice.

Advanced Distributed Learning (ADL). An evolution of Distributed Learning (DL) that is advanced with state-of-the-art technologies.

Apprentice. Someone who works for a skilled or qualified person in order to learn a trade or profession

Apprenticeship Training. The act of teaching someone a skill or occupation through on-the-job supervision. An apprentice works with a skilled professional to better learn a particular craft.

Asynchronous. Communication in which interaction between the participants is not simultaneous. Also, see the definition for "synchronous."

Attitude. The mental state of a person that influences behavior, choices, and expressed opinions. Military training uses the term attitude to identify the psychological term affective domain.

Audio. Sound based sensory stimuli. In some cases, audio cues may be the sole sensory stimulus possible. In most cases, audio is used to reinforce other sensory stimuli.

Audit Trail. A documented record of the relationships among data.

Authoring Instructional Materials (AIM) Content Planning Module (CPM). A government-managed web-based front-end analysis development tool that provides content planning and management capabilities. CPM is programmed around a Services Oriented Architecture (SOA) and can be used regardless of final training output and with any content authoring tool. CPM is a key tool that provides the connection between the description of work provided in the JDTA and the learning content developed to support the work. CPM may be used to support Instructional

Media Design Package (IMDP) and Training Course Control Document (TCCD) development in the Design Phase.

Behavior. Any human activity (skill, knowledge, or attitude), overt or covert, capable of being measured.

Behavioral objective. Identical to the definition for "Learning Objective (LO)."

Blended Learning/Blended Instruction. Refers to a mixing of different learning environments such as traditional face-to-face classroom methods with computer-mediated activities.

Business Case Analysis (BCA). The BCA provides an array of training solutions with associated cost which allow the Requirement Sponsor and Resource Sponsor to make an informed decision. The decision made, that finalizes the BCA, shall be used for course and test development. To ensure that the correct level of proficiency is trained to and then assessed, NETC has established the following proficiency levels for skill and knowledge:

- **Knowledge Proficiency Levels (KPLs).** Knowledge proficiency in the NETC training organization is scaled to three levels. The three levels are based upon Bloom's taxonomy of the cognitive domain (which are collapsed from six to three). The three groupings (levels of proficiency) from Bloom's six categories are:
 - (1) Knowledge and comprehension
 - (2) Application and analysis
 - (3) Synthesis and evaluation

These three levels of proficiency may be thought of as degrees of difficulty that are progressively mastered (in sequence). The following is a description of NETC's three KPLs:

- **Knowledge Proficiency Level 1 (KPL1).** (Knowledge/Comprehension). Knowledge proficiency expectations are: knowledge - can recall data or information; comprehension - understands the meaning, translation, interpolation, and interpretation of instructions and problems (can state a problem in one's own words). Knowledge is a fact, process, or procedure. It lacks ambiguity; there is only one correct answer. Generally, there are rules and documentation for correct answers. An example of a KPL1 "knowledge" test item is: Provide

the missing information in the following statement - A M60 Machine Gun on full auto, is capable of firing ... rounds a minute. An example of a KPL1 "comprehension" test item is: State the number of sustained firing rounds that a M60 Machine Gun can support.

- **Knowledge Proficiency Level 2 (KPL2).** (Application/Analysis). Knowledge proficiency expectations are: application - can use a concept in a new situation or unprompted use of an abstraction (applies what was learned in the classroom into novel work situations); analysis - can separate material or concepts into component parts so that its organizational structure may be understood (distinguishes between facts and inferences). Principles and concepts are added to processes and procedures. There is some ambiguity, but there is always a "best answer." An example of a KPL2 "application" test item is: A visual inspection of a M60 Machine Gun reveals rust on non-critical components. Two alternatives for this test item are (1) no action required to maintain functionality, (2) "best answer," despite the low threat of rust on noncritical parts, the best course of action would be to remove the rust with a solvent. An example of a KPL2 "analysis" test item is: In a combat situation when sustained firing is required, explain what problems you will experience with the M60 Machine Gun and how you will mitigate them. In this test item, there are two possible courses of action (1) continue firing the weapon and risk malfunction (hot barrel) culminating in a loss of life, (2) "best answer," replace barrel at first opportunity to ensure weapon functionality and force security.
- **Knowledge Proficiency Level 3 (KPL3).** (Synthesis/Evaluation). Knowledge proficiency expectations are: synthesis - builds a structure or pattern from diverse elements (put parts together to form a whole, with emphasis on creating a new meaning or structure); evaluation - makes judgments about the value of ideas or materials. This level of proficiency requires the performance of prediction, demonstration of concept mastery, and implementation of principles in accomplishing a task. Key skills are troubleshooting and problem solving. In this situation, opinion lines up with theory. An example of a KPL3 "synthesis" test item is: While at sea-and-anchor detail, standing security watch, armed with a M60 Machine Gun, a small

boat has disregarded three warnings. Describe and defend your course of action. An example of a KPL3 "evaluation" test item is: Compare and contrast the strengths and weaknesses of a ship's in port watch standing policies.

- **Skill Proficiency Levels (SPLs).** There have been many descriptions (theories) developed to describe the teaching of skills (psychomotor domain). After careful consideration, NETC has adopted a three level instructional model: imitation, repetition, and habit. The model provides a learning schema where basic skills start low and progressively advance to more sophisticated skills. The following is a description of NETC's three SPLs:
 - **Skill Proficiency Level 1 (SPL1) - (Imitation).** During training, the instructor shares essential information about the skill, such as facts, background information, safety considerations, etc. Then the instructor breaks the skills into small steps, demonstrates the skill, and allows the trainee to reenact or copy the skill. The skill expectation for imitation is: can perform a task but is not proficient. This level of proficiency requires the condition of supervision. The level's attributes are: work will require corrective action and excessive time will be required to complete the task. An example of SPL1 test item is: A job sheet that requires the trainee to replicate the instructor's demonstrated use of a multi-meter.
 - **Skill Proficiency Level 2 (SPL2) - (Repetition).** During training, the trainee repeatedly practices the task with the instructor. The trainee is able to ask questions, receive feedback, and practice in a safe environment. The skill expectation for repetition is: can perform tasks but has not had enough repetitions to achieve expert proficiency. This level of proficiency requires the condition of minimal supervision. The level's attributes are: work may (but generally will not) require corrective action and time on task will be within established standards. An example of SPL2 test item is: A job sheet that requires the trainee to perform difficult corrective maintenance on complex surface radar using approved technical publications, procedures, tools, and test equipment.

- **Skill Proficiency Level 3 (SPL3) - (Habit).** During training, the trainee develops such proficiency that they are able to perform the skill in half the time or at an expert level. Performance of the skill becomes second nature. When the trainees reach this level, they are able to create their own versions of the skill and teach others. The skill expectation for habit is: Can perform any task with an expert's proficiency. This level of proficiency requires the condition of no supervision. The level's attributes are "speed, accuracy, and precision." An example of SPL3 test item is: a job sheet that requires the trainee to perform a sequence of steps (sequence is critical) in a very confined time period - Perform Cardiopulmonary Resuscitation (CPR) on an electrical shock victim (dummy).

Case Study. A learning experience in which students encounter a real-life situation under the guidance of an instructor or computer in order to achieve an instructional objective.

Categories of Interactive Courseware (ICW) presentation. There are four categories of ICW presentation. Descriptions of ICW are as follows:

- **Category 1 - Low Grade Presentation.** This is the lowest (baseline) category of ICW development. It is normally a knowledge or familiarization lesson provided in a linear format (one idea after another). Category 1 is primarily used for introducing an idea or concept. The user has little or no control over the sequence and timed events of the lesson material. Minimal interactivity is provided by selective screen icons and inserted into the lesson through typical input/output peripherals and programming protocols. This category may include simple developed graphics and/or clip art, customer-provided video, and audio clips.
- **Category 2 - Medium Grade Presentation.** This category involves the recall of more information than a Category 1 presentation and allows the student more control over the lesson's scenario through screen icons and other peripherals, such as light pens or touch screens. Typically, Category 2 is used for non-complex operations and maintenance lessons. Simple emulations or simulations are presented to the user. As an example, the user is requested to rotate switches, turn dials, make adjustments, or identify and replace a faulted component as part of a

procedure. This category may also include simple to standard developed graphics and/or clip art and customer provided video and audio clips.

- **Category 3 - High Simulation Presentation.** This category involves the recall of more complex information (compared to Categories 1 and 2) and allows the user an increased level of control over the lesson scenario through peripherals such as light pen, touch screen, track ball, or mouse. Video, graphics, or combinations of both are presented simulating the operation of a system, subsystem, or equipment to the user. The lesson scenario training material typically is complex and involves more frequent use of peripherals to affect a transfer of learning. Operation and maintenance procedures are normally practiced with Category 3 scenarios and students may be required to alternate between multiple screens to keep pace with the lesson material. Multiple software branches (two to three levels) and rapid response are provided to support remediation. Emulations and simulations are an integral part of this presentation. This category may also include complex developed graphics and/or clip art and customer provided video and audio clips.
- **Category 4 - Real-time Simulation Presentation.** This ICW category involves more in-depth recall of a larger amount of information (compared to Categories 1, 2, and 3) and allows the user an increased level of control over the lesson. Every possible subtask is analyzed and presented with full, on-screen interaction, similar to the approach used in aircraft simulator technology. The lesson material is extremely complex and involves more frequent use of peripherals to affect the transfer of learning. This category normally supports certification, recertification, or qualification requirements. Complicated operation and maintenance procedures are normally practiced with Category 4 and involves all of the elements of Categories 1, 2, and 3 presentations plus 1) a high degree of interactivity; 2) an extensive branching (four or more levels); and 3) levels of sophistication - short of artificial intelligence.

Cognitive Domain. A classification of educational objectives characterized by their dependence upon the manipulation of language symbols (thinking) mental process.

Commercial Off-the-shelf (COTS). Items regularly used in the course of normal business operations for other than Government purposes that may be sold or licensed to the general public.

Computer Aided Instruction (CAI). The use of computers to support the delivery of instructor-led instruction (to include drill and practice, remediation tool, resource tool, etc.). CAI exploits computer technology to provide for the storage and retrieval of information for both the instructor and student. Also, see the definitions for "Computer Managed Instruction (CMI)," "Course Management System (CMS)," and "Learning Management System (LMS)."

Computer Based Courseware Portability. The capability to transfer courseware across various computer hardware or operating systems and have the courseware correctly function without modifications. Also, see the definition for "portability."

Computer Managed Instruction (CMI). At its simplest level, CMI provides computer support to instructor-led instruction by giving the instructor administrative support to include student registration, grade-book, and scheduling tools. A single computer can render these services. A more complex client-server environment may increase CMI functions to include student and group performance and trends, course and lesson content interaction with the student, scheduling training, course/lesson performance and use trends, and other training management functions. Also, see the definitions for "Computer Aided Instruction (CAI)," "Course Management System (CMS)," and "Learning Management System (LMS)."

Condition. The condition basically defines aiding and limiting factors imposed upon the learner in satisfying the performance requirements of the objective. This element may also define the degree of interaction with the training environment that the learner may expect. One of the major concerns in Navy training is to ensure that the conditions of the training environment approach those of real life. Objectives may contain several conditions or none at all. In some instances, objectives may contain no aiding or limiting factors, or the conditions of performance may be obvious. The objective should not include conditions that are not legitimate training concerns. The following are some examples of conditions:

- . . . given a list of . . .
- . . . without the use of references . . .

. . . provided with a Model X calculator . . .
. . . in a damage control wet trainer . . .

When combined with the behavior element, the condition element provides a clearer understanding of the learning outcome defined by the objective.

Content Planning Module (CPM). A government-managed web-based front-end analysis development tool that provides content planning and management capabilities. CPM is programmed around a Services Oriented Architecture (SOA) and can be used regardless of final training output and with any content authoring tool. CPM is a key tool that provides the connection between the description of work provided in the JDTA and the learning content developed to support the work. CPM may be used to support Instructional Media Design Package (IMDP) and Training Course Control Document (TCCD) development in the Design Phase.

Constraints. Limiting or constraining conditions or factors.

Contractor. An individual or organization outside the U.S. Government that has accepted any type of agreement or order for providing supplies or services to a U.S. Government Agency.

Corrective Maintenance. The actions performed, because of failure, to restore an item to a specified condition.

Correspondence Course. A self-study course consisting of instructional material and an assignment booklet (or lessons) for administration to nonresident students. Also, see the definitions for "distributed learning" and "extension training."

Corporate enterprise Training Activity Resource System (CeTARS). A government-managed web-based system that is the Navy's Corporate Training Database and the sole source of official Navy Training statistics for all formal training.

Course. A complete integrated series of lessons that are identified by a common title and/or number. Also, see the definitions for "instructional unit," "lesson," and "module."

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

analyses of feedback, maintains course audit trail documentation, and develops and approves changes.

Course Training Task List (CTTL). The CTTL is the output of the Analyze Phase and is the building block of the new/revised course.

Criterion. The standard by which something is measured. In training, the task or learning objective standard is the measure of student performance. In test validation, it is the standard against which test instruments are correlated to indicate the accuracy with which they predict human performance in some specific area. In evaluation, it is the measure used to determine the adequacy of a product, process, or behavior.

Critical Task. A collective or individual task that, if not accomplished to the specified standard by a unit or individual, results in a serious adverse effect upon mission accomplishment, survivability, or safety. Critical tasks must be trained. Also, see the definition for "training task."

Curriculum. A set of courses constituting an area of specialization. All training conducted within a school, outlined into specific topics, along with detailed training objectives, to include behavior, conditions, and standards.

Data. Recorded information, regardless of form or method of recording.

Defense Automated Visual Information System (DAVIS). A standard, DoD-wide automated data processing system for managing Visual Information (VI) at the DoD Component and major command levels. DAVIS includes a production database covering production, acquisitions, inventory, distribution, product status, and archival control of audiovisual productions and VI materials, and a VI facilities database that includes activities, facilities, personnel, and funds.

Defense Data Dictionary System (DDDS). The DoD repository that contains approved Standards Data Elements (SDE). For each SDE there is information provided that includes a definition of the SDE, the field type structure (e.g., numeric, alpha, alphanumeric), field size (how many characters are allowed), and other data. The DDDS allows for the development, approval, and maintenance of standardized metadata for DoD. Standardized metadata provides a structure for re-use of data across

Relational Database Management Systems (RDBMS). Also, see the definition for "DoD Data Architecture (DDA)."

Defense Instructional Technology Information System (DITIS). A standard, DoD-wide database designed to facilitate resource sharing within the DoD Components by providing a central source of Interactive Courseware (ICW) information. The DITIS database provides information on all DoD-owned ICW programs, whether fielded or under development, including information on delivery system, operating software, authoring tools and courseware for both planned and fielded ICW systems.

Defense Technical Information Center (DTIC). The organization that acquires, stores, retrieves, disseminates, and enhances technical information for research and development for government and industry.

Distributed Learning (DL). Structured learning that takes place without the physical presence of the instructor. DL is enhanced with technology. It may draw upon resources which are physically distant from the location where learning is taking place and may include the use of one or more of the following media: correspondence course materials, audio/videotapes, Compact Disc-Read-Only Memory (CD-ROM), audio/videoteletraining, interactive television, and video conferencing, to provide right-time, right-place learning. Also called "distance learning."

Duty. A duty is a set of related tasks within a given job. A duty is a major part of a job. A duty is comprised of one or more tasks, occurs frequently, and occupies a significant amount of time.

Electronic Guides. A type of electronic publication.

Electronic Performance Support System (EPSS). An integrated electronic environment that is available to and easily accessible by each user and is structured to provide immediate, individualized access to the full range of information, software, guidance, advice and assistance, data, images, tools, and assessment and monitoring systems to permit performance with minimal support and intervention by others. EPSSs can also be considered a type of job performance aid. Also called "electronic job aid."

Electronic Publications. A document prepared in a digital form on a suitable medium for electronic-window display to an end

user. Two examples of electronic publications are electronic guides and Interactive Electronic Technical Manuals (IETM). Also, see the definitions for "electronic guides" and "Interactive Electronic Technical Manuals (IETM)."

Emulation. Mimicking the operation or characteristics of another system.

Enabling Objective (EO). A statement in behavioral terms of what is expected of the student in demonstrating mastery at the knowledge and skill level necessary for achievement of a Terminal Objective (TO) or another EO.

End-to-End (E2E) Process. The NETC Course Development and Revision Process was created to instill the proper programatics and governance for content development and revision within the NETC domain. OPNAV is currently working to create high-level instructions to invoke the process and policy documents (identified above) across NTF. The process and policy documents are referenced within the revised OPNAV 1500.76B TRPPM Instruction, which addresses ACAT I and ACAT II Programs. The end-to-end (E2E) process will ensure the reference, re-use, and re-purpose of content development data; thus eliminating the premium that we have typically paid in the past to contractors to re-build required artifacts or make revisions to existing courseware.

Entry Behavior. The knowledge and skills a student has when entering a course of instruction.

Entry Skills. Identical to the definition for "prerequisite."

Environment. The physical conditions and surroundings in which a job is performed or in which learning takes place.

Equipment. A part of a system or subsystem for which operation and maintenance can be performed.

Exercise. Something done or performed as a means of practice or training.

Experiential Learning. The process of making meaning from direct experience.

Evaluation. Judging, assigning, or affixing the worth of something.

Fault. A malfunction of equipment/firmware/software.

Feedback. Information provided that indicates the appropriateness of responses. Feedback may also be an indicator of the efficiency or effectiveness of the system or product.

Fidelity. The degree to which a sensory stimulus accurately represents reality.

Formal Course. Training course outlined in formal training syllabus that accepts a student with prescribed entry prerequisites and ensures that each graduate possesses the knowledge, skills, and levels of proficiency set forth in the course objectives or training standards.

Formal Lecture. A structured and often rehearsed teaching session with no verbal participation by students. Also, see the definitions for "lecture" and "informal lecture."

Formal On-the-Job Training (FOJT). Formal training that takes place in the actual work situation. Also, see the definition for "On-the-Job Training."

Formal Training. Training (including special training) in an officially designated course conducted or administered in accordance with appropriate course outline and training objectives.

General Purpose Electronic Test Equipment (GPETE). GPETE includes electronic test equipment that has the ability, without modification, to test two or more prime equipments or systems of basically different designs.

Graphic. A visual representation of an idea, object, or other factors, shown by means of lines, marks, shapes, and symbols. A still picture, illustration, symbol, shape, or other visual image (e.g., charts, graphs, line drawings, illustrations, equipment panels, animation, 3-D).

Group-paced Instruction. Students progress as a group at a rate equal to that of the slowest student. There is no fixed minimum time for a unit.

Handbook. A document prepared specifically to provide guidance information. Handbooks are used for the presentation of general information, procedural and technical use data, or design

information related to commodities, processes, practices, and services.

Hands-on. Student practice on actual equipment, simulators, or training aids.

Hazard. A condition with the potential of causing injury to personnel, damage to equipment or structure, loss of material, or lessening of ability to perform a mission, task, or learning objective.

Hybrid Trainer. A trainer that is a composite trainer containing several related end item systems utilizing hardware and simulation of components. Provides capability for overall system operation and demonstration, and for the performance of tasks for several interconnected and interfaced systems and subsystems contained in the related series end items.

Individual Training. Training that prepares the individual to perform specified duties or tasks related to assigned duty position or subsequent duty positions and skill level.

Informal Lecture. An often conversational teaching method with considerable verbal interaction between instructor and student in the form of both questions and discussion. Also, see the definitions for "formal lecture" and "lecture."

Inspection. The action of determining whether a process or product is in compliance with established standards and procedures.

Instruction. The delivery of information to enable learning. The process by which knowledge and skills are transferred to students. Instruction applies to both training and education.

Instructional Concept. An initial estimate of what the instruction should do and what it should look like.

Instructional Delivery Mode. The communication format (e.g., electronically distributed, instructor led) which will be used to convey the instruction.

Instructional Delivery System. Instructional delivery systems such as training devices, training equipment, training aids, and/or Interactive Multimedia Instruction (IMI), which are used to convey the instruction.

Instructional Design. The philosophy, methodology, and approach used to deliver information. Some courseware aspects include question strategy, level of interaction, reinforcement, and branching complexity.

Instructional Material. All items of material prepared, procured, and used in a course or program as part of the teaching or general learning process.

Instructional Media. The means used to present information to a trainee to induce learning.

Instructional Program. A course of study that meets a training requirement.

Instructional Requirements. The knowledge, skills, and attitudes that are necessary to satisfy job performance.

Instructional Setting. The location and physical characteristics of the area in which instruction takes place. The setting can be in a classroom, laboratory, field, or workplace location. An example is: a clean, well lighted, temperature controlled classroom equipped with individual desks, chairs, and individual video monitors.

Instructional Strategy. The general concept by which instruction is to be delivered to the student (e.g., programmed learning, traditional learning, exercise learning, small group learning, pure group learning, mentor or apprentice learning). Also, see the definition for "technique of delivery."

Instructional System. An integrated combination of all elements (e.g., training material and equipment, personnel, support) necessary to conduct training. Also called "training system."

Instructional Systems Development (ISD). A process for the analysis, design, development, implementation, evaluation, revision, and operation of a collection of interrelated training elements. A logical process for effectively and efficiently determining what, where, when, and how tasks should be taught. A process for effectively and efficiently achieving a required outcome based on documented needs. A process in which performance requirements are explicitly defined from an analysis which occurs in a training development effort; includes a subsequent specification of performance requirements in terms of behavior objectives; is followed by the development of criterion tests which match job performance; and, with the appropriate

curriculum development efforts supporting training on specified objectives. The entire process undergoes extensive evaluation to ensure the validity of the process. Also, see the definition for "Systems Approach to Training (SAT)."

Instructional Systems Specialist (ISS). This job includes professional positions the duties of which are to administer, supervise, advise on, design, develop, or provide educational or training services in formal education or training programs. The work requires knowledge of learning theory and the principles, methods, practices and techniques of one or more specialties of the instructional systems field. The work may require knowledge of one or more subjects or occupations in which educational or training instruction is provided. Also called "Instructional Systems Designer."

Instructional Unit. An assembly of lessons that have been integrated either to complete a usable bit of knowledge or skill or to aid in scheduling a course or program. The basic components of courses. Also, see the definitions for "course," "lesson," and "module."

Instructor. An individual who presents instruction.

Interactive. The direct and active participation in an event or activity. When applied to instruction, interactivity involves the direct and active participation of the student in the instructional events.

Interactive Courseware (ICW). ICW is computer controlled courseware that relies on trainee input to determine the pace, sequence, and content of training delivery using more than one type medium to convey the content of instruction. ICW can link a combination of media, to include but not be limited to, programmed instruction, videotapes, slides, film, television, text, graphics, digital audio, animation, and up to full motion video, to enhance the learning process.

Interactive Electronic Technical Manuals (IETM). An IETM is a technical manual delivered electronically. The IETM possesses the following three characteristics:

- 1) It can be presented on either a desktop workstation or a portable device,
- 2) The elements of data constituting the IETM are so interrelated that a user's access to the information is achievable by a variety of paths, and

- 3) It can function to provide procedural guidance, navigational directions, and other technical information required by the user.

Interactive Multimedia Instruction (IMI). IMI is a term applied to a group of predominantly interactive, electronically-delivered training and training support products. IMI products include instructional software and software management tools used in support of instructional programs.

Interactive Training System. An instructional system that requires a student to interact with the system through the learning process.

Job. A job is comprised of duties and tasks. It is composed of the duties, tasks, subtasks, and steps performed by an individual that constitute their job. It is comprised of one or more duties and it may be associated with the appropriate NEC or watch station. The job is the basic unit used in carrying out the personnel actions of selection, training, classification, and assignment.

Job Analysis. The basic method used to obtain facts about a job, involving observation of workers, conversations with those who know the job, analysis questionnaires completed by job incumbents, or study of documents involved in performance of the job.

Job Duty Task Analysis (JDTA). JDTA data provides detailed descriptions of the work performed by Sailors and is the basis for the NETC Front-End Analysis (FEA). The JDTA Process is to establish a repeatable and defensible job analysis process to support content development or revision in order to satisfy Fleet training requirements. NETC commands shall use NAVEDTRA 137 to complete JDtas. JDTA shall be captured using the Authoring Instructional Materials (AIM) Content Planning Module (CPM) (<http://aim.aimereon.com/cpm/>).

Job Task Analysis (JTA). A process of examining a specific job to identify all the duties and tasks that are performed by the job incumbent at a given skill level.

Joint Training. Training in which elements of more than one service of the same nation participate and meets the requirements of the Joint Training Manual (CJSM 3500.03).

Journeyman. A person who has learned a trade and works for another person in that specialty.

Knowledge. Specific information required for the student to develop the skills and attitudes for effective accomplishment of the jobs, duties, and tasks.

Knowledge, Skills, Abilities, Tools, and Resources (KSATR).

KSATRs are derived by the JDTA team at the conclusion of the JDTA and shall be captured using AIM CPM. KSATR are specific to individual tasks, subtasks, and steps which are defined as follows:

- **Knowledge:** An understanding of facts or principles relating to a particular subject area and applying directly to the performance of a function.
- **Skill:** The ability to perform a job related activity that contributes to the effective performance of a task. Skills are the proficiencies needed to perform a task.
- **Ability:** An enduring attribute of the individual that influences performance and enables the performance of tasks.
- **Tool:** An item needed to perform the work.
- **Resource:** The informational source or reference material used to locate information or house information about processes. Resources include items such as manuals, publications, guides, handbooks, instructions, tutorials, documents, reports, forms, blueprints, plans, specifications, codes (e.g., National Electrical Code), regulations, etc.

Learner. Identical to the definition for "student." Also called "trainee."

Learner Characteristics. The traits, such as reading level, possessed by learners that could affect their ability to learn. These characteristics are included in the target population description.

Learning. The act, process, or experience of gaining knowledge or skill. The result of learning is a change in the behavior of the student. The behavior can be physical and overt, intellectual, attitudinal, or a combination of these types of behavior.

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

Learning Level. A step within the hierarchy of each learning type. Each learning type is divided into a hierarchy consisting of levels that progress from the simple to the complex. These levels include fact learning, rule learning, procedure learning, problem solving, gross motor skills, etc. Also, see the definition for "learning type."

Learning Management System (LMS). The LMS provides management of curriculum, course(s), and student data of an organization. The LMS also provides student and instructor interaction with all instructional elements of a Web or network-based (i.e., Internet, intranet, and extranet) courses. An LMS provides curriculum management for both resident and distributed learning. The primary high-level functions of an LMS include launching a course, student registration, report generation, scheduling, data gathering, and processing of student performance data. Also, see the definitions for "Computer Aided Instruction (CAI)," "Computer Managed Instruction (CMI)," and "Course Management System (CMS)."

Learning Objective (LO). A statement of the behavior or performance expected of a trainee because of a learning experience, expressed in terms of the behavior, the conditions under which it is to be exhibited, and the standards to which it will be performed or demonstrated. Also called "behavioral objective" and "training objective." Learning objectives are found on the CTTL. They describe what the learner must achieve to successfully complete the course of instruction. Learning objectives shall include terminal and enabling objectives. Refer to NAVEDTRA 130 (Series) for general guidance on writing learning objectives. Learning objectives shall be constructed using the Authoring Instructional Materials (AIM) Content Planning Module (CPM) and approved by the Curriculum Control Authority (CCA). Within AIM CPM, learning objectives are constructed based on content type (i.e., concept, facts, procedure, process, and principle). The five content types are defined as follows:

- **Concept:** A category that includes multiple examples. It comprises a group of objects, ideas, or events that are represented by a single word or term, and share common features.

- **Facts:** Unique and specific information usually represented in the form of a statement.
- **Procedure:** A sequence of steps that are followed systematically to achieve a task or make a decision. A procedure contains directions or procedural tasks that are done in the same way every time.
- **Process:** A flow of events that identify how something works. Topics that list a chain of events that are performed by an organization usually represent a process.
- **Principle:** Consists of directions that outline guidelines for action in which people must adapt the rules to various situations. Principles typically require a person to make decisions when applying them. Tasks that are completed in different ways each time by applying the guidelines usually represent principles.

Learning Site (LS). A Navy command which has a primary mission of conducting or supporting training. A school or institution that offers Navy courses. 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.

Lecture. A communication method primarily involving verbal presentation of information. Also, see the definitions for "formal lecture" and "informal lecture."

Lesson. A segment of instruction that contains one or more learning objectives, information to be imparted to the student, and may contain an evaluation instrument. The lesson is designed in detail and is the basic building block of all training. Also, see the definitions for "course," "instructional unit," and "module."

Level of Learning. The degree to which a student is expected to develop knowledge or understanding of a subject, learn facts, internalize a set of values, or display proficiency in a psychomotor skill.

Maintenance. The physical act of preventing, determining, and correcting equipment or software faults. It includes all actions taken to retain system/equipment/product in a useful serviceable condition or to restore it to usefulness/serviceability. Maintenance includes inspection, fault isolation, testing, and servicing.

Mastering. A process in which the premaster videotape is used to modulate a laser onto a photosensitive, glass master disk; the manufacturing process that creates a glass master, and then a metal mold disk, from which others (plastic substrate) are replicated.

Mastery. Attainment of a competency or proficiency in an ability.

Media. The delivery vehicle for presenting stimuli. Also called "training media."

Media Selection. The process of selecting a media delivery vehicle.

Mental Skills. Those processes of identifying, classifying, using rules, and solving problems that involve active mental processing. Mental skills include such functions as thinking, reasoning, analyzing, judging, and inferring. Also, see the definition for "physical skills."

Mentoring. Instruction through a process that facilitates personal and professional growth in an individual by sharing the knowledge and insights that have been learned through the years.

Milestone. A significant or important event in a program or project.

Mock-up. A three-dimensional training aid designed to represent operational equipment. It may be a scaled or a cutaway model and may be capable of disassembly or operational simulation.

Modular. Consisting of independent units that may be used as part of a total structure or may be used independently.

Module. A stand-alone instructional unit that is designed to satisfy one or more learning objectives. A separate component complete within itself that can be taught, measured, and evaluated for a change or bypassed as a whole; one that is interchangeable with others, used for assembly into units of differing size, complexity, or function. A module consists of one or more lessons. Also, see the definitions for "course," "instructional unit," and "lesson." Also called "annex" or "subcourse."

Multimedia. Combining static media (i.e., text and pictures) with dynamic media (i.e., sound, video, and animation) on the same system.

Navy Enlisted Classification (NEC). Codes that reflect special skills and knowledge that identify personnel and requirements when the rating structure is insufficient by itself for manpower management purposes. Completion of an advanced school is often a requirement for awarding a NEC.

Needs Analysis. Systematic in-depth analysis and verification of training discrepancies and emerging needs identified by a needs assessment. The results of the Needs Analysis are the definition of performance deficiencies and the isolation of potential solutions. This analytical process addresses the specific nature of the deficiency.

Needs Assessment. The systematic process for identifying the causes of discrepancies between what exists and what is currently required, and for identifying the causes of potential discrepancies between current and future requirements. The process in which performance discrepancies are focused upon to determine where the discrepancies exist (e.g., environmental, training, instruction, personnel, equipment).

Occupation. An "occupation" is a family of jobs that share a common set of skills. A job family includes all jobs at the various skill levels in a particular field of work. In the Navy, an occupation can be associated with a rating and is comprised of one or more jobs.

Occupational Specialty. A group of duty positions that require closely related knowledge and skills.

Operational Equipment. Actual equipment designed for use by operational units to accomplish their mission, as distinguished from that equipment designed only for training purposes.

Performance. Part of a criterion objective that describes the observable student behavior (or the product of that behavior) that is acceptable to the instructor as proof that learning has occurred.

Personnel Performance Profiles (PPP). Lists of required skills and supporting knowledge for curriculum development based on the NAVEDTRA 131.

Phase. A major part of a training course that contains one or more modules. Also, see the definition for "phased training."

Physical Skills. Skills that require physical movement related activities. Also, see the definition for "mental skills." Also called "psychomotor skills."

Pipeline. The total time involved in training personnel once they are designated as students. This includes time traveling to the training activity, time awaiting instruction, time of actual training, time from termination of training until reporting to the ultimate duty station; may include more than one training activity.

Platform and Component Trainer. Utilizes actual system components that function in the same manner as when installed in the end item. Uses actual system, subsystems, and assemblies located as close as possible to their location in the end item. The trainer includes actual wiring, plugs, mounting racks, securing devices, and any other common hardware deemed necessary to enhance the realism of training.

Population. A well-defined group of subjects, things, or characteristics from which measurements are taken (e.g., all students 6 feet or taller). Also, see the definition for "student target population."

Portability. The capability to run courseware and associated application programs without modification on an instructional delivery system other than the system for which they were originally designed. Also, see the definition for "computer based courseware portability." Also called "transportability."

Practical Exercise. A technique used during a training session that permits students to acquire and practice the knowledge, skills, and attitudes necessary to successfully perform one or more training objectives.

Practice. Repeated and systematic performance to gain proficiency using the psychomotor, cognitive, and affective skills, acquired in the training phase. Initial practice occurs while the student is acquiring skills; proficiency practice occurs at intervals after training so that the skills may be refreshed. Practice enables the student to perform the job proficiently.

Prerequisite. A requirement the trainee must possess before being able to attend a training course or lesson. Also called "entry skills" and "training prerequisite."

Presentation Media. Media (e.g., printed materials, audio-visual devices, hardware simulators, stimulators) used to convey or communicate information to individuals engaged in learning.

Procedural Task. A task for which a set of procedures has been published to produce the desired results. The procedures may be either a single fixed array (linear) or a set of alternatives on the contingencies encountered (branching).

Procedures Trainer. A non-dynamic system that allows procedural training to be accomplished. It could take the form of a mock-up or a weapon system procedures trainer.

Proficiency. Ability to perform a specific behavior (e.g., task, learning objective) to the established performance standard in order to demonstrate mastery of the behavior.

Programmed Instruction. A method of teaching in which the information to be learned is presented in discrete units, with a correct response to each unit required before the learner may advance to the next unit.

Psychomotor Domain. A major area of learning that deals with acquiring physical skills requiring dexterity, coordination, and muscular activity. Also, see the definition for "psychomotor skills."

Psychomotor Skills. Identical to the definition for "physical skills." Also, see the definitions for "mental skills" and "psychomotor domain."

Realism. The extent to which an operator's experience in a training device corresponds to experiences as they would actually occur in/on the operational system/equipment under a given set of conditions.

Reference. The use of an existing object as an information source or resource for generating ideas for new learning events.

Repurpose. The use of an existing object in a new learning event with some to little modification to its instructional treatment, context, or content.

Resource Requirements List (RRL). The RRL is a composite listing of all the material needed to conduct training.

Resident School. A training location other than the individual's assigned unit where the individual is a full-time student.

Resources. The equipment, facilities, funds, personnel, time, texts, references, films, graphics, and other instructional media materials required to support the training program. Also called "training resources."

Reuse. The use of an existing object in a new learning event without any modification to its instructional treatment, context, or content.

Risk. A hazard, danger, or peril; exposure to loss or injury; the degree of probability or loss.

Scenario. A logical and realistic presentation of mission objectives and specific mission tasks (i.e., Operate General Purpose Electronic Test Equipment (GPETE)) required by the formal training syllabus in corresponding mission lesson plans.

Search. In the process of rapidly accessing a specific address, identified by its unique sequential reference number.

Segment. A basic unit of Interactive Courseware (ICW), with a fixed duration, containing enough information to enable a viewer to absorb, comprehend, and respond.

Self-paced Instruction. Instruction that permits progress at the student's rate of learning. Also called "individual-paced instruction."

Self-study. Individual study by which a person learns new knowledge or skills or reinforces knowledge or skills already learned.

Sensory Stimulus. An action, agent, or condition that activates/stimulates a human sense (e.g., hearing, sight, smell, equilibrium).

Sequence. Two or more frames forming one visual unit (e.g., motion sequence, still-frame sequence).

Simulations. Any representation or imitation of reality. The representation of the salient features, operation, or environment of a system, subsystem, or scenario.

Simulator. A training device that substitutes for, by emulation, the functions, and environment of actual equipment or systems. Any training device, machine, or apparatus that reproduces a desired condition or set of conditions synthetically. Specifically for training, a relatively complex item of training equipment, using electronic/mechanical means to reproduce conditions necessary for an individual, or a crew, to practice operational tasks in accordance with training objectives. It represents the operational equipment physically and functionally to varying degrees and follows the mathematical equations that describe performance.

Skill. The ability to perform an activity that contributes to the effective completion of a task.

Skill Level. A list of proficiency requirements for performance of a specific job, and the level of proficiency at which an individual qualifies in that occupational specialty/grade.

Small Group Instruction (SGI). A means of delivering training which places the responsibility for learning on the student through participation in small groups led by small group leaders who serve as role models throughout the course.

Source Document. Documents that are used in the course of the FEA (i.e., Course Training Task List (CTTL), Personnel Performance Profile (PPP), Training Course Control Document (TCCD), or Job Duty Task Analysis (JDTA)).

Specification. A document prepared to support acquisition that describes essential technical requirements for materiel and the criteria for determining whether those requirements are met.

Step. A step is a major part of a subtask. A step is the most specific form of behavior and is the smallest component defined in the process.

Stimulation. An excitation to activity caused by an event, situation, condition, signal, or cue to which a response must be made.

Stimulator. A training device designed for inter-connection with operational equipment, that will artificially create

conditions that somewhat replicate conditions encountered in the operational environment. Also, insertable or inducible faults for trainers and simulators.

Stimulus. The event, situation, condition, signal, or cue to which a response must be made.

Student. An individual who has been placed in a learning situation in order to acquire skills, knowledge, and attitudes. Also called "learner" and "trainee."

Student Target Population. The audience for which training presentation is directed, or the audience for which training materials are designed. Also, see the definition for "population."

Subtask. A subtask is a major part of a task. A subtask may be made up of a series of steps performed under the standards and conditions of a task. A subtask has a logical relationship with a task, duty, job, occupation. A subtask may be comprised of one or more steps and fills a portion of the immediate purpose within a task.

Synchronous. Communication in which interaction between the participants is simultaneous through two-way audio or video, computer document conferencing, or chat rooms. Also, see the definition for "asynchronous."

System. A grouping of functionally related subsystems operating together to support a major function.

Systems Approach. A process that synthesizes and interrelates the components of a process within a conceptual framework, ensuring continuous, orderly, and effective progress toward a stated goal.

Systems Approach to Training (SAT). A training development process. It is a disciplined, logical approach to making collective, individual, and self-development training decisions. It determines whether training is needed; what is trained; who gets the training; how, how well, and where the training is presented; and the training support/resources required to produce, distribute, implement, and evaluate those products. The SAT involves all five training related phases: analysis, design, development, implementation, and evaluation. Also, see the definition for "Instructional Systems Development (ISD)."

Target Population Description. A profile of potential candidates for the target-training program. This description realistically describes target population's entry behavior, current skill and knowledge profile, job history, reading grade level, and other pertinent information.

Task. A task is a single unit of specific work behavior, with clear beginning and ending points. It is directly observable and measurable. Tasks are a major part of a duty and may be comprised of one or more subtasks. A task is comprised of logical and distinct actions. A task is performed under a defined set of conditions and standards. Each task is independent of other tasks.

Task Statement. A written description of task performance that contains an action verb, an object, and the conditions under which the task is performed, and the standard that the performance must meet.

Taxonomy. A system for categorizing things in a hierarchical order.

Technical Manuals (TM). Publications that contain instructions for the installation, operation, maintenance, training, and support of a weapon system, weapon system component, or support equipment. Information may be presented in any form or characteristic, including but not limited to hard printed copy, audio and visual displays, magnetic tape, disks, and other electronic devices. TMs normally include operational and maintenance instructions, parts lists or parts breakdown, and related technical information or procedures excluding administrative procedures. Technical Orders (TO) that meet the criteria of this definition may also be classified as TMs. Also, see the definitions for "electronic publications" and "Technical Order (TO)."

Technical Training. Training in specific skills and knowledge essential to performance of those tasks and duties related to a technical specialty.

Technical Training Equipment (TTE). Investment cost end items of operational equipment, devoted to the training and instruction of naval personnel, for which PMs have the responsibility for the design, development, modernization, configuration management, or selection for service or special use.

Technique of Delivery. Process or manner of delivering instruction that includes one or more methods. For example, group-paced instruction could use conference, discussion, demonstration, and practical exercise. A technique of delivery may involve a whole course, a phase, or a module. Also called "instructional strategy."

Teletraining. Training delivered via communication links such as satellite or cable links.

Terminal Objective (TO). A learning objective at the highest level of learning (i.e., Knowledge, Skills, and Attitudes (KSA)) appropriate to the human performance requirements a student will accomplish when successfully completing instruction.

Text. Alphanumeric characters represented as words, sentences, and paragraphs.

Tools. A device or implement, used to carry out a particular function.

Topic. The basic organizational unit of instruction covering one or more closely related learning objectives.

Track. A designed, sequential, and progressive training path for a course. A single course may have multiple tracks (e.g., tracks for different equipment).

Traditional Instruction. A method of teaching that uses lectures, note taking, and memorization as the primary modes. Traditionally, the teacher is at the center of the learning process determining what the students learn and how they learn it.

Trainee. Identical to the definition for "student." Also called "learner."

Trainer. Hardware and software, designed or modified exclusively for training purposes, involving simulation or stimulation in its construction or operation to demonstrate or illustrate a concept or simulate an operational circumstance or environment.

Training Agent (TA). An office, bureau, command, or headquarters exercising command of and providing support to some major increment of the DON's formalized training effort.

Depending upon the level of oversight required, the TA may be NETC, a learning center, or other designated organization.

Training Aid. An item developed, procured, or fabricated for the purpose of assisting in the conduct of training and the process of learning, such as models, mockups, Interactive Multimedia Instruction (IMI), audiovisual aids, displays, slides, books, pictures, and magnetic/optical recordings.

Training Concept. A summary describing how the required training is to be accomplished in terms of type of training, presentation environment, presentation techniques, presentation media, pipeline, location, and other considerations.

Training Course Control Document (TCCD). The output of the Design Phase and serves as the primary development and management document for a course. The approved TCCD serves as the authority for further development and consolidates the information needed by curriculum developers to create the curriculum and support materials for a course. Thus, careful attention must be paid to the detail, content, and structure of the TCCD.

Training Device (TD)/Simulator/Stimulator. Hardware and software which have been designed or modified exclusively for training purposes involving, to some degree, simulation or stimulation in its construction or operation, so as to demonstrate or illustrate a concept or simulate an operational circumstance or environment.

Training Equipment. Items used in the support of training, such as trainers, operational equipment, and other associated hardware.

Training Facility. A permanent or semi-permanent military real property or contractor property used for the purposes of conducting training.

Training Materials. A general term covering plans, control documents, lesson guides, student guides, and other non-hardware training products.

Training Media. Identical to the definition for "media."

Training Objective. Identical to the definition for "Learning Objective (LO)."

Training Prerequisite. Identical to the definition for "prerequisite."

Training Program. An assembly or series of courses or other requirements that have been organized to fulfill a broad overall training objective.

Training Project Plan (TPP). When approved, the TPP becomes the authorization to undertake a course revision or a new course development project and initiate resource requisitions

Training Requirements (TR). Those skills that are required for satisfying the job performance requirements and not already in the student's incoming repertoire.

Training Requirements Analysis. A determination of the requirements to resolve a performance deficiency.

Training Resources. Identical to the definition for "resources."

Training Simulator. A generic term that refers to a group of training devices that can range from simple procedures trainers to high fidelity devices, all capable of simulating various aspects of reality.

Training Standard. A quantitative or qualitative measure for the determination of a level of competence or readiness. A standardized procedure or exercise.

Training Structure. The process of organizing instruction into logical groupings to facilitate learning. The basic segments of formal training are courses, phases, modules, parts, and lessons. Also, see the definition for "sequencing."

Training System. Identical to the definition for "instructional system."

Training Task. A task selected for training. Also, see the definition for "critical task."

Training Task Analysis (TTA). The process of examining each unique unit of work from the job task analysis to derive descriptive information (e.g., procedural steps, elements, task conditions, standards, other information) used in the design, development and testing of training products.

Tutorial. An instructional program that presents new information to the student efficiently and provides practice exercises based on that information. A lesson design used to teach an entire concept. Interactive instruction that asks questions based on the information presented, requests student responses, and evaluates student responses. It is self-paced, accommodates a variety of users, and generally involves some questioning, branching, and options for review.

User. That command, unit, or element which is the recipient of the item required for accomplishing a designated mission.

Virtual. Existing or resulting in effect though not in fact. In computing, a virtual device may reside only in memory while representing a hardware peripheral. Virtual devices may help programmers avoid hardware incompatibilities.

APPENDIX A

NAVAL EDUCATION AND TRAINING COMMAND-FRONT END ANALYSIS (NETC-FEA) TEMPLATE

NETC-FEA

1.0	<p>NETC-FRONT END ANALYSIS</p> <p>REASON FOR CONDUCTING THE NETC-FEA</p>	
1.1	<p><u>Requirements Sponsor:</u></p>	<p><u>Resource Sponsor:</u></p> <p><u>Name:</u></p> <p><u>Rank/Title:</u></p> <p><u>Phone:</u></p> <p><u>Email:</u></p>
1.2	<p><u>Curriculum Control Authority:</u></p> <p><u>Learning Center:</u></p>	
1.3	<p><u>Activity Conducting NETC-FEA/Project Team Members:</u> (CCMM: LSO, ISS, SME, course supervisor, others as needed)</p>	
1.4	<p><u>NETC-FEA Start Date (MM/DD/YY):</u></p>	
1.5	<p><u>NETC-FEA End Date (MM/DD/YY):</u></p>	
1.6	<p><u>Reason for conducting NETC-FEA:</u></p> <p>Is NETC-FEA for a new or revised course?</p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> </p> <p style="text-align: center;">New Revised</p> <p>(check appropriate box)</p> <p><u>Description of the NETC-FEA (including trigger event):</u></p> <ul style="list-style-type: none"> • 	
2.0	<p>ESTABLISH AN "AS-IS" COMPARATIVE BASELINE</p>	
2.1	<p><u>"AS-IS" Comparative Baseline:</u></p> <ul style="list-style-type: none"> • 	
3.0	<p>"TO-BE" TRAINING REQUIREMENTS</p>	
3.1	<p><u>"TO-BE" Training Requirements:</u></p> <ul style="list-style-type: none"> • 	

4.0	GAP IN TRAINING REQUIREMENTS ANALYSIS	
4.1	<u>"AS-IS" Comparative Baseline:</u>	<u>"TO-BE" Training Requirements:</u> •
4.2	<u>Summary of Differences:</u>	
5.0	REUSE, REPURPOSE, AND REFERENCE (R3) CONTENT	
5.1	<u>Reuse:</u> • <u>Repurpose:</u> • <u>Reference:</u> •	
6.0	MEDIA SELECTION	
6.1	<u>General Audience Characteristics:</u>	
	<u>Sensory Requirements:</u>	
	• <u>Job:</u> • <u>Duty:</u> ○ <u>Task:</u>	
	<u>KSATR Data:</u>	
	<u>Media Types/Media Delivery Modes Recommendations:</u>	
	IMI level 3/4 interactivity is required and must support capability for:	
<u>Knowledge Interactivity Components include:</u>		

	<p><u>Skills Interactivity Components include:</u></p>
	<p><u>Media Types:</u></p> <ol style="list-style-type: none"> 1. 2. 3.
	<p><u>Media Delivery Modes:</u></p> <ol style="list-style-type: none"> 1. 2. 3.
7.0	RECOMMENDATIONS AND SOLUTIONS STATEMENT
7.1	<u>Learner Population:</u>
7.2	<u>Recommendations and Solutions:</u>
8.0	OUTPUT STATEMENT
8.1	<u>"AS-IS" Comparative Baseline:</u>
	<u>"TO-BE" Training Requirements:</u>
	<u>Findings:</u> (Gap in Training Requirements/Summary of Differences):
8.2	<u>Recommendations and Solution Statement</u> (rationale for closing the gap):

9.0	FINAL APPROVAL
9.1	<u>CCA signature:</u> Approved: <input type="checkbox"/> Disapproved: <input type="checkbox"/>

APPENDIX B

NAVAL EDUCATION AND TRAINING COMMAND-FRONT END ANALYSIS (NETC-FEA) FINAL APPROVAL NOTIFICATION LETTER

**NETC-FRONT END ANALYSIS (NETC-FEA)
FINAL APPROVAL NOTIFICATION LETTER**

1500
Ser XX/XX
(Date)

From: (CCA)

To: (NETC N7)

Subj: (COURSE/TERMINAL OBJECTIVE/DUTY) NETC-FRONT END ANALYSIS
(NETC-FEA) DATA

Encl: (1) Approved NETC-FEA and supporting documents

1. Statement on why NETC-FEA was completed, who performed the data collection, on what course. Enclosure (1) is submitted for your review.

2. Command points of contact are: (list primary and secondary POCs with contact information to include: rank, name, phone number, address, and email address.)

(Signature)

I. M. INITIALS