



**US ARMY CORPS
OF ENGINEERS**
Professional Development
Support Center

The COESAT Handbook

Corps of Engineers Systems Approach to Training

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Training
The COESAT Handbook
Corps of Engineers Systems Approach to Training

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Chapter 1 - Introduction

1-1. Purpose

ER 690-1-414 establishes the Corps of Engineers Systems Approach to Training (COESAT). This systematic decision-making approach identifies what tasks, skills, and knowledge to include in training; who will receive the training; and how and where the training will occur. The COESAT process determines essential training products and the level of support needed to produce, distribute, implement, and evaluate those products. This handbook provides the proponents, training developers, instructors, and facilitators a detailed explanation of this approach and the procedures required for its implementation. Use this handbook in conjunction with ER 690-1-414 and AR 350-1.

1-2. Application

COESAT applies to *all* training materials developed or training conducted by or for the Corps. As training developers revise or update courses, they must ensure that the course and its documentation comply with this systematic process.

The rapid development of communication and technology indicate significant improvements in training, and also changes in the way the Corps must educate its employees. Computer and Internet technology are critical to the success of future training. However, designers must focus on the underlying issues of learner needs and not a false need to keep up. This handbook suggests ways to streamline the COESAT process, but developers must keep students' best interest in mind when making all training-related decisions.

Note that the COESAT process applies to *all* new training materials, e.g., those for Classroom, Distance Learning, Web-based, Computer-Based Instruction (CBI), Computer-Based Training (CBT), or Digitized Training.

1-3. Course Manager Responsibilities

1. The course manager will accomplish the following:
 - a. Establish milestones and schedule/direct all activities as necessary for completion of COESAT requirements.
 - b. Determine, in coordination with the proponent, the number of subject matter experts (SME) required for each activity.
 2. Guide and assist the proponent and the SMEs in the following:
 - a. Identifying training needs.
 - b. Describing the target population.
 - c. Describing job functions and tasks.
 - d. Performing task analysis.
-

Continued on next page

Chapter 1 - Introduction, Continued

1-3. Course Manager Responsibilities (continued)

- e. Designing training, to include task performances measures, objectives, pretest/posttest items, and schedule of instruction.
 - f. Developing master training materials.
 - g. Implementing training.
3. Conduct a task survey, as needed and if time permits. Proponents and SMEs may provide tasks from existing functional databases, input from the field, or other means as deemed acceptable by the proponent.
 4. Approve developmental and educational approaches for all training.
 5. Direct production of training materials.
 6. Evaluate training during developmental phases and upon implementation.
-

1-4. Proponent/ Action Officer (AO) Responsibilities

The proponent will do the following:

1. Identify/verify the training need, in conjunction with the SMEs.
 2. Designate SME to assume overall technical responsibility for the functions listed in paragraphs **1-5.** and **1-6.** below.
 3. Approve/review master training materials for technical accuracy.
-

1-5. SME Responsibilities

The SMEs will accomplish the following:

1. Describe the target population.
 2. Describe the job functions and tasks.
 3. Analyze tasks.
 4. Design task performance measures, objectives, pretest/posttest items, and schedule of instruction.
 5. Develop master lesson plans and master support materials.
-

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Chapter 1 - Introduction, Continued

1-6. Instructors and Facilitators Respon- sibilities

Instructors and facilitators will conduct training, using approved master materials, and administer approved training instruments.

1-7. References

Required publications. ER 690-1-414, Proponent-Sponsored Engineer Corps Training (PROSPECT) and AR 350-1, Army Training and Education.

1-8. Related Publications

Related publications:

1. CEHND TD Memo 56 (Corps of Engineers Systems Approach to Training (COESAT), 1 June 2004.
 2. PDSC Memo 38 (Evaluation Program), 1 June 2004.
 3. ER 690-1-414.
-

1-9. Explanation of Abbrevia- tions and Terms

See the glossary for explanations of abbreviations/acronyms and special terms used in this handbook.

1-10. COESAT Job Aid

See JA-1 for a quick overview of COESAT requirements.

Chapter 2 - Analysis

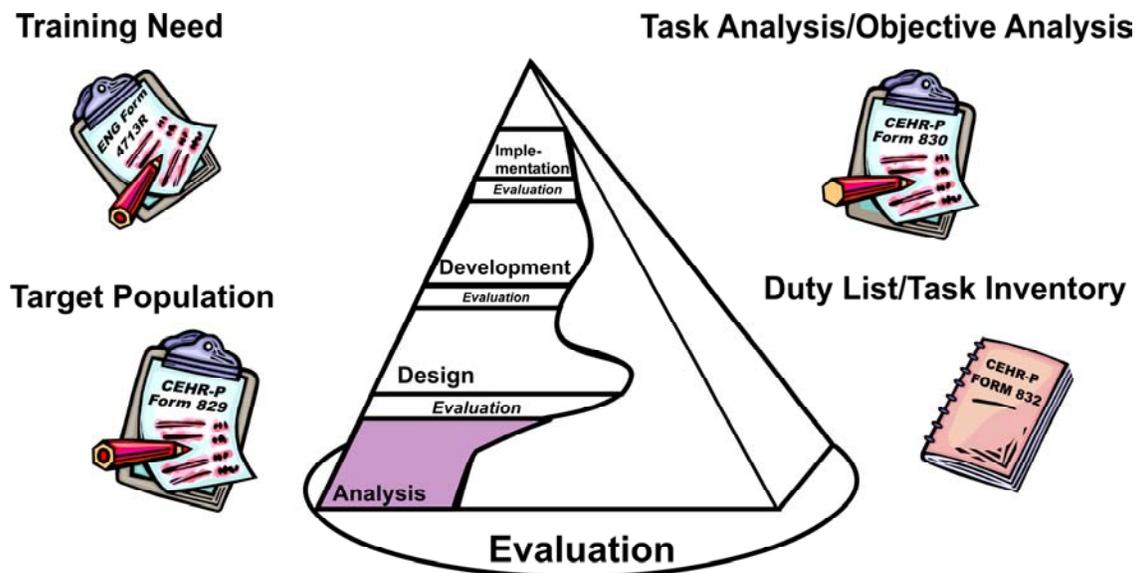


Figure 2-1 Analysis Phase

2-1. Analysis: Basic Requirements

Job performance requirements serve as the basis for any training. To define these requirements fully and establish the foundation of all subsequent development, trainers and Subject Matter Experts should perform an analysis for each new course. During the analysis phase (Figure 2-1), developers/trainers determine first if there *is* a training problem. If a Needs Analysis reveals a training problem, then developers/trainers define job performance requirements, examine actual employee performance, and determine training needs through a comparison of the actual job performance with desired job performance. Note that there is a difference between a Needs Analysis and a Task Analysis. A Needs Analysis provides you with a complete understanding of the shortcomings of a system and looks not only at the job performed, but also at other parts of the system that might indicate clues for improvement. A Task Analysis looks strictly at the tasks performed on the job. Normally, the COESAT process calls for a Task Analysis for the development of a course since the need is most often already established.

See the list below for activities essential to the analysis process:

1. Identify the training need.
2. Describe the target population.
3. List the major functions of the job.
4. List all the tasks performed by a successful job incumbent.

Continued on next page

Chapter 2 - Analysis, Continued

2-1. Analysis: Basic Requirements (continued)

5. Conduct a Task Analysis. In a traditional Task Analysis, the analyst generates a list of tasks. This list becomes a survey for completion by job incumbents, subject matter experts, and supervisory personnel. You ask respondents to evaluate the frequency, the criticality of each task, and the amount of training required to reach proficiency. The analyst then compiles the surveys, and members of the committee discuss the findings and approve the tasks.

For many jobs, the basic Traditional Task Analysis works well. For others, different tools may prove more beneficial than the Survey. See Section 2.6 for alternatives to the Survey. Keep in mind that you will have to provide and maintain documentation for whatever method of Task Analysis you use, e.g., duty list, task inventory, target population description, and a detailed description of your Task Analysis Method and procedures you followed.

6. Analyze each task selected for training to include detailed information about how to perform the task and the standards for satisfactory performance.
-

2-2. Identification of the Training Need

A performance discrepancy indicates a difference between the actual job performance and the performance expected in either the present or in the future. A trainer can attribute discrepancies to skills, knowledge, environmental, or motivational deficiencies. Training will be of no benefit if the deficiency is environmental (e.g., facilities or equipment inadequate, work load increasing) or motivational (no feedback, lack of recognition). Remember, the Needs Analysis tells you if you have a training problem. Training would be an appropriate solution to performance problems traced directly to a skills or knowledge deficiency. Some situations that might suggest a training need based on a deficiency in skills or knowledge follow:

1. The employee consistently performs the task incorrectly, even when knowingly being observed.
 2. Task completion requires knowledge and application of concepts, rules, and principles.
 3. The task is new.
-

2-3. ENG Form 4713-R

ENG Form 4713-R, Evaluation of Proposed Training Course, documents the assessment/identification and analysis of Corps training needs.

1. Any Corps employee may identify a training need by initiating ENG Form 4713-R, Part I. See FORMS pages 1-3. This part serves as the initial assessment of a training need. The originator should be explicit when completing Part I.
-

Continued on next page

Chapter 2 - Analysis, Continued

2-3. ENG Form 4713-R (continued)

2. CEHR-D personnel who assign a proponent will complete Part II.
 3. The proponent who verifies and expands the original needs assessment completes Part III.
 4. The course manager completes Part IV and forwards it to the proponent.
-

2-4. Description of the Target Population

1. Training products must meet the needs of the intended user. The target population description (TPD) tells the designer what the job performers, who will ultimately be the students, are really like. The TPD provides the designer with an assessment of the skills and knowledge already possessed by these job performers. The designer can use this information to establish the entry level for the training and then design training that will bring job performers up to a certain level of mastery.
 2. Use CEHR-P Form 829, Target Population Description (FORMS, page 7), to describe the TPD and include the following information:
 - a. **SERIES:** Job series of those, considered for training, who will perform the tasks.
 - b. **GRADES:** Grades of the job performers who will receive the training. Effective training rarely is appropriate when personnel in grades (i.e., 7 through 13) are combined because of the varying levels of competency involved. Training is ineffective that bores the student either because it is too complex or too simple for his background. Confine the grades to those whose knowledge and skills will increase significantly by the proposed training.
 - c. **POSITIONS:** Any positions or functional responsibilities the job performer has held in the past, presently holds, or seriously anticipates holding in the future.
 - d. **RESPONSIBILITIES:** Pertinent responsibilities that the job performer has at the present or has had in the past.
 - e. **EXPERIENCE:** Types of experience, past or present that job performers should possess. Include any minimum time requirements, e.g., two years' experience in contract negotiation.
 - f. **TRAINING:** Any education or training that incumbents have acquired previously.
 - g. **KNOWLEDGE/SKILLS:** Any knowledge or skills that the job performer possesses.
 - h. The course control number is the three-digit number provided by the course manager.
-

Continued on next page

Chapter 2 - Analysis, Continued

2-5. Listing of the Major Job Functions

1. Once you have described the target audience, you may begin the process of defining job performance. Identifying the major job functions or duties performed by a successful jobholder or incumbent is the first step.
Duty: (1) one of the main functions of a job or (2) one of the major subdivisions of work performed by an individual. A duty consists of a group of related tasks. See Listing of Tasks paragraph 2-5 below.
 2. Job descriptions, qualification standards (OPM Handbook, X118), and previous analyses will help in formulating this list.
-

2-6. CEHR-P Form 830 (Duty List)

Use CEHR-P Form 830, Duty List / Task Inventory, (FORMS, page 8), to list the duties:

1. State a duty using the "ing" form of an action verb (gerund) with an object, i.e., *tuning* engines, *evaluating* requests, *performing* flight maneuvers, *planning* work activities.
 2. Where applicable, list supervisory duties first.
 3. Number each duty. Use this number later to assign task numbers.
 4. The course manager will provide a three-digit course control number.
-

2-7. Listing of Tasks

The duty list describes the job in very broad terms. To define successful job performance accurately, break the duties down to tasks.

1. Task: a unit of work that forms a significant part of a duty. A task results in a meaningful product, even though the product is not always tangible. For example, a correct decision is a meaningful product. A task should meet the following criteria:
 - a. Highly specific.
 - b. Observable or measurable - You must either be able to see or hear a task being done or be able to measure the output.
 - c. Definite beginning and end.
 - d. Performed in short periods of time.
 - e. Independent action - A task is done for its own sake and has a usable result. It is not a component of a procedure.
-

Continued on next page

Chapter 2 - Analysis, Continued

2-7. Listing of Tasks (continued)

2. Task statement: the description of a task. Consider the following rules when writing task statements:
 - a. Use a present tense action verb and an object. The subject "you" is understood. Examples: *operate* multimeter, *write* objectives, *clean* typewriter, and *load* computer tape.
 - b. Each statement should deal with only one specific task; i.e., "inspect exhaust" NOT "inspect and repair exhaust."
 - c. Statements should be brief. Try to confine each statement to two typewritten lines.
 - d. Use clear and easy-to-understand statements." Write production and control reports" is much better than "Accomplish necessary reports involved in the process of maintaining production and control procedures."
 - e. Avoid the use of ambiguous words. Make sure you have no misunderstanding when using words such as check, assist, coordinate, recommend, determine, and assure.
 - f. Be definitive. For example, "interpret visual photographs" could apply to several job incumbents, while "interpret radarscope photos" would confine the task to a particular jobholder. If there is more than one way to do a task, add a condition statement such as "using a QSM3-80 multimeter."
 - g. Use current terminology common to the career field.
 - h. Use abbreviations/acronyms cautiously. Spell out a term the first time you use it and follow with the abbreviation in parenthesis.
 - i. Do not state qualifications as tasks. An incumbent's intelligence, aptitude, knowledge, education, skill, training, and experience are not tasks.
 - g. Do not include items such as receiving instruction unless the jobholder performs some actual work. "Attend Lecture" does not indicate work performance.
-

2-8. Task Inventory

Combine the task statements for each task performed by the job incumbent to form the task inventory. Use CEHR-P Form 830, Duty List/Task Inventory, (FORMS, page 8), to list the task inventory.

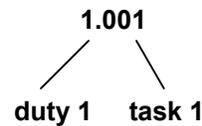
1. Group the task statements by duty. Sequence the tasks for each duty in a logical order, e.g., alphabetical arrangement or the order performed. This shortens reading time, aids in recalling unlisted tasks, and helps eliminate duplicate tasks.
-

Continued on next page

Chapter 2 - Analysis, Continued

2-8. Task Inventory (continued)

2. Assign task numbers to each task.
 - a. For automation and survey purposes, number tasks consecutively. List the number under "Task Number." This number is the number that respondents will use to code their responses in the Task Analysis Data Booklet, if you conduct a survey.
 - b. Assign the second number according to the duty. Number each duty. The first number for each task is the duty number, followed by a period and a three-digit number to indicate the task number. For example: 1.001 indicates Duty 1, Task 1; 3.027 indicates Duty 3, Task 27. Place this number in parenthesis at the end of the task statement. Since the computer tabulation of the survey only lists the results by consecutive numbers, this second number is assigned to correlate duties and task statements. For example, the computer printout only shows task number and the task statement with no duty statement shown. However, the course manager can ascertain the specific duty statement from the duty list. See FORMS, page 8.



2-9. Methods for Conducting Task Analysis

A wide variety of methods for performing task analysis exists. Choose the method that suits your particular need and that of the course you are developing. Make the decision about which method to use in conjunction with your proponent and SMEs. Keep in mind that you should maintain documentation that describes the activities of the analysis phase. Task lists and a record of the participants provide adequate documentation in most cases. Make reference to existing task lists, guides to good practices, and similar sources of information when such sources form the basis of tasks selected for training.

2-9a. Surveying the Target Population

To ensure that task inventory represents the largest population, you may conduct a task survey. If you do not conduct a survey, observe the following procedures:

1. Survey each division and district unless you know the organization has no personnel performing the tasks. When you know a lab has personnel who perform the tasks, survey the lab. Reasons for not including any of these organizations should become a part of the official files.
2. To encourage participation, mail the survey documents under a cover memorandum to the applicable functional division chief at each division/district/lab for distribution. See FORMS, page 9.

Continued on next page

Chapter 2 - Analysis, Continued

2-9a. Surveying the Target Population (continued)

3. For the survey to be valid, you must have sufficient responses from personnel in applicable series or grades. The course manager determines the number of responses requested from each division, district, or lab according to the density of the series or grades within each organization.
 4. The task inventory and the Task Analysis Data Booklet, CEHR-P Form 914, (FORMS, pages 10-12) become the survey documents. The Task Analysis Data Booklet is a machine-read booklet through which the target population members furnish certain demographical data to verify the target population description and their personal experience as to the difficulty, importance, and frequency of performance of each task. The Task Analysis Report shows a compilation of responses. See FORMS, page 13.
-

2-9b. Table Top Analysis

Using a facilitator, normally a course manager, a small group of 3 to 10 subject matter experts convene to identify the various tasks incumbents must perform. You need a minimum of one job incumbent and one supervisor to discuss the tasks. The facilitator conducts the session and documents the information. Through brainstorming and consensus, the team develops a sequential list of tasks. After this process, the team determines which tasks to train. Base task selection on frequency, difficulty, criticality, and the consequences of error or poor performance. For consistency, the team of experts should remain the same throughout the process. The Table Top Method of job analysis typically consists of the following:

1. Organizing the team.
 2. Reviewing the job.
 3. Identifying the duty area associated with the job.
 4. Identifying the tasks performed in each duty area and write task statements.
 5. Sequencing the duty areas and task statements.
 6. Selecting tasks for training.
 7. Document and maintain all documentation for the analysis phase.
-

2-9c. Hybrid Method

This method involves both a quantitative analysis and a consensus building. Using job task documents, compile a list of tasks. Through an iterative process involving consensus building, have the SMEs, job incumbents, and supervisors assess the validity of the task list. Through discussions, each task's complexity, importance, and frequency, members rate the tasks numerically and come to a consensus. Once the group identifies the tasks, the group identifies and validates the knowledge, skills, and abilities required to perform each task. Remember to document all the details of the Hybrid Method for your audit trail.

Continued on next page

Chapter 2 - Analysis, Continued

2-9d. Observing the Expert Analysis

This method uses an observer to record an expert performing a task. The observer is a person who aspires to be an expert in a similar job. The trainer's role is to set the analysis in motion by briefing the observer and the expert regarding the intended outcome of the observation. This method works best when three aspiring observers observe three similar experts. After the observations, the observers become a task force who meet with the trainers, proponent, and SMEs to determine the tasks for training.

2-9e. Document Analysis

This technique is especially valuable when accurate procedures and other job-related documents are available. Document analysis is a simplified technique for determining required knowledge and skills directly from operating procedures, administrative procedures, and other job-related documents. An SME and a trainer review each section and step of the procedure or document to determine training program content. Document analysis consists of the following steps:

1. Review the procedure or document and list the knowledge and skills required by a worker.
 2. Verify the accuracy of the results.
 3. Record activities accomplished and maintain them for your audit trail.
-

2-9f. Functional Analysis

When you are analyzing a position that performs a large number of tasks, e.g., management or engineering, you can use a technique called Functional Analysis. Rather than conducting a job analysis to identify specific tasks, you identify major functions within the positions. After you identify the competencies necessary to perform the major functions, you analyze those competencies to determine objectives for training. For example, a manager might make many plans such as production planning, facility and equipment requirements, and budget formulation. The training objectives needed to perform these objectives might read as (1) Create a Gantt Chart or (2) Build a Capacity Requirement.

2-9g. Other Methods for Conducting Task Analysis

Other methods might include Interviews, Group Discussions, or Focus Groups. The methods listed here are not exclusive. You may use any one of the methods described in this Handbook, a combination of methods, or another viable method of Task Analysis. However, you must *ensure* that you DOCUMENT what you do and maintain the documentation files for your records.

Continued on next page

Chapter 2 - Analysis, Continued

2-10. Selection of Tasks for Training

1. The task inventory identifies all the tasks required by a particular job. Confine training to those tasks essential to mission accomplishment. Time and financial constraints limit the number of tasks selected for training.
2. The Task Analysis Report, (FORMS, page 13), contains composite demographical data on the target population and recommendations as to the necessity for training. The report provides an objective basis for selecting those tasks that require training.
3. The recommendations in the Task Analysis Report are results of numerical values assigned to the responses on the difficulty, importance, and frequency of the tasks on the survey. The numerical values and resulting recommendations result from the criteria discussed below.
4. Do not train tasks that the jobholder could
 - a. Perform without training.
 - b. Learn through manuals or job aids, given time.
 - c. Learn on the job or seldom perform
 - d. Fail to perform or perform incorrectly with minimal job degradation.
5. Some tasks will be priority candidates for training because they are as
 - a. Complex in nature.
 - b. Critical to successful job performance.
 - c. Critical for safety reasons
6. Training may or may not be necessary for tasks of average difficulty and importance. Evaluate the frequency of performance on the job carefully to determine whether the jobholder needs formal training or if on-the-job or other types of training will suffice. Considerations should include the following:
 - a. Does the incumbent perform the task frequently enough to allow on-the-job training before performance is required?
 - b. Will the frequency of performance on the job provide the required level of training?
 - d. Even though you base the recommendations on objective criteria with a survey, the course manager, proponent, and SME should review all recommendations to ensure they are valid for each particular task. Consider the case where the survey results indicate no training for a task because jobholders do not perform the task. However, the proponent and

Continued on next page

Chapter 2 - Analysis, Continued

2-10. Selection of Tasks for Training (continued)

SME know for a fact that the task is a new requirement, required by regulation, not performed because the jobholders do not know how to perform the task. In such a case, the survey has identified or verified a performance deficiency, and trainers should consider training the task, provided the deficiency is the result of a lack of skills or knowledge.

As stated previously, if the performance deficiency results from environmental or motivational factors, training would be inappropriate. Ensure you document decisions made (e.g., train, no train) and rationale for those decisions.

2-11. Task Analysis

1. For each task selected for training, perform a task analysis to provide detailed information about how to perform the task in the actual work situation. This information facilitates the job of the designer and developer in developing effective training materials.
 2. Complete a separate CEHR-P Form 832, Task Analysis / Objective Analysis Worksheet (FORMS, page 14) for each task selected for training.
 - a. Conditions. Identify any special conditions, instructions, precautions, facilities, equipment, or procedures that are necessary to perform the task (e.g., tools, test equipment, forms, references, resources, emergency conditions, environmental settings, unusual weather conditions).
 - b. Standards. Standards define acceptable performance of a task. Express them in terms of time limits, units of work, degree of accuracy, errors permitted, production rate, tolerances, etc. State how well the incumbent must perform the task, e.g., 95% correct; steps performed in order; with only one mistake; within 15 minutes; two out of three correctly within 10 minutes; according to procedure). See Job Aid 2.
 - c. Elements. Elements are step-by-step directions about how to perform the task. The elements in some tasks are not as easily defined as others. For example, the task "Install air-conditioning units" is much easier to break into steps than "Prepare general investigative reports." In describing the elements for these more abstract tasks, consider these questions: What specific actions, reports, or studies must the incumbent complete to accomplish the task? How does the incumbent complete steps/elements or sub elements and in what order?
 - (1) Begin each element statement with an action verb.
 - (2) Use singular statements - do not combine steps.
 - (3) State the elements in the sequence in order of performance.
-

Chapter 3 - Design

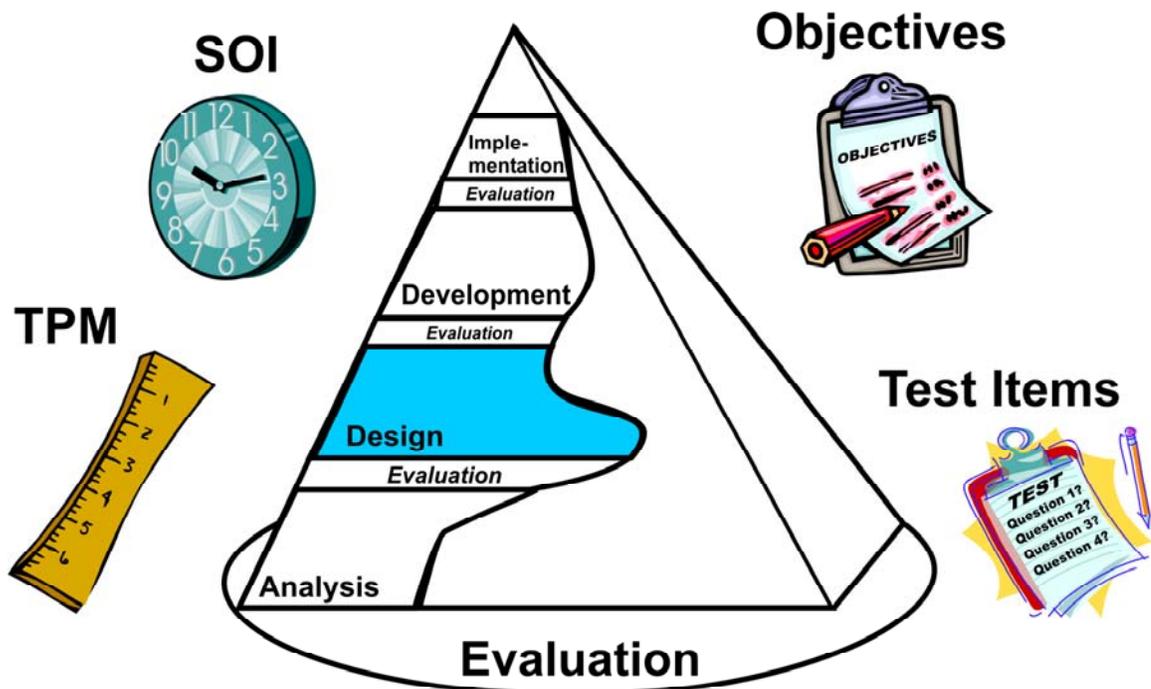


Figure 3-1. Design Phase

3-1. Design: Basic Requirements

The analysis phase reveals what needs to be trained. Products of the analysis phase drive the design process, which ultimately ends with a model or blueprint of the training program. The design phase includes development of the following:

1. Objectives.
2. Task performance measures (TPM).
3. Pretest/posttest items.
4. Schedule of instruction (SOI)

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Chapter 3 - Design, Continued

3-2. Development of Training Objectives

1. In the Design phase, writing clear learning objectives will answer the question, "What will the learners be able to do when they finish the training program?" Without well-constructed objectives, instructors don't know what to teach and learners don't know what they will learn. Objectives prescribe the behavior (action), conditions, and standard of task performance for the training. An objective tells the student the exact expectations upon completion of training. Objectives must meet the following criteria:
 - a. Measurable by written or performance test within the learning or the testing environment. (This is the Task Performance Measure (TPM)).
 - b. Contain a statement of student behavior that serves as evidence that the student has accomplished the TPM. Write the statement, using an action verb, in terms of what the student must perform, not what the instructor will do or say, e.g., *type* a letter or *lift* a load.
 - c. Contain a standard to measure the student's performance against. The standard must specify exactly how well the student must perform the objective, e.g., *within ten minutes* or *without error*.
 - d. State specifically the conditions under which the student must perform the task. Include any limits placed on student performance, description of performance environment, starting point, and what the student has to work with (tools, equipment, manuals, notes, etc.), e.g., *without reference to a manual* or *using a word processor*.
2. Formulate a minimum of one objective for each task identified for training. Use a CEHR-P Form 832, Task Analysis / Objective Analysis Worksheet, for each objective. See FORMS, page 14.
3. Sequence and group the objectives to provide a smooth flow from one task to another. For those objectives where mastery of one is necessary to master another or where mastery of one would make learning the other easier, transition from the simple or less complex to the more complex within a group and when moving from one group to another. Arrange the Worksheets in the order determined and note the sequence position on the Worksheet.

3-3. Establishment of Task Performance Measure (TPM)

The TPM is that measurable or observable action performed in training that indicates the student will adequately and appropriately perform the task when returning to the job.

1. The ideal training situation exists when the student can perform the actual task under the same conditions and to the same standards required on the job. In this case, the TPM will duplicate the task statement, to include the action, condition, and standard developed in the task analysis.

Continued on next page

Chapter 3 - Design, Continued

3-3. Establishment of Task Performance Measure (TPM) (continued)

2. In some cases, the trainer cannot create the actual conditions of job performance. This necessitates development of a TPM that has high fidelity in predicting that students who successfully achieve the TPM will be able to perform the task successfully. Consider testing constraints such as time, manpower, costs, facilities, and equipment in developing the TPM. Decide whether a product, process, or both will be the basis of measuring accomplishment of the task. Further, make decisions about whether to test all or part of the task. Consider various ways of testing your objectives, e.g., practical exercises or group projects in addition to or in conjunction with written tests.
-

3-4. Design of Test Items

1. Design test items to test the student's mastery of the objectives.
 - a. The pretest identifies students who can already perform the desired behaviors. Use the pretest for this purpose in Distance Learning training: students who pass the pretest for a particular module or sub module have no need to study that unit and can move on to a module where the training is necessary.
 - b. Because of the uniqueness of a classroom-training program, you cannot use the pretest in the traditional manner since students are already present for training when you administer the pretest. However, you can use the pretest to provide feedback as to the accuracy of the target population description and to adjust the presentation of the course material. If a significant number of students consistently pass the pretest, evaluate the suitability of the target population description and level of instruction. Also, the pretest results could enable instructors to make immediate adjustments in presenting the course material if the pretest shows the students are either above or below the expected entry level.
 - c. The posttest determines if students have accomplished the training objectives successfully and if instructors have taught what they were supposed to teach.
 2. The pretest/posttest will be either a performance or performance-based written test. Tests must meet the following criteria:
 - a. Test items must require the same behavior called for by the objectives.
 - b. Develop a minimum of one test item for each objective, if at all possible. These items should be different from any questions used for practice.
 - c. Construct written test items in multiple-choice format.
 - (1) Each item will have **four** answer choices.
 - (2) The correct answer should be unquestionably correct.
-

Continued on next page

Chapter 3 - Design, Continued

3-4. Design of Test Items (continued)

- (3) Use the distracters to identify students, who are uncertain of the answer. Distracters should be plausible, incorporating the common misconceptions or errors of the students. Do not include "all of the above" or "none of the above" as distracters.
 - (4) Each test item must be independent, i.e., achieving the correct answer must not be based on achieving the correct answer in another question.
 - (5) Arrange distracters in ascending or descending order.
 - d. The pretest and posttest will contain the same items. In the case of written tests, arrange the posttest items in a sequence different from that used in the pretest.
3. Write pretest/posttest items for each objective on the corresponding CEHR-P Form 832, Task Analysis / Objective Analysis Worksheet. See FORMS, page 14.

3-5. Schedule of Instruction

For classroom courses, determine the amount of time required to teach each objective. Developers must pay close attention to the time allotted to use the time effectively, with neither too little nor too much material to teach. Prepare a Schedule of Instruction (SOI) on CEHR-P Form 676 or a comparable format, to place in the student manual to serve as a course map. See FORMS, page 15.

Chapter 4 - Development

Section I - Development - Basic Requirements

Master Training and Support Materials

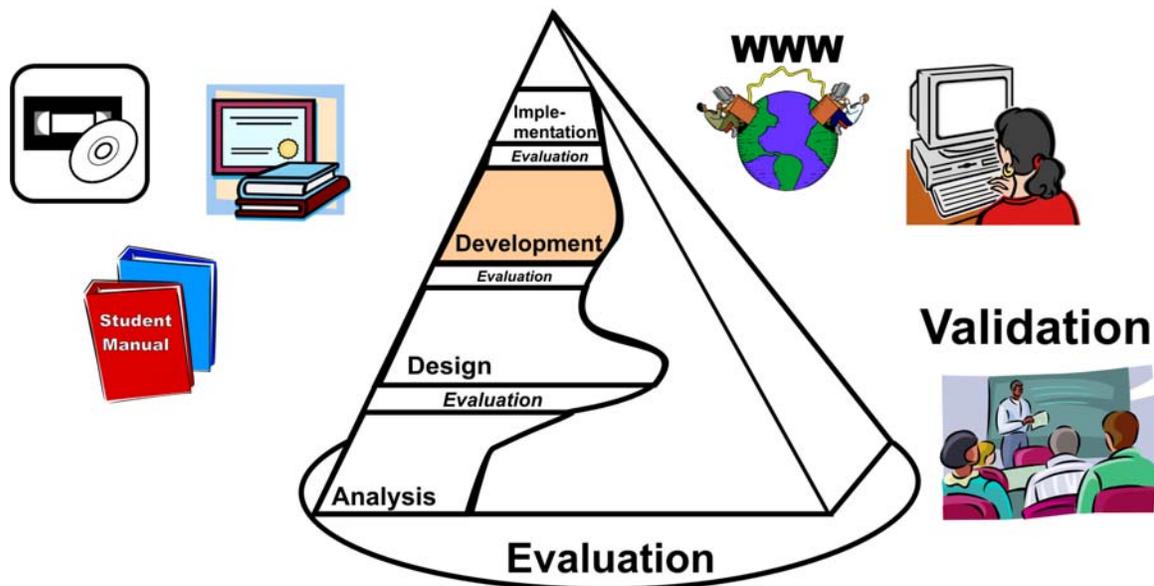


Figure 4-1. Development Phase

4.1. Development

Building on the Learning Objectives produced during the design phase, developers diagram and outline the necessary activities to assist learners in reaching those objectives. The development phase produces the following:

1. Delivery methods, such as PowerPoint presentations, films, lecture, etc.
2. A review of existing material. (You don't want to reinvent the wheel. Review any existing materials to determine if you can use them or redesign them. Avoid duplication of materials to save resources.)
3. Master Training Materials or instructional courseware. (Student Manuals, handouts, etc.) Remember the cost factor, e.g., cut costs by putting basic concepts/ideas/information on CDs or on the web to avoid reviewing basics on the first day of a course. Send CDs for prerequisite reading to potential students and shorten course length, if at all possible. Additionally, you might furnish students with hyperlinks to relevant websites for selected advance reading materials.

Continued on next page

Chapter 4 - Development, Continued

Section II – Training Materials

4-2. Master Training Materials

Most PROSPECT courses occur in a conventional classroom setting. However, with e-learning, Internet, Distance Learning, Computer-Assisted Instruction (CAI), and Computer-Based Training (CBT), etc., the developer still has many important decisions to make regarding delivery of training. He or she may choose to incorporate more than one or two instructional strategies into the course program. Instructors will need a roadmap to ensure they teach the objectives, provide continuity of core material among sessions, and avoid duplication within a course. Lesson Plans and support materials become that roadmap for the instructors. For each course, these master materials include the following:

1. Master, approved Instructor Lesson Plans.
 2. Master, approved support materials.
-

4.3 Lesson Plans

The Lesson Plan includes the materials and equipment the instructors need to teach a class. The training developers or instructors prepare these master lesson plans for each segment of training, using CEHR-P Form 675, or equivalent format. See FORMS, pages 16 and 17. The proponent approves the lesson plan for technical accuracy. The course manager approves the educational strategy. Approvals must occur prior to implementation of training. Any significant changes to approved lesson plans also require submission to the proponent and course manager for approval prior to implementation. Minimum lesson plan requirements and descriptions of their contents follow:

1. Subject. Title of major segment.
 2. Time Period (Total). Length of time required to teach the material, including any student activity time, unless covered by another lesson plan.
 3. Type of Lesson. State the lesson type, e.g., conference, lecture, computer-aided instruction (CAI), and lecture with questions, demonstration, or practical exercise.
 4. Instructor. Name of preparer.
 5. File No. Course control number.
 6. Course. Course short title.
 7. Training aids. Any equipment and aids (e.g., PowerPoint slides, computer, laptop, power cords, audio, audiovisuals, books, manuals) necessary to conduct the lesson.
-

Continued on next page

Chapter 4 - Development, Continued

Section II – Training Materials, Continued

4.3 Lesson Plans (continued)

-
8. Objectives. Should be identical to those written in CEHR-P Form 832, Task Analysis / Objective Analysis Worksheets and included in the student manual.
 9. Instructor references. List of source documents by title, page, and paragraph numbers.
 10. Student references and homework. List of references used by the student by title and page number. Include a listing of homework assignments, as needed. If you need more space, list the homework assignments as the last item in the lesson outline.
 11. Time. The amount of time allotted for presentation of topics.
 12. Lesson outline. Detailed outline of planned lesson content, to include introduction, detailed presentation, summary, and evaluation. You can attach the PowerPoint presentation, with detailed notes, to the Lesson Plan cover sheet to serve as the Lesson Plan, IF and ONLY IF, the notes sufficiently explain how the instructor will cover the introduction, subject matter content, summary, and evaluation for the lesson.
 - a. Details should be sufficient to allow a person knowledgeable in the subject matter to conduct the class with minimum research or preparation time.
 - b. Develop lesson content to teach each objective.
 - (1) Select content on the basis of what the student must do to achieve the objective.
 - (2) Select procedures and support materials to convey the content.

Sequencing should provide for smooth flow from one objective to another as determined in the design phase on the CEHR-P Form 832, Task Analysis / Objective Analysis Worksheets, i.e., simple to complex, concrete to abstract, logically, and sequentially, especially where mastery of one objective is necessary to master another or would make mastery easier. See FORMS, page 14.
 13. Key points/aid cues. Any aids or cues, to include visuals (by number) and reference documents. Include nomenclature, page and paragraph number. Write the cues adjacent to the points in the lesson where you will use them.

Continued on next page

Chapter 4 - Development, Continued

Section II – Training Materials, Continued

4-4. Materials and Aids to Support Classroom Training

1. Support materials serve as an extension of the instructor, not a replacement. Use them for the following:
 - a. Increase interest by providing variety or change of pace to the instruction.
 - b. Clarify or reinforce the spoken or written word.
 - (1) Illustrate.
 - (2) Emphasize.
 - (3) Provide example.
 - c. Focus attention of students.
 2. Development and approval. Personnel who approved the master lesson plans approve materials and aids to support the training. Course managers, in coordination with the proponent, will ensure such materials will be an integral part of the classroom training, necessary to support accomplishment of the training objectives in the classroom. Materials for supplemental or outside use serve no purpose unless the knowledge and skills gained from such materials become an integral part of the current classroom training, i.e., materials for homework, with the knowledge gained a requirement for building the next day's lesson. Lesson plans will designate the purpose of these materials. Don't forget to integrate Learning Activities into your materials. Be creative. Get students involved in the learning process.
 3. Training manuals. Training manuals serve as guides for the student and instructor in the classroom and as reference material back on the job. Any material developed for the training manual must support accomplishment of the training objectives. Job Aid 5 prescribes the basic requirements for development of training manuals.
 4. Publications to support classroom training. The course manager, in coordination with the proponent will approve publications used as support materials. CEHR-TO will not furnish or reproduce publications for purposes other than training.
 5. Handouts.
 - a. Handouts should have a definite purpose in the lesson. The lesson plan should state where and how to use the handout.
 - b. Identify the handout with a title.
-

Continued on next page

Chapter 4 - Development, Continued

Section II – Training Materials, Continued

4-4. Materials and Aids to Support Classroom Training (continued)

-
- c. Number the pages and state applicable page numbers in the lesson plan so instructors can guide students in using the handout.
 - d. Don't overload. Plan only those handouts that students can use within the classroom or as homework.
6. PowerPoint presentations/transparencies/slides (visuals).
- a. Before developing the presentation, determine whether visualization is appropriate. Comprehension should be almost instantaneous upon viewing, leaving the student free to focus or concentrate on the speaker's message. Don't use large amounts of verbal material on one slide. Provide such reading material in the student manual or as a handout.
 - b. Visuals should not be the major message carrier; you do not need a visual for everything the instructor says or does. Use for clarification, reinforcement, or gaining attention.
 - c. Develop one main idea per visual.
 - d. If at all possible, use a horizontal format.
 - e. Limit the information and use only key words.
 - f. Use color for variety and focusing attention; however, avoid overuse or complicated patterns.
 - g. If you must use a form or similar material, break it down, using an overall view first, and then display segments of the forms as discussion merits.
 - h. Limit the information in graphs or tables. Be sure students can read the slides from the rear of the room. See JA-3 for Job Aid for Visuals.
-

4-5. Dry Run

To provide continuity, eliminate duplication, identify omissions, and establish policy where various SMEs have divergent ideas, the course manager will schedule a dry run, whenever possible, prior to initial presentation of the training. Preliminary lesson plans and support materials must be ready for use in the dry run. As practical, those instructors who will actually be teaching the course should participate in the dry run. The proponent or his designated representative provides approval of technical content. The course manager approves developmental and educational aspects. Submit draft materials, to include revised materials per the dry run, to the course manager who will coordinate any changes required with the proponent prior to production.

Continued on next page

Chapter 4 - Development, Continued

Section II – Training Materials, Continued

**4-6.
Production**

After revision of draft materials, the course manager will oversee production. The course manager also determines milestones.

**4-7. Courses
Developed
and Taught by
a Contractor**

For contract courses, the government furnishes the results of the analysis and design phase to the contractor as government-furnished material. The contractor will then furnish the SMEs to develop the training and materials, adhering to the COESAT process as stated above. Contractor personnel who will be the course instructors participate in the dry run.

**4-8.
Validation of
Training
Materials**

Developers accomplish the validation process in two phases:

1. Internal SME board. The course manager, proponent (or representative), and SME review all materials to verify technical accuracy, coverage of all objectives, and educational soundness. Correct identified problems prior to the external validation.
 2. External validation. Present the course to a small group of students (5-10; 5-7 optimum) in the same manner as you would present actual training. (Note: if you cannot perform this kind of external validation, your first iteration will serve as your external validation.)
 - a. The course manager coordinates the validation and furnishes all course materials.
 - b. The proponent furnishes a well-qualified facilitator to conduct the training.
 - c. Students complete the pretest and posttest.
 - d. Each student and the facilitator complete end-of-course evaluation forms.
 - e. The course manager, in coordination with the proponent, evaluates the results of the validation and processes necessary corrections prior to final production of materials.
 - f. Remember, revisions do not stop upon the first implementation of the program. Developers and instructors will make revisions and changes throughout the life of the program.
-

Continued on next page

Chapter 4 - Development, Continued

Section III – Development of Course Manuals and Materials

4-9. Policy

1. Desktop Publishing, PDSC, is the official repository for Course Manuals.
2. Desktop Publishing will prepare text and visuals for PROSPECT Course Manuals, unless contractors or instructors prepare them. If contractors or instructors prepare Course Manuals, they must follow the general guidelines in this Job Aid, and responsible Course Managers and/or technicians must furnish hard copies or electronic copies of materials to Desktop.
3. Course Managers (CMs) or technicians must submit work requests for *major* revisions to Desktop Publishing, PDSC, at least 30 days before the first class session of the fiscal year and 2 weeks prior for *minor* revisions.
4. CMs will revise Course Manuals no more than once annually, unless absolutely necessary.
5. Warehouse personnel will put TMs in 1-inch, 2-inch, 3-inch or 4-inch binders. These binders should be as follows:

1	D-rings with a vinyl pocket on the inside left binder cover.
2	Printed on a red background with white lettering.
3	Identified on the front cover with the standard Corps castle logo with information reference the registered trademark. 
4	Imprinted with the letters PROSPECT.
5	Equipped with a clear plastic pocket at the bottom of the spine with a tab inserted indicating the name of the course

4-10. Manuscript Standard Procedures

The following guidelines will serve as standards in the preparation of a manuscript for a PROSPECT manual; however, Desktop personnel may vary the layout to accommodate various type publications.

4-11. Page Size

1. Standard page size – 8 1/2" x 11"
2. Good quality bond paper
3. Foldout pages and odd-sized pages used only if training material cannot effectively fit on standard-sized paper

4-12. Margins

1. 1.25-inch minimum margin on top, right, and left. Bottom margin is 1.33-inches.
2. Illustrations, tables, etc., should also have the same margins as text to provide adequate space for binding the document.

Continued on next page

Chapter 4 - Development, Continued

Section III – Development of Course Manuals and Materials, Continued

4-13. Line Spacing	Single space text with double spacing between paragraphs.
<hr/>	
4-14. Page Headers	Upper and Lower Case Bold, minimum 20-point font <u>Underline and Use Initial Capitals in the Subheading with a minimum 14-point font</u>
<hr/>	
4-15. Paragraphs	Use a paragraph when the thought changes or when necessary to emphasize a specific request or idea so that students will not overlook it. One subject may extend over several paragraphs, but each paragraph should contain a certain phase or angle on the subject. A “long” paragraph should not run more than 10 or 12 lines. Paragraph frequently in single-spaced work so that the reader’s eye can hold to the copy and the mind can retain the thought of the paragraph.
<hr/>	
4-16. Paragraph Heading	<u>BOLD and USE ALL CAPITALS AND UNDERLINE with a minimum 14-point font.</u> Start the first paragraph three lines below the last topic heading. Type the paragraph number flush with the left margin; then type the paragraph title.
<hr/>	
4-17. Subparagraph Heading	BOLD AND USE ALL CAPITALS WITH A 12-POINT MINIMUM FONT. When you subdivide a paragraph, you must have at least two subparagraphs. For example, when you have a “1,” you must have a “2.” Subparagraphs may have titles, but are not required. Be consistent. If you give a title to one subparagraph, give titles to all subparagraphs at the same level. Use standard outlining procedures for paragraphing. Consult AR 25-50, a Webster’s dictionary, or any freshman college English book for guidance on outlining.
<hr/>	
4-18. Justification	In all possible cases, you should justify the right and left margins, meaning that both margins begin and end in the same place.
<hr/>	
4-19. Revisions	If you submit a manual to Desktop Publishing for revision, use the following guidelines:

Continued on next page

Chapter 4 - Development, Continued

Section III – Development of Course Manuals and Materials, Continued

4-19. Revisions (continued)

Step	Action
1.	Put all revisions and corrections on the latest draft or final copy.
2.	Do not cut, paste, or otherwise alter the document. If you alter the document, your copy is no longer compatible with the material stored by Desktop Publishing.
3.	Insert corrections by noting them on the document and attaching added sentences or paragraphs on a separate paper, indicating by asterisk where to insert new materials.
4.	Use a red pen or similar distinguishable colored pen for marking revisions and corrections to the original material.
5.	Ensure the corrections are legible.

4-20. Spell Check

Routinely scan material for spelling errors. Even though word processors scan for spelling errors, they do not detect incorrect word usage in every case, e.g., *to* for *too*. Nothing ruins the credibility of a document more than incorrect spelling.

4-21. Manual Organization

PROSPECT training manuals generally follow the organizational structure as indicated below. Items occur in the order listed.

Manual Part	Explanation
Cover	The cover contains the title of the course and gives the name, address, and other appropriate information. (See Desktop personnel for a sample manual showing each item listed in this Job Aid, including a cover page.) The course control number will appear in the upper left corner of the cover page. The fiscal year date will appear in the upper right corner, indicating the date the manual was updated, not the present fiscal year.
PROSPECT Intro	See Course Manual sample in Desktop Publishing for the two paragraphs on PROSPECT Course Information for mandatory placement on the back of the cover.
Foreword (Optional)	You may include a foreword to provide the reader with a short explanation of the purpose of the document. If you include a foreword, it will follow the cover page.

Continued on next page

Chapter 4 - Development, Continued

Section III – Development of Course Manuals and Materials, Continued

4-21. Manual Organization (continued)

Manual Part	Explanation
Table of Contents (TOC)	The TOC will include a consolidated list of sections, appendixes, glossaries, and references. Number TOC pages at the bottom of the page, centered with lower case Roman numerals.
Schedules of Instruction (SOI)	The SOI lists all major topics of the manual/course, the times of presentation, and usually the name of the presenter/instructor.
Student Notes (Optional)	You may furnish students lined or unlined pages for taking notes.
Instructor Bios	These sketches should be no longer than one page and include information about each instructor's background, present employment, current address, telephone number, and e-mail address.
Student Notes (Optional)	You may furnish students lined or unlined pages for taking notes.
Instructor Bios	These sketches should be no longer than one page and include information about each instructor's background, present employment, current address, telephone number, and e-mail address.

Continued on next page

Chapter 4 - Development, Continued

Section III – Development of Course Manuals and Materials, Continued

4-21. Manual Organization (continued)

Manual Part	Explanation
Text Material	<p>Material in the text should be factual, specific, concise, and clearly worded. Maintain high standards of grammar, spelling, and clarity. Cover topics accurately and completely and ensure information agrees with established policies.</p> <ul style="list-style-type: none"> ➤ <u>Chapters and Sections</u>: Divide text materials into Sections with each section covering information relative to the subject discussed. When you need more detailed information, divide into Chapters and further divide into smaller sections, as needed. Be sure you use tabs to label the Chapters and/or Sections. ➤ Ensure <u>Learning Objectives</u> precede each section or chapter or put them in the appropriate place so that students will have no doubt as to the purpose of the material. Objectives and summaries are desirable at the ends of sections also. You may even have a separate section in the manual and tab it for learning objectives if the Course Manager and instructors want a separate section. ➤ <u>Number text pages</u> consecutively at the bottom of the page and center within each chapter/section, using Arabic numbers separated by a hyphen, e.g., 2-3 means Chapter/Section 2, page 3. Each new Chapter/Section should begin on a right-hand page with an odd-numbered page, e.g., 2-1. ➤ <u>Foldout pages</u>. Use for material that cannot be reduced for satisfactory presentation on standard size pages. Single foldout pages are always right-hand pages. ➤ <u>Tables</u>. Considered a systematic listing of information in columns and rows, tables can explain or clarify material or they can replace and simplify complicated narrative. Number tables consecutively within each Chapter/Section, using two-part Arabic numbers, e.g., Table 1-2. The first number represents the Chapter/Section, and the second number represents the numerical sequence of the table within the Chapter/Section.

Continued on next page

Chapter 4 - Development, Continued

Section III – Development of Course Manuals and Materials, Continued

4-21. Manual Organization (continued)

Manual Part	Explanation
Abbreviations and Acronyms	Hold abbreviations to a minimum and only use when no doubt exists as to what the abbreviation means. Spell out an acronym the first time it appears and follow with the acronym in parentheses. You may want to include a list of abbreviations and acronyms, showing definitions and meanings. This list would become a part of the glossary and should precede the glossary.
Appendixes	Use appendixes for supporting material not properly falling within the text. Refer to the appendixes in the main body of the publication. They should appear after the last labeled Chapter/Section of the manual. Identify them in the same order cited: the first appendix mentioned will be Appendix A; the second, Appendix B; and so on. Number pages within the appendix with capital letters followed by a hyphen and an Arabic number, e.g., A-1, A-2, B-1, etc.
Glossary	Glossaries explain abbreviations and terms when there are too many to explain in a paragraph in the body of the text. If you have more than 5 terms or more than 15 abbreviations, use a glossary. Place the glossary after the appendixes (if any) and reference the glossary in the text. Arrange items alphabetically and do not number them.
Reference Material	Provide a list of references for students' use at their work sites if supplemental publications are necessary. Reference materials serve as an extension of the training materials even though you may use them minimally at the course site. Arrange references in alphabetical order.

Chapter 5 - Implementation

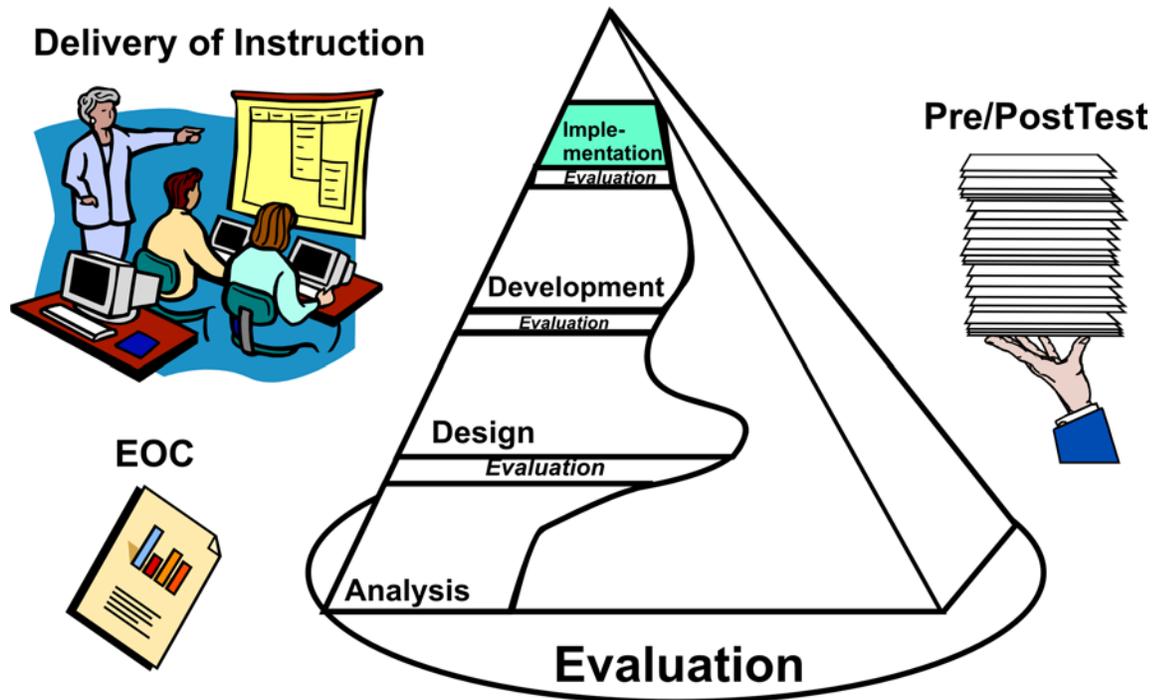


Figure 5-1. Implementation Phase

5-1. Implementation: Basic Requirements

Many activities must occur during the implementation phase, Figure 5-1, of training to ensure successful training. The activities included in this chapter specifically address the following:

1. The approved master materials used to present the instruction.
2. The test instruments designed to measure accomplishment of the training objectives.
3. The students, instructors, facilitators, proponent, and CEHR evaluate training, as appropriate. As a minimum, each student must complete the following:
 - a. Pretest for each student.
 - b. Posttest for each student.
 - c. End-of-course evaluation.

Continued on next page

Chapter 5 - Implementation, Continued

5-1. Implementation: Basic Requirements (continued)

As applicable, the course manager will prepare the following:

- d. Course evaluations. (See paragraph 5-7.)
 - e. Instructor or facilitator evaluations. (See paragraph 5-8.)
-

5-2. Administration of the Pretest

1. A good way to ease test anxiety is by explaining the purposes of the pretest.
 - a. The pretest will measure the student's previous knowledge of the training objectives, not as a test of the student, but to give indicators to the trainers as to whether they have designed the training for the proper target audience. For example, a majority of the students answering a particular pretest question correctly over a period of time would indicate that the students did not need instruction on the particular subject matter covered by that question.
 - b. The instructors can also use the pretest to tailor the instruction for a particular audience. Weaknesses and strengths indicated by the pretest for students in one session may be different from those in another session. The pretest provides the instructors suggestions about areas to stress or deemphasize for a particular audience.
 - c. The students will not be able to answer every question or even a majority of the questions. If they could answer every question, they would have no need for the training. If they cannot confidently answer a question, they should leave a response blank. Guessing can produce false indications about class strengths or weaknesses. The false indications can result in students receiving inappropriate instruction or not receiving instruction they need.
 2. The students should use a machine-scannable form, CEHR-P Form 911 (Test Answer Sheet), to record their answers. See FORMS, page 18. Instructions for completion are on the form. Caution the students not to make any extraneous marks on the form, as this will render it unscannable. Students must use a pencil on all scannable forms.
 3. Collect all test materials (i.e., questions and answer sheets) upon completion of the pretest.
 4. Do not discuss the answers to the pretest with the students. The pretest and posttest contain the same questions. (Do not tell the students this.) Discussion of the pretest answers will invalidate the posttest results.
 5. Ensure each student completes a pretest.
-

Continued on next page

Chapter 5 - Implementation, Continued

5-3. Review of the Pretest

During the student introductions, an instructor(s), not a student(s), should check the pretest.

1. Do not mark on the test answer sheets with anything other than a “copy-not pen” furnished by the PDSC. Any other marks will render the form unscannable.
 2. The pretest provides the instructor(s) information as to the students’ entry knowledge of the objectives. With this knowledge, the instructor(s) can gear instruction to any weaknesses or strengths identified by the pretest. For example, questions, which have not been answered correctly by most students, will indicate areas for instructional emphasis. Further, if the pretest shows most of the students already know the answer to some questions, these areas will not need extensive instruction.
 3. When analyzing the pretest results, consider the following:
 - a. A low percentage of correct responses indicates the class has little knowledge of the subject matter; therefore, the instructor will want to give special emphasis to presentation of this material.
 - b. A high percentage of a particular incorrect response can further indicate a common misconception held by the students, which the instructor will want to counter in instruction.
 - c. A high percentage of correct responses indicates the class has a fair grasp of the material that question is testing. In this case, the instructor will not need to put as much emphasis on this area as on areas where many incorrect responses exist. A cursory review may be sufficient or if the percentage is high enough, instructors should inform the proponent so that they can adjust the course material accordingly.
-

5-4. Delivery of Instruction

1. Instructors/facilitators should discuss the training objectives before beginning each segment of instruction. The student’s training manual contains the objectives at the beginning of each section; therefore, a good technique is to have the student locate and follow along as the instructor reads or discusses them. Discussion of the objectives eliminates guesswork on the student’s part about the importance of the training: the student will know exactly what instructors expect of them upon completion of the training.
 2. Instructors must use an approved schedule of instruction (SOI), master lesson plans, and support materials in the presentation of instruction. The master lesson plans contain the core material necessary for accomplishment of the objectives. Presentation using this master material ensures uniformity of training from one session of a course to another. Instructors may want to add their own touches to their portions of instruction (i.e., personal experiences).
-

Continued on next page

Chapter 5 - Implementation, Continued

5-4. Delivery of Instruction (continued)

However, instructors should keep in mind that they must teach core materials to accomplish the objectives. Additionally, since the schedule of instruction provides only a limited amount of time for each portion of instruction, any personalization should not infringe upon time necessary to present required material. See FORMS, page 15.

5-5. Administration of Posttest

1. The instructor administering the posttest can relieve some test anxiety by explaining the purpose of the posttest. The posttest questions reflect the objectives taught in the training. The course managers use the results to determine whether (1) the instructors have successfully presented the material, and (2) the students have accomplished the objectives.
 2. The students should use a machine-scannable form, CEHR-P Form 911 (Test Answer Sheet), to record their answers. See FORMS, page 18. Instructions for completion are on the form. Caution the students not to make any extraneous marks on the form, as this will render the form unscannable.
 3. An instructor or facilitator should collect all test materials (i.e., questions and answer sheets) upon completion of the posttest and forward them to the PDSC within 5 working days after course completion or give them to the course manager if he/she is present.
 4. After the designated individual collects all materials, one instructor should critique the test by reading the stem (part of the test that asks the question) and the complete correct answer. This procedure provides feedback to the students without compromising the test. To give the students their tests back could invalidate future test data. If possible, ensure the students know their scores on both the pretest and posttest. An effective method of letting the students know their numerical scores on the test is to put them on the back of the certificate in pencil.
-

5-6. Completion of End-of-Course Evaluations

The pretest and posttest provide objective information as to the success of the training. To round out the evaluation process, CEHR-TO solicits end-of-course evaluations, CEHR-P Form 924 (PROSPECT Classroom Course Evaluation) from the students. See FORMS, pages 19-22. The responsible person must ensure each student completes an evaluation.

Continued on next page

Chapter 5 - Implementation, Continued

5-7. Evaluation of Courses

The course manager monitors the first session of all new courses and, when practical, sessions of existing courses in order to offer suggestions for improvements or revisions to the training strategy or methods of presentation. Use CEHR-P Form 744 (Evaluation of Proponent Sponsored Engineer Corps Training (PROSPECT) Course), FORMS pages, 23-24. The proponent or his representative monitors the first session of all new courses, and sessions of existing courses, as applicable, for technical accuracy. The proponent completes the applicable portion of CEHR-P Form 744.

5-8. Evaluation of Instructors

To offer suggestions to enhance the capabilities of our instructor staff, the course manager completes a CEHR-P Form 748 (Evaluation of PROSPECT Instructor/Facilitator, FORMS, page 25), when evaluating training. The evaluation serves as a useful tool for the instructor, proponent, and course manager in assessing areas of strengths as well as areas of weakness.

5-9. Validation of Classroom Training and Training Materials

If you did not conduct an internal and external validation with small group groups, the results of the pretest and posttest for the first session of each new course can serve as validation of the training and training materials (i.e., determine their success and identify areas warranting change). See Chapter 6 for a detailed discussion of these evaluation instruments.

Chapter 6 - Evaluation

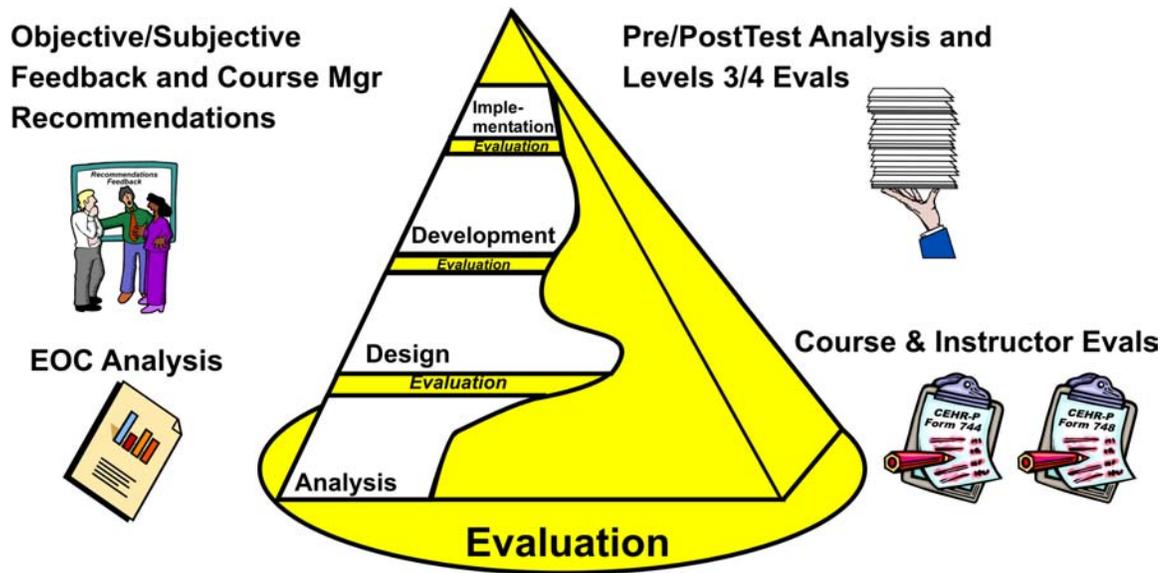


Figure 6-1. Evaluation Phase

6-1. Evaluation: Basic Requirements

1. The ultimate goal of the Corps of Engineers Systems Approach to Training is to provide quality training based on identified job needs (tasks). In the previous phases, we identified the target audience; described and substantiated the needs; and designed, developed, and implemented the training. Now, in the evaluation phase, Figure 6-1, we must determine whether we have accomplished our goal, i.e., did the training actually teach the students to perform the tasks that comprise their jobs and did the instructors teach what they were supposed to teach?
2. A well-rounded evaluation program is twofold.
 - a. The results of the pretest/posttest provide *objective* feedback about the accomplishment of the training objectives.
 - b. The student, instructor, and facilitator evaluations provide *subjective* feedback about how they perceive the training, based on their own individual needs or expectations.

Continued on next page

Chapter 6 - Evaluation, Continued

6-1. Evaluation: Basic Requirements (continued)

3. To aid in the evaluation process, the course manager will develop the following:
 - a. For each session:
 - (1) Composite of student end-of-course evaluations - computer printout of totals for each question and demographic data, plus actual student comments. (See FORMS, pages 26-28, for examples of printout and resulting graph for courses.)
 - (2) Course manager's recommendations and comments.
 - b. For new courses or existing courses, course managers will prepare the following during the implementation phase:
 - (1) Evaluation of Proponent Sponsored Engineer Corps Training (PROSPECT) Course, CEHR-P Form 744. (See FORMS, pages 23-24.)
 - (2) Evaluation(s) of PROSPECT Instructor(s), CEHR-P Form 748. (See FORMS, page 25.)
-

6-2. Analysis of Pretest Items

The pretest questions test accomplishments of the training objectives. Analysis of the pretest results yields objective information about the target audience and their abilities at the beginning of the training.

1. Consistent successful completion of pretest items can indicate an inaccurate assessment of the target audience. If the majority of the students can answer the questions, they do not need training on the tasks the questions cover. Look at the task identification and, subsequently, eliminate any training based on those tasks, if necessary.
 2. Consistent failure by the students to respond correctly to pretest questions reinforces the target audience's deficiency in particular areas. The course manager must continually attempt to answer the following:
 - a. Does the deficiency result from a lack of training or from an environmental or managerial breakdown?
 - b. Is the deficiency widespread across the Corps or is it confined to particular districts or divisions? Limitations in particular areas could indicate problems originating from sources other than a training deficiency, i.e., if the target audience in some areas can perform without training, something occurs in those areas that is not occurring in the localities with deficiencies.
-

Continued on next page

Chapter 6 - Evaluation, Continued

6-3. Analysis of the Posttest

The pretest establishes the baseline of student needs prior to training. Comparison of the students' accomplishments on the pretest prior to training with their accomplishments *after* training on the posttest provides objective feedback about the success of the training. For example, did the training teach what it was supposed to teach? Can the students now perform successfully in those areas where they were deficient at the onset of training? Instructors/facilitators/course managers should examine all posttest questions not answered correctly by at least 80 percent of the students. Consider the following areas and questions in diagnosing problems:

1. Prerequisites: Did designers and developers properly define course prerequisites? If the students need minimal prerequisites, yet the instruction applies to the master level, instructional success will be minimal.
 2. Design:
 - a. Does the instruction stress the objectives sufficiently?
 - b. Does the instruction counter common misconceptions?
 - c. Is the test question properly constructed?
 - (1) Is the stem (question) ambiguous or misleading?
 - (2) Are the distracters clear?
 - (3) Are the distracters misleading?
 3. Instruction (presentation):
 - a. Did the instructors stress the objectives during presentation?
 - b. Did instructors discuss common misconceptions and correct them in the classroom?
 - c. Is the instruction understandable?
 - d. Was the instruction logical and sequential?
-

6-4. Analysis of Student End-of-Course Evaluations

Course managers, instructors, and proponents review the student end-of-course evaluations for areas requiring improvements in single sessions as well as trends that develop for the entire course. For example, they consider whether comments pertain to a particular location or group of instructors or whether the comments remain consistent no matter who presented the course or where the course occurred. This information can help in determining whether to make changes in the course as a whole or in part.

Continued on next page

Chapter 6 - Evaluation, Continued

6-5. Analysis of Instructor and Facilitator End-of-Course Evaluations

The instructor and facilitator should always provide feedback orally or in writing for the course manager to use in the evaluation of the course. This feedback provides a different viewpoint. For example, an instructor's comment that students did not participate in classroom activities would lead the course manager to search for the reasons in the students' evaluations in areas such as prerequisites, instructor motivation, and subject matter knowledge. Again, course managers will monitor comments that are peculiar to a particular location, instructor, or facilitator, as well as trends that develop over multiple sessions.

6-6. Analysis of Evaluation of Proponent Sponsored Engineer Corps Training (PROSPECT) Course, CEHR-P Form 744

As mentioned in Chapter 5, the course manager uses information from this form to determine the need for revision or changes in the course in areas covered by the evaluation. The course manager and proponent monitor the first session of any new course and monitor existing courses as necessary.

6-7. Analysis of Evaluation of PROSPECT Instructor(s), CEHR-P Form 748

As discussed in Chapter 5, this evaluation can offer suggestions to enhance the capabilities of our instructor and facilitator staff. It emphasizes areas of strength on which to build as well as weaker areas for improvement.

6-8. Course Manager's Recommendations and Comments

The course manager analyzes all the tools discussed and prepares recommendations for revisions to the course (e.g., content, materials, staff, scheduling) and coordinates these recommendations with the course proponent. The course manager ensures the implementation of required changes for the next course year, or immediately when warranted.

6-9. Levels 3 and 4 Evaluations

Each course manager will conduct at least two Level 3 / 4 evaluations per year and additional evaluations as time permits. The course managers should maintain schedules of these evaluations to ensure they include all their assigned courses over time. Course managers may conduct the evaluations by email or by using forms mailed through the postal system. Course managers or technicians must obtain

Continued on next page

Chapter 6 - Evaluation, Continued

6-9. Levels 3 and 4 Evaluations (continued)

students' and students' supervisors' postal and email addresses at the time the students attend PROSPECT courses. The Level 3 / 4 evaluations should occur 6 months after the course ends. The course managers may construct their own Levels 3 / 4 evaluations or use standardized forms available for mailing.

Currently, PDSC course managers have the capability to do the following:

- Choose a course to evaluate.
- Construct Levels 3 and 4 surveys for students and their supervisors.
- Put those surveys on the server at PDSC.
- Send the students emails asking them to (1) go to the link for the student survey and respond (2) forward an email to their supervisors asking them to go to a link for the supervisor survey and respond.
- After the suspense date for responses, the course manager and the QA/QC officer may pull statistical reports from the PDSC Intranet regarding student and supervisor responses.

Course managers should conduct continuous *internal evaluations* to ensure students achieve learning objectives, and *external evaluations (Levels 3 and 4) as often as possible* to ensure that what instructors taught was relevant and transferred to the job and benefited the organization.

6-10. Certification

Many states, as well as certifying and licensing bodies, now require continuing education credits to maintain licenses and certification. Chapter 7 provides a complete discussion about the PDSC continuing education/training credit.

Select PROSPECT courses qualify for these credits as determined by (1) close examination of the analysis, design, development, implementation, and evaluation of course materials; (2) observation and evaluation of actual course conduct and instruction; (3) and statistics associated with pretest, posttests, and course evaluations. The Purple Book lists the number and kinds of credit granted for these select courses.

Chapter 7 - Continuing Education/Training Credit

7-1. Introduction

Many states, as well as certifying or licensing bodies, now require continuing education credits to maintain licenses and certification. Certain PROSPECT courses qualify for continuing education credits to include the Continuing Education Unit (CEU), Learning Unit (LU), Professional Development Hour (PDH), and the Professional Development Unit (PDU) because the Professional Development

Organization	Acronym	Unit of Credit Granted
International Association for Continuing Education and Training	(IACET)	CEU
American Institute of Architects	(AIA)	LU
National Society of Professional Engineers	(NSPE)	PDH
Project Management Institute	(PMI)	PDU

Support Center is a certified provider with the following:

7-2.



The IACET is a nonprofit membership organization of over 650 organizations and individuals dedicated to promoting quality in continuing education and training. The membership consists of professional associations, businesses and industries, higher education institutions, government agencies, health organizations, regulatory agencies, and individuals. The IACET has devoted three decades to researching and promoting quality in continuing education and training.

In 1991, the IACET established the Certified Provider Commission to promote quality and consistency in continuing education and training by reviewing and monitoring providers against the established criteria and recognizing organizations that adhere to the rigid criteria. The USACE Professional Development Support Center became a certified provider as a part of its commitment to quality training.

Numerous professions, associations, such as the National Society of Professional Engineers (NSPE), and licensing boards use the criteria and principles established by the IACET to review and enhance their professional development programs. The IACET has become the standard and their criteria a model for other organizations.

Many states, licensing bodies, and certifying bodies accept the Continuing Education Unit (CEU) earned in courses developed and presented by IACET certified providers for continuing education credit. Each body and state establishes its own criteria and no guarantee exists that the states and licensing and certifying bodies will accept credit for courses for which providers grant CEUs; however, the fact that students earn credits in accordance with established, stringent criteria created by an international professional organization should positively influence the body's decision. The course description in the Purple Book lists the number of CEUs or other credits granted for that particular course. Course completion certificates also list the number of credits granted.

Continued on next page

Chapter 7 - Continuing Education/Training Credit, Continued

7-3. AIA



The PDSC awards learning unit (LUs) recognized by the American Institute of Architects (AIA) for selected courses. Headquarters, U.S. Army Corps of Engineers, entered into a Partnering Agreement with the AIA, and one of the major goals of this agreement is to advance architectural professionalism and development through continuing education and collaborative training.

The AIA/CES (Continuing Education System) criteria ensures that training registered under their system provides a quality learning experience. A number of PROSPECT courses developed and presented by the PDSC meet the AIA/CES criteria. The course descriptions in the Purple Book list the number of LUs granted for each course. The PDSC registered these courses with the AIA/CES, and AIA members may use them to satisfy, in part or whole, the AIA annual requirements for learning units. The USACE PDSC reports AIA member participation in these courses, upon request. Additionally, many states, licensing bodies, and certifying bodies allow professionals to use the AIA LU to satisfy requirements for continuing education. Course completion certificates show the number of LUs earned for the learning activity.

7-4. NSPE



The USACE PDSC grants professional development hours (PDHs) through its association with the National Association of Professional Engineers (NSPE) for selected PROSPECT courses. Recognition by the National Council of Examiners for Engineering and Surveying (NCEES) verifies the quality of the PDSC courses, as well as, provides an accepted measure of continuing educational units appropriate to each offering.

Many state, licensing bodies, or certifying bodies accept courses registered with NSPE. You will find PROSPECT courses registered with NSPE in the Purple Book. Student certificates list the number of PDHs granted. Individual professionals have the responsibility for determining the requirements for their appropriate licensing bodies.

7-5. PMI



As a Project Management Institute Corporate/Government Registered Education Provider (REP), the PDSC actively participates in this comprehensive continuing education program within the field of project management. This membership assures students they can earn Professional Development Hours (PDUs) for qualified PROSPECT courses. The Purple Book and PDSC certificates list the number of PDUs earned for each course.

As a Project Management Institute Corporate/Government Registered Education Provider (REP), the PDSC actively participates in this comprehensive continuing education program within the field of project management. This membership assures students they can earn Professional Development Hours (PDUs) for qualified PROSPECT courses. The Purple Book and PDSC certificates list the number of PDUs earned for each course.

Continued on next page

Chapter 7 - Continuing Education/Training Credit, Continued

7-6. Application Procedures

Course Managers (CMs) will submit applications for Granting Continuing Education Units (CEUs) through their Division Chiefs and the QA/QC Officer to the Chief, PDSC.

Step	Action
1	Request approval to grant credit for (Course Title and Number).
2	<p>Base the number of CEUs on the following:</p> <ul style="list-style-type: none"> • Instructor Hours (generic) = _____ • Instructor Supervised Study (Average) = _____ • Instructor Supervised Field Trip (hours + 2) = _____ <p>Total Instructor Contact Hours = _____ ÷ 10 = ____ . ____</p> <p>CEUs</p> <p>(Remember: do not count breaks, lunch periods, or time devoted to administrative tasks, such as student introductions and record keeping.)</p>
3	<p>Date course first taught in PROSPECT Program: _____</p> <p>Date of latest course revision: _____</p> <p>Total Number of Course Hours _____</p>
4	<p>Prepare the documentation below for course review.</p> <ul style="list-style-type: none"> a. _____ Evaluation of Proposed Training (ENG Form 4712-R) b. _____ Target Population Description (CEHR-P Form 829) c. _____ Duty List/Task Inventory (CEHR-P Form 830) d. _____ Survey documents, if applicable, to include Transmittal Letter, and any other attachments or enclosures. e. _____ Task Analysis Report f. _____ Task Analysis/Objective Analysis Worksheet (CEHR-P Form 832) g. _____ Schedule of Instruction (CEHR-P Form 676) h. _____ Instructor's Lesson Plan(s) i. _____ Student Manual (as applicable) j. _____ Handouts (as applicable) k. _____ Pretest/Posttest l. _____ Student End-of-Course Evaluation Report(s) (CEHR-P Form 924) m. _____ Instructor Evaluations (CEHR-P Form 748) (as applicable) n. _____ Course Evaluations (CEHR-P Form 744) (as applicable)

Continued on next page

Chapter 7 - Continuing Education/Training Credit, Continued

7-7. CEU Computation Guidance



The International Association for Continuing Education and Training (IACET) awards one CEU for each 10 contact hours of instruction. To calculate the number of CEUs for a course, adhere to the following:

- Use the 60-minute clock as the contact hour. Consider only the number of complete instructional hours, e.g., 1.7 CEUs would be assigned for a class of 17, 17.5, or 17.75 contact hours. Disregard any fractional portion of an instructional hour.
- To determine the number of contact hours, count the number of hours in the course, and subtract any time spent explaining internal policies or procedures, breaks, lunches, or other activities not directly related to the learning experience.
- Do not include the following:
 1. Time for study or assigned reading.
 2. Meeting time devoted to business activities.
 3. Time devoted to announcements, welcoming speeches, or organizational reports.
 4. Time allocated for social activities, luncheons, breaks, receptions, and dinners.
- EXAMPLE:
 1. A learning event has six 50-minute sessions with 10 minutes between for set-up. Compute the contact hours as follows: $6 \times 50 = 300$ total minutes in organized learning. Divide 300 by 60 = 5 contact hours. Then divide the number of contact hours by 10 to get the CEU. ($5 \div 10 = .5$ CEU).
 2. You may express CEUs in tenths of a CEU (e.g., 17 contact hours equates to 1.7 CEU; 3 contact hours equates to .3 CEU. Do not express the CEU past the tenths place. If your calculation is 1.78, round off to 1.8.

7-8. LU Computation Guidance



The American Institute of Architects Continuing Education System (AIA/CES) credit hour is based on a 60-minute hour and stated as an AIA/CES Learning Unit (LU). Record any time beyond 60 minutes in quarter hour increments (e.g., 1 hour 45 minutes = 1.75 LUs). Do not award credit for breaks, lunch, social events, product demonstrations, sales presentations, or other activities that do not meet the AIA/CES learning objective criteria.

Continued on next page

Chapter 7 - Continuing Education/Training Credit, Continued

7-9. PDH Computation Guidance



One Professional Development hour (PDH) equates to one hour of acceptable professional development education, not including speakers' introductions, breaks, meals, and the like. The National Society of Professional Engineers (NSPE) recognizes the National Council of Examiners for Engineering and Surveying (NCEES') definition of a PDH stated in the Model Rules and Regulations for Registration Boards: "A contact hour (nominal) of instruction or presentation. The common denominator for other units of credit." Note: One CEU = 10 PDHs.

7-10. PDU Computation Guidance



The Professional Development Unit (PDU) is the measuring unit used to quantify PMI-approved learning and professional service activities. One PDU is earned for each contact hour spent in a *structured* learning experience or activity. Fractions of PDUs may be granted in 0.25 increments after the first full hour earned.

7-11. Summary

The major steps in acquiring continuing education credit for new or existing courses follow:

Step	Action
1	Compile all course materials as listed here in Chapter 7, COESAT Handbook.
2	Make application for continuing education credit through the Division Chief, QA/QC Officer, and Chief, PDSC.
3	After the course review and the granting of continuing education credit, inform the Registrar's Office of the credit granted.
4	Follow-up to ensure proper credit is annotated in the Purple Book and on student certificates.

Chapter 8 - Conferences, Workshops, Seminars

8-1. Purpose

From time to time, components of the Corps of Engineers or proponents ask the PDSC to conduct or sponsor conferences, workshops, or seminars. This document outlines a systematic method for formal documentation of activities associated with the preparation, design, development, and conduct of conferences, workshops or seminars.

8-2. Definitions

1. Conference: a formal meeting of a number of people for discussion or consultation. A seminar or workshop could be within a conference. A conference usually involves a larger number of people than that of a workshop or a seminar.
 2. Workshop: a series of meetings for intensive study, work or discussion in a particular field. A workshop usually indicates a "hands-on" approach. Workshop and seminar are sometimes synonymous.
 3. Seminar: a small group of students meeting regularly under the guidance of a tutor, e.g., to exchange information or discuss theories.
-

8-3. Policy

1. The PDSC will only award CE/T credit for conferences, workshops, or seminars that are officially approved by (1) the Chief, Engineering and Construction Division and/or other Division Chiefs, HQUSACE, or higher authority; (2) the Chief, PDSC; or (3) QA/QC Officer in the case of courses earning Professional Development Units (PDUs) for the Program Management Institute (PMI).
 2. The standard measurement for credit other than for the PMI will be the professional development hour (PDH). The NCEES requires that any other measurement be converted to PDHs.
 3. An individual who delivers or attends a technical professional presentation that is a part of an approved conference or seminar program may count his or her attendance for PDHs.
 4. One hour of participation will earn one PDH. One hour of presentation will earn 2 PDHs. An individual can only earn presentation credit for the first time he or she makes the presentation.
-

8-4. Documentation

The organization sponsoring the conference, seminar, or workshop will maintain the documentation to show the following:

1. Location and inclusive dates.
 2. Sponsoring organization point(s) of contact.
 3. Each attendee's name.
-

Continued on next page

Chapter 8 - Conferences, Workshops, Seminars, Continued

8-4. Documentation (continued)

4. Each attendee's social security number (SSN).
 5. Each participant. (For workshops and seminars, you may only have one continuous session.)
 6. A detailed description of each session's content.
 7. Number of PDHs to be earned for each session.
 8. A biographical sketch of each presenter, listing qualifications.
-

The sponsoring organization will provide each participant a completion certificate that lists the following:

1. Conference, Workshop, Seminar title, location, and inclusive dates.
 2. Participant's name and SSN.
 3. List of sessions attended by participant, if applicable.
 4. Number of PDHs or PDUs earned for sessions attended.
-

8-5. Responsibility

1. The student is responsible for determining the number of PDHs or PDUs needed in a given year to maintain individual records. The student is also responsible for completing and submitting any forms required by the certifying, registering, or licensing body.
 2. The PDSC will maintain conference, workshop, and seminar documentation as well as student attendance records for all activities sponsored and approved as a PROSPECT conference, workshop, or seminar.
-

8-6. Certificates

1. When the PDSC sponsors a PROSPECT conference, workshop, or seminar, the certificates will be like the certificates issued for a regular PROSPECT course and will list the number of PDHs or PDUs earned, *if* the conference, workshop, or seminar meet the qualifications for PDHs or PDUs.
 2. When a component of the Corps sponsors a conference, workshop or seminar, the sponsoring organization will work with PDSC QA/QC personnel in designing the certificate. Publication of the certificate will be the responsibility of the sponsoring component. A sample certificate for a conference is on the PDSC website or QA/QC personnel will furnish a sample upon request.
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Continued on next page

Chapter 8 - Conferences, Workshops, Seminars, Continued

8-7. COESAT Requirements

See JA-1, the COESAT Job Aid, for documentation necessary for conferences, workshops, and seminars.

EVALUATION OF PROPOSED TRAINING COURSE (ER 690-1-414)		USACE CONTROL NUMBER	RCS: CEHR-D-35
TO: CDR, USACE (CEHR-D) WASH DC 20314-1000		NOTE: FORM MAY BE SUBMITTED AT ANY TIME; HOWEVER, TO BE IN THE NEXT SCHEDULED TRAINING SURVEY, IT MUST BE RECEIVED BY CEHR BY 1 OCT	
PART 1			
ORIGINATOR COMPLETES PART I AND FORWARDS ALL PARTS TO CEHR-D. IF ORIGINATOR IS ALSO PROPONENT, COMPLETE PARTS I AND III BEFORE SENDING TO CEHR-D; USE ADDITIONAL SHEETS IF NECESSARY ATTACH DRAFT COURSE DESCRIPTION			
1. PROPOSED COURSE TITLE		2. SUGGESTED HQUSACE PROPONENT ORGANIZATION	
3. EXPLAIN WHY THIS COURSE IS NEEDED AND WHAT KNOWLEDGE, SKILLS, AND ABILITIES TRAINEES SHOULD OBTAIN FROM THE COURSE			
4. SUGGESTED TASKS/TOPICS TO BE COVERED BY THIS COURSE			
5. TARGET AUDIENCE (List the types of employees who should attend. Include functional areas, grade level, and series of potential students. List any knowledge or skills nominees should have <u>before</u> attending this class)			
6. COMMENTS			
NAME, TITLE AND ORGANIZATION (Type or Print)		SIGNATURE	TELEPHONE NO.(incl Area Code)
			Date
PART II			
CEHR-D ASSIGNS USACE CONTROL NUMBER, PROVIDES COMMENTS			
COMMENTS			
NAME, TITLE AND ORGANIZATION (Type or Print)		SIGNATURE	TELEPHONE NO.(incl Area Code)
			Date

PART III

COURSE PROPONENT COMPLETES PART III AND RETURNS TO CEHR-D. USE ADDITIONAL SHEETS IF NECESSARY

1. GENERAL

a. CURRICULUM STABILITY

(1) HOW OFTEN ARE CHANGES ANTICIPATED?

(2) WHAT TYPES OF CHANGES WOULD BE INVOLVED? (e.g. regulation update/changes, on-the-job task changes, etc)

(3) HOW EXTENSIVE WOULD THE CHANGES BE? (e.g. major-entire course; moderate-half the course; minor-little changes; etc)

b. WHEN IS THE FIRST TRAINING NEEDED? (Qtr/Yr, justify any requirements less than 18 months)

c. THE LEVEL BEING TRAINED (e.g., BASIC OR ADVANCED)

2. SPECIAL COURSE CONSIDERATIONS (e.g. equipment needs, computer computer time, funding, regional application, etc)

3. Estimated # to be trained- Explain the method used to determine these numbers in block 6

4. RECOMMEND CLASSROOM _____ OR DISTANCE LEARNING _____ (EXPLAIN RECOMMENDATION)

5. SUGGESTED PRICE FOR DEVELOPMENT/INSTRUCTORS (NAME, ORGANIZATION, TELEPHONE, IF KNOWN)

CORPS EMPLOYEE
LABS
CONTRACTORS

6. REMARKS (AMPLIFY/CLARIFY/VERIFY INFORMATION IN PART I)

NAME, TITLE AND ORGANIZATION (Type or Print)

SIGNATURE

TELEPHONE NO.(incl Area Code)

Date

PART IV CEHR-P COMPLETES FORWARDS TO PROPONENT BY SUSPENSE DATE		
1. COURSE TITLE	2. CEHR-D CONTROL NUMBER	
3. CEHR-P CONTROL NUMBER	4. CLASS SIZE (IF CLASSROOM TRAINING SELECTED)	5. CLASS LENGTH
6. SIMILAR COURSE OR DUPLICATION OR SUBJECT MATTER OFFERED IN OTHER COURSE BY USACE, FEDERAL GOVERNMENT, INDUSTRY OR ACADEME (EXPLAIN RESEARCH METHOD AND RESULTS)		
7. RECOMMEND CLASSROOM _____ OR DISTANCE LEARNING _____ (EXPLAIN RECOMMENDATION)		
8. ESTIMATED COST IN DOLLARS		
	a. DEVELOPMENT \$ _____	
	b. FIRST YEAR \$ _____	
9. PROPOSED SURVEY SCHEDULE (SESSION #, DATES, LOCATIONS)		
10. REMARKS-CEHR-P REACTION IN TERMS OF FUNDING, INSTRUCTOR AVAILABILITY, CEHR-P STAFF REQUIRED, TIME NEEDED FOR DEVELOPMENT, ETC.		
11 PREPARED BY		
NAME, TITLE (TYPE OR PRINT)	SIGNATURE	TELEPHONE NO. (INCL AREA CODE)
		DATE:
APPROVED BY		
NAME, TITLE (TYPE OR PRINT)	SIGNATURE	TELEPHONE NO. (INCL AREA CODE)
		DATE:

VERIFICATION OF TRAINING NEEDS FY _____ (ER 690-1-414)			REQUIREMENT CONTROL NO. CEHR-D-24			
PART I (To be completed by CEHR-P)						
TO:			FROM: USACE PROFESSIONAL DEVELOPMENT SUPPORT CENTER ATTN: CEHR-P P.O. BOX 1600 HUNTSVILLE, AL 35807-4301			
1. COURSE TITLE		2. CONTROL NO.		3. LENGTH (HOURS)		
4. TYPE		5. CLASS SIZE		6. CERTIFICATION CREDITS		
				___ CEU	___ PDH	
				___ LU		
7. COURSE HISTORY						
NO. YEARS CONDUCTED		NO. YEARS PROSPECT PROGRAM		TOTAL STUDENTS COMPLETING		
FISCAL	SURVEY		ALLOCATIONS		CONDUCTED	
YEAR	SESSIONS	STUDENTS	SESSIONS	STUDENTS	SESSIONS	STUDENTS
8. CEHR-P SURVEY DATA RECOMMENDATION:						
<u>Session Number</u> <u>Start Date</u> <u>End Date</u> <u>City</u> <u>State</u>						
9. CEHR-P COMMENTS: PLEASE REVIEW THE COURSE DESCRIPTION FOR ACCURACY & UPDATE						
COURSE MANAGER/TELEPHONE#			SIGNATURE			DATE

9. ANSWERING THE FOLLOWING QUESTION WILL HELP PROPONENTS AND THE PDSC IDENTIFY COURSES (OR MODULES OF COURSES) TO CONVERT FROM CLASSROOM DELIVERY TO A MORE ECONOMICAL MODE OF DELIVERY (e.g. DISTANCE LEARNING, CD-ROM, OR ON THE USACE LEARNING NETWORK).

a. COURSE IS CURRENTLY DELIVERED ONLY IN CONVENTIONAL/FORMAL CLASSROOM TRAINING MODE.
 YES NO

b. COURSE IS REASONABLY STABLE REQUIRING ONLY MINIMAL UPDATES, e.g. STANDARD MINOR, ANNUAL UPDATE TO KEEP COURSE IN SYNC WITH CHANGING PROCEDURES, TERMINOLOGY, STATISTICS, ETC.
 YES NO

c. COURSE PROVIDES TRAINING REQUIRED BY A RELATIVELY LARGE OR DIVERSE TARGET POPULATION, e.g. APPROXIMATELY 100+STUDENTS PER YEAR, AND /OR BROAD IN SCOPE, COVERING MULTIPLE CAREER PROGRAMS/CAREER FIELDS ACROSS USACE / ARMY/DOD. YES NO

d. COURSE IS MORE THAN EIGHT HOURS, BUT NO MORE THAN TWO WEEKS IN LENGTH. YES NO

e. COURSE PROVIDES COGNITIVE TRAINING WHICH REQUIRES MINIMAL HANDS ON PARTICIPATION BY STUDENTS AND DOES NOT REQUIRE SUBSTANTIAL STUDENT INTERACTION. YES NO

f. IF YOU RECOMMEND THIS COURSE REMAIN CLASSROOM BASED, ARE THERE SEGMENTS OR MODULES OF THE COURSE THAT YOU WOULD LIKE TO CONSIDER FOR CONVERSION TO DISTANCE LEARNING? IF SO, PLEASE DESCRIBE THEM:

10. ADDITIONAL COMMENTS

NAME AND ORG SYMBOL OF COURSE PROPONENT, PHONE, E-MAIL ADDRESS

SIGNATURE

DATE

TARGET POPULATION DESCRIPTION	
PROPOSED TRAINING TITLE:	
COURSE CODE:	
CIVILIAN SERIES:	
MILITARY OCCUPATION SPECIALITY:	
POSITIONS:	
RESPONSIBILITIES:	
EXPERIENCE:	
TRAINING:	
KNOWLEDGE:	



DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF

S: DATE

CEHR-P-TO (690-400a)

Date

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Task Analysis Survey

1. The Professional Development Support Center is developing training for Heating, Ventilation, and Air-Conditioning (HVAC) Control Systems Operation and Maintenance. To verify the need for this training and to ensure that any training developed meets the needs of the target audience, we are conducting a survey to identify those tasks that require training.
2. Enclosed are five Task Analysis Data Booklets and Duty List/Task Inventory for the survey respondents to use. The Task Analysis Data Booklet contains instructions for completing the survey. Give priority to HVAC Operation and Maintenance personnel in the grades WG 8-12.
3. Please return the completed booklets and inventories in the enclosed addressed envelopes to CEHR-P-T (Course Manager) NLT (Date).
4. Thank you for your continued assistance and support in helping us develop effective training to meet the needs of our customers.
5. Please refer questions concerning this survey to (Course Manager), telephone Number) and e-mail address.

2 Encls


Gary F. Andrew
Director, USACE Professional Development
Support Center

DISTRIBUTION:
(Insert Distribution List)

DO NOT BEND, FOLD, STAPLE OR MUTILATE



US Army Corps of Engineers

TASK ANALYSIS DATA BOOKLET

INTRODUCTION

The US Army Corps of Engineers Professional Development Support Center has the responsibility for developing effective training to meet Corps of Engineers' needs. In order to accomplish this mission, input from those persons occupying the applicable positions is essential. We are soliciting your help in identifying tasks that require training in the areas identified in the accompanying task inventory. It is requested that you respond to the attached questionnaire, basing your responses on your personal experience.

PRIVACY ACT STATEMENT

Authority: Title 5, United States Code, Section 301

Purpose: To promote the development of valid instructional programs by identifying those tasks which require formalized training.

Routine Use: To provide data to be used in determining training requirements.

Disclosures and Effects on Individuals: All disclosures are voluntary with no penalties to be imposed upon individuals not providing information. Data collection does not require the recording of names. Information obtained will not be used against any individual under any circumstances.

INSTRUCTIONS

You will need a Task Analysis Data Booklet and a Task Inventory to complete this survey.

There are three questions to be answered in the Task Analysis Data Booklet for each task in the Task Inventory. Read each task in the inventory and mark your response to each question for that task next to its corresponding number in the Task Analysis Data Booklet.

Use a No. 2 soft lead pencil. Completely fill in the circle indicating your response. Be sure you place your responses in the proper column, marking only one response per column, three responses per task. If you change your mind, erase your first mark completely.

If the responses do not agree with your opinion, mark the response that most closely agrees. If a task that you perform is not listed anywhere in the entire list, place it on the comment sheet provided and state the appropriate responses.

Do **NOT** make any marks other than your responses or write on the booklet. These forms are tabulated by computer and any writing other than response marks will cause a malfunction in the computer operations.

Course code can be found at the top of the first page on the task inventory.

COURSE CODE		
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

SUPERVISOR
YES <input type="radio"/>
NO <input type="radio"/>

CIVILIAN SERIES			
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

MILITARY MOS		
0	0	A
1	1	B
2	2	C
3	3	D
4	4	E
5	5	F
6	6	G
7	7	H
8	8	I
9	9	J
		K
		L
		M
		N
		O
		P
		Q
		R
		S
		T
		U
		V
		W
		X
		Y
		Z

DIV/DIST.		
	A	A
	B	B
	C	C
	D	D
	E	E
	F	F
	G	G
	H	H
	I	I
	J	J
	K	K
	L	L
	M	M
	N	N
	O	O
	P	P
	Q	Q
	R	R
	S	S
	T	T
	U	U
	V	V
	W	W
	X	X
	Y	Y
	Z	Z

CLASSIFICATION															
GM <input type="radio"/>	GS <input type="radio"/>	WG <input type="radio"/>				OFFICER <input type="radio"/>			WARRANT OFFICER <input type="radio"/>				ENLISTED <input type="radio"/>		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

TIME IN CAREER FIELD	
1-6 months	<input type="radio"/>
6-12 months	<input type="radio"/>
1-2 years	<input type="radio"/>
2-3 years	<input type="radio"/>
3-4 years	<input type="radio"/>
4-8 years	<input type="radio"/>
8-14 years	<input type="radio"/>
Over 14 years	<input type="radio"/>

TIME IN PRESENT ASSIGNMENT	
1-6 months	<input type="radio"/>
6-12 months	<input type="radio"/>
1-2 years	<input type="radio"/>
2-3 years	<input type="radio"/>
3-4 years	<input type="radio"/>
4-8 years	<input type="radio"/>
8-14 years	<input type="radio"/>
Over 14 years	<input type="radio"/>

TIME IN GRADE	
1-6 months	<input type="radio"/>
6-12 months	<input type="radio"/>
1-2 years	<input type="radio"/>
2-3 years	<input type="radio"/>
3-4 years	<input type="radio"/>
4-8 years	<input type="radio"/>
8-14 years	<input type="radio"/>
Over 14 years	<input type="radio"/>

EDUCATIONAL LEVEL	
H/S Diploma	<input type="radio"/>
GED	<input type="radio"/>
Did not complete H.S.	<input type="radio"/>
Credits toward BA/BS	<input type="radio"/>
Bachelors Degree	<input type="radio"/>
Credits toward MA/MS	<input type="radio"/>
Masters degree or higher	<input type="radio"/>

SURVEY YEAR	
0	<input type="radio"/>
1	<input type="radio"/>
2	<input type="radio"/>
3	<input type="radio"/>
4	<input type="radio"/>
5	<input type="radio"/>
6	<input type="radio"/>
7	<input type="radio"/>
8	<input type="radio"/>
9	<input type="radio"/>

INSTRUCTIONS: For each task, blacken the circle under the correct column to indicate your response to the questions below.

DIFFICULTY: Is task difficult to learn?

IMPORTANCE: How important is task in job performance?

FREQUENCY: How often is the task performed?

		DIFFICULTY			IMPORTANCE			FREQUENCY		
		1 EASY	2 AVERAGE	3 VERY	1 NOT	2 AVERAGE	3 VERY	1 NEVER	2 SOME	3 OFTEN
1.		<input type="radio"/>								
2.		<input type="radio"/>								
3.		<input type="radio"/>								
4.		<input type="radio"/>								
5.		<input type="radio"/>								
6.		<input type="radio"/>								
7.		<input type="radio"/>								
8.		<input type="radio"/>								
9.		<input type="radio"/>								
10.		<input type="radio"/>								
11.		<input type="radio"/>								
12.		<input type="radio"/>								
13.		<input type="radio"/>								
14.		<input type="radio"/>								
15.		<input type="radio"/>								
16.		<input type="radio"/>								
17.		<input type="radio"/>								
18.		<input type="radio"/>								
19.		<input type="radio"/>								
20.		<input type="radio"/>								
21.		<input type="radio"/>								
22.		<input type="radio"/>								
23.		<input type="radio"/>								
24.		<input type="radio"/>								
25.		<input type="radio"/>								
26.		<input type="radio"/>								
27.		<input type="radio"/>								
28.		<input type="radio"/>								
29.		<input type="radio"/>								
30.		<input type="radio"/>								

PROGRAM: 246 -

POPULATION - 104

SUPERVISOR
YES = 14 (13%) NO = 80 (77%)

CIVILIANS (GS).....
01 = 0 (0%) 04 = 0 (0%) 07 = 0 (0%) 10 = 0 (0%) 13 = 0 (0%)
02 = 0 (0%) 05 = 0 (0%) 08 = 0 (0%) 11 = 2 (2%) 14 = 0 (0%)
03 = 0 (0%) 06 = 0 (0%) 09 = 1 (1%) 12 = 0 (0%) 15 = 0 (0%)

CIVILIANS (WG).....
01 = 0 (0%) 04 = 0 (0%) 07 = 1 (1%) 10 = 59 (57%) 13 = 0 (0%)
02 = 0 (0%) 05 = 1 (1%) 08 = 2 (2%) 11 = 4 (4%) 14 = 1 (1%)
03 = 0 (0%) 06 = 0 (0%) 09 = 5 (5%) 12 = 0 (0%) 15 = 0 (0%)

OFFICERS
01 = 0 (0%) 03 = 0 (0%) 05 = 0 (0%)
02 = 1 (1%) 04 = 0 (0%) 06 = 0 (0%)

ENLISTED
E1 = 0 (0%) E3 = 0 (0%) E5 = 2 (2%) E7 = 0 (0%) E9 = 0 (0%)
E2 = 0 (0%) E4 = 0 (0%) E6 = 1 (1%) E8 = 0 (0%)

TIME IN CAREER FIELD
1-6 MOS = 0 (0%) 6-12 MOS = 0 (0%)
1-2 YRS = 1 (1%) 2-3 YRS = 2 (2%) 3-4 YRS = 2 (2%)
4-8 YRS = 7 (7%) 8-14 YRS = 15 (14%) OVR 14 YRS = 72 (69%)

TIME IN PRESENT ASSIGNMENT
1-6 MOS = 1 (1%) 6-12 MOS = 1 (1%)
1-2 YRS = 6 (6%) 2-3 YRS = 7 (7%) 3-4 YRS = 12 (12%)
4-8 YRS = 14 (13%) 8-14 YRS = 26 (25%) OVR 14 YRS = 30 (29%)

TIME IN GRADE
1-6 MOS = 2 (2%) 6-12 MOS = 3 (3%)
1-2 YRS = 0 (0%) 2-3 YRS = 7 (7%) 3-4 YRS = 8 (8%)
4-8 YRS = 10 (10%) 8-14 YRS = 31 (30%) OVR 14 YRS = 33 (32%)

EDUCATION LEVEL
H/S = 45 (43%) GED = 9 (9%) NO H/S = 1 (1%)
CR BA/BS = 36 (35%) B/S = 5 (5%) CR MA/MS = 1 (1%)
M/S OR HIGHER = 0 (0%)

CIVILIAN SERIES TOTALS
4749 = 35 5306 = 23 5301 = 11 2606 = 3 0802 = 2 3806 = 2
0830 = 1 3359 = 1 4742 = 1

DIVISION/DISTRICT TOTALS
DPW = 15 KCD = 6 ENG = 3 DSS = 1 076 = 1 077 = 1
078 = 1 079 = 1 080 = 1 081 = 1 082 = 1 OTHR = 72

PROGRAM: 246 -

POPULATION - 104

TSK	DIFFICULTY	IMPORTANCE	FREQUENCY	RESULT	TASK STATEMENT
1	AVERAGE (2.3)	VERY (2.5)	SOME (1.7)	TRAIN	PERFORM BIDDABILITY, CONSTRUCTABILITY, OPERABILITY (BCO)
2	AVERAGE (2.1)	VERY (2.7)	SOME (2.0)	TRAIN	INSPECT/VERIFY COMPONENTS ARE INSTALLED PER DESIGN
3	AVERAGE (2.2)	VERY (2.7)	SOME (1.9)	TRAIN	ENSURE COMPONENTS MEET REQUIREMENTS OF CEGS-15950
4	AVERAGE (2.1)	VERY (2.8)	SOME (2.1)	TRAIN	TEST CONTROL SYS OP TO VERIFY SEQUENCE OF OPERATION
5	AVERAGE (2.4)	VERY (2.8)	SOME (2.1)	TRAIN	ENSURE CONTR OP PARAMETERS, PB, TR, SP CORRECT FOR APPLR
6	AVERAGE (1.8)	VERY (2.7)	SOME (2.0)	TRAIN	ENSURE ALL POSTED INSTRUCTIONS ARE POSTED/ACCURATE
7	AVERAGE (2.0)	VERY (2.7)	OFTEN (2.5)	TRAIN	INTERPRET CONTROL PANEL DISPLAYS, GAGES & SWITCHES
8	AVERAGE (2.0)	VERY (2.5)	SOME (2.1)	TRAIN	OPERATE STANDARD DIGITAL CONTROLLER IN MANUAL MODE
9	AVERAGE (2.1)	VERY (2.5)	SOME (2.0)	TRAIN	OPERATE STANDARD DIGITAL CONTROLLER IN SELF-TUNE MODE
10	AVERAGE (2.0)	VERY (2.6)	SOME (2.2)	TRAIN	OPERATE STANDARD DIGITAL CONTROLLER IN AUTOMATIC MODE
11	AVERAGE (2.2)	VERY (2.7)	SOME (2.0)	TRAIN	4-STEP PROCESS/DETERMINE IF CONTROLLER IS FUNCTIONING
12	VERY (2.5)	VERY (2.7)	SOME (1.9)	TRAIN	CALC OPERATING PARAMETERS/ACHIEVE PROPER SYS PERF
13	AVERAGE (2.4)	VERY (2.8)	SOME (2.0)	TRAIN	ADJUST/TUNE DIGITAL CONTROLLER PARAMETERS/SYS PERF
14	AVERAGE (2.2)	VERY (2.7)	SOME (2.1)	TRAIN	ADJ POSITIONERS, SWITCHES, SEQUENCERS, ACTUATORS/PERF
15	AVERAGE (1.9)	VERY (2.6)	SOME (1.9)	TRAIN	UPDATE POSTED INSTRUCTIONS/REFLECT CURRENT OP COND
16	AVERAGE (1.9)	VERY (2.8)	SOME (2.2)	TRAIN	USE MULTIMETER/MEASURE SENSOR/TRANSMITTER OUTPUT SIG
17	AVERAGE (2.2)	VERY (2.6)	SOME (1.8)	TRAIN	USE RESISTANCE TEMP DEVICE (RTD)/CALIBRATE TST
18	AVERAGE (1.9)	VERY (2.7)	SOME (2.2)	TRAIN	USE MULTIMETER TO MEASURE CONTROLLER OUTPUT SIGNAL
19	AVERAGE (2.3)	VERY (2.6)	SOME (1.8)	TRAIN	USE 4-20 MILLIAMP SIG GEN/ADJUST DEVICES/ACTUATE RANG
20	AVERAGE (2.2)	VERY (2.7)	SOME (2.0)	TRAIN	ANALYZE VOLTAGE MEASUREMENTS TO DIAGNOSE CONTROL PROB
21	AVERAGE (1.9)	VERY (2.7)	SOME (2.2)	TRAIN	REPLACE CONTROL COMPONENTS
22	AVERAGE (1.9)	AVERAGE (2.3)	SOME (1.9)	POSSIBLE	UPDATE TIME CLOCK PROG/REFLECT CHANGES IN OP SCH
23	AVERAGE (1.6)	AVERAGE (2.3)	SOME (1.8)	POSSIBLE	REPLACE TIME CLOCK BACK-UP BATTERY
24	AVERAGE (2.1)	VERY (2.7)	SOME (2.3)	TRAIN	SELECT REPLACEMENT PARTS TO MEET REQMTS/SPECS

TASK ANALYSIS/OBJECTIVE ANALYSIS WORKSHEET		
PROPOSED TRAINING TITLE:		
DUTY NUMBER:	DUTY:	
TASK NO:	DATE:	SEQUENCE NO:
TASK STATEMENT:		
ELEMENTS: List all the elements required for task.		
OBJECTIVE ANALYSIS		
ACTION: (one observable performance/behavior; one VERB)		
CONDITIONS: (actual conditions under which task/action will occur. Include tools, procedures, material, aids, or facilities used to perform the tasks).		
STANDARD: (standard for satisfactory task performance - How often? How well? How many? How much?)		
TEST ITEMS		

INSTRUCTOR'S LESSON PLAN

COURSE: _____ **COURSE CONTROL NO:** _____
SUBJECT: _____ **INSTRUCTOR:** _____
TIME OF LESSON: _____ **DEVELOPER:** _____
TIME PERIOD (TOTAL): _____ **TYPE OF LESSON:** _____
TRAINING AIDS: _____
OBJECTIVES: _____
INSTRUCTOR REFERENCES: _____
STUDENT REFERENCES AND HOMEWORK: _____
PROPONENT APPROVAL: _____ **DATE:** _____
CEHR-P APPROVAL: _____ **DATE:** _____

<u>TIME:</u>	<u>POINTS/ AID CUES</u>	<u>LESSON OUTLINE</u>
--------------	-----------------------------	-----------------------

OBJECTIVES:

UPON COMPLETION OF THIS SECTION, THE STUDENT WILL BE ABLE TO:

Slide 1

Begin presentation.

TIME:

POINTS/
AID CUES

LESSON OUTLINE

TOPICS USED FOR DISCUSSION:

NOTE:

QUESTIONS AND COMMENTS:

DO NOT BEND, FOLD, STAPLE OR MUTILATE

PROSPECT TEST ANSWER SHEET



US Army Corps of Engineers



Correct Mark ●

Incorrect Marks ✗ ✖ ✎ ○

The Professional Development Support Center has the responsibility for developing effective training to meet Corps of Engineers needs. In order to accomplish this mission, an analysis of the course test data will be made to determine if the course materials do what they were designed to do.

COURSE CONTROL NO. _____

SESSION NO. _____ (If Exportable, Leave Blank)

DATE _____

NAME: _____
LAST FIRST

TYPE OF TEST	
PRETEST	<input type="radio"/>
POSTTEST	<input type="radio"/>

SERIES

0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

- | | | | | |
|------------|------------|------------|-------------|-------------|
| 1 A B C D | 26 A B C D | 51 A B C D | 76 A B C D | 101 A B C D |
| 2 A B C D | 27 A B C D | 52 A B C D | 77 A B C D | 102 A B C D |
| 3 A B C D | 28 A B C D | 53 A B C D | 78 A B C D | 103 A B C D |
| 4 A B C D | 29 A B C D | 54 A B C D | 79 A B C D | 104 A B C D |
| 5 A B C D | 30 A B C D | 55 A B C D | 80 A B C D | 105 A B C D |
| 6 A B C D | 31 A B C D | 56 A B C D | 81 A B C D | 106 A B C D |
| 7 A B C D | 32 A B C D | 57 A B C D | 82 A B C D | 107 A B C D |
| 8 A B C D | 33 A B C D | 58 A B C D | 83 A B C D | 108 A B C D |
| 9 A B C D | 34 A B C D | 59 A B C D | 84 A B C D | 109 A B C D |
| 10 A B C D | 35 A B C D | 60 A B C D | 85 A B C D | 110 A B C D |
| 11 A B C D | 36 A B C D | 61 A B C D | 86 A B C D | 111 A B C D |
| 12 A B C D | 37 A B C D | 62 A B C D | 87 A B C D | 112 A B C D |
| 13 A B C D | 38 A B C D | 63 A B C D | 88 A B C D | 113 A B C D |
| 14 A B C D | 39 A B C D | 64 A B C D | 89 A B C D | 114 A B C D |
| 15 A B C D | 40 A B C D | 65 A B C D | 90 A B C D | 115 A B C D |
| 16 A B C D | 41 A B C D | 66 A B C D | 91 A B C D | 116 A B C D |
| 17 A B C D | 42 A B C D | 67 A B C D | 92 A B C D | 117 A B C D |
| 18 A B C D | 43 A B C D | 68 A B C D | 93 A B C D | 118 A B C D |
| 19 A B C D | 44 A B C D | 69 A B C D | 94 A B C D | 119 A B C D |
| 20 A B C D | 45 A B C D | 70 A B C D | 95 A B C D | 120 A B C D |
| 21 A B C D | 46 A B C D | 71 A B C D | 96 A B C D | 121 A B C D |
| 22 A B C D | 47 A B C D | 72 A B C D | 97 A B C D | 122 A B C D |
| 23 A B C D | 48 A B C D | 73 A B C D | 98 A B C D | 123 A B C D |
| 24 A B C D | 49 A B C D | 74 A B C D | 99 A B C D | 124 A B C D |
| 25 A B C D | 50 A B C D | 75 A B C D | 100 A B C D | 125 A B C D |

PRIVACY ACT STATEMENT

Authority: Title 5, United States Code, Section 301

Purpose: To promote valid instructional programs by assuring students achieve the course objectives.

Routine Use: To provide data to be used in assessing the effectiveness of training programs.

Disclosures: Access to data will be limited to authorized training and supervisory personnel.



PROSPECT CLASSROOM COURSE EVALUATION

**US Army Corps
of Engineers**

Introduction

This evaluation instrument is designed to help you identify needed course improvements. Your input will be used to upgrade this course. Please answer all questions based on your personal experience and observations.

PART I

Using a Number 2 (soft) lead pencil, print your name, pay grade, job series, course #, and session # in the blocks below. Completely blacken the circle indicating your response. If you wish to change a response, erase thoroughly.



Correct Mark: ●

Incorrect Marks: ✗ ✘ ○

1. NAME: (optional)

_____ Last

_____ First

2. CLASSIFICATION

OFFICER			WARRANT OFFICER		ENLISTED			WAGE		GS	GM	
<input type="radio"/>												
1	2	3	4	5	6	7	8	9	10	11	12	13
<input type="radio"/>												

3.

JOB SERIES			
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

4.

<input type="radio"/>
CORPS
<input type="radio"/>
NON-CORPS

DO NOT BEND, FOLD, STAPLE OR MUTILATE

PART II

Darken only one response circle for each statement. If you feel the statement is NOT APPLICABLE or you are not able to give a knowledgeable response, simply leave the item blank. If you select number 1 or 2, explain the problem and suggest action for a resolution on the last page.



		5	4	3	2	1	N/A
		<i>STRONGLY AGREE</i>			<i>STRONGLY DISAGREE</i>		
1. INSTRUCTORS	a. Were well organized	5	4	3	2	1	<input type="radio"/>
	b. Were well versed in their subject matter	5	4	3	2	1	<input type="radio"/>
	c. Performed a review after each subject	5	4	3	2	1	<input type="radio"/>
	d. Encouraged student participation	5	4	3	2	1	<input type="radio"/>
	e. Demonstrated effective platform skills	5	4	3	2	1	<input type="radio"/>
2. LEARNING OBJECTIVES	a. Were identified for each subject	5	4	3	2	1	<input type="radio"/>
	b. Were job related	5	4	3	2	1	<input type="radio"/>
	c. Were thoroughly covered	5	4	3	2	1	<input type="radio"/>
3. COURSE CONTENT	a. Was presented in a logical sequence	5	4	3	2	1	<input type="radio"/>
	b. Subjects were job related	5	4	3	2	1	<input type="radio"/>
	c. Course was a reasonable length	5	4	3	2	1	<input type="radio"/>
4. COURSE MANUAL	a. Was well organized	5	4	3	2	1	<input type="radio"/>
	b. Was legible	5	4	3	2	1	<input type="radio"/>
	c. Was used during instruction	5	4	3	2	1	<input type="radio"/>
	d. Will be used as a reference on the job	5	4	3	2	1	<input type="radio"/>
5. VISUAL AIDS	a. Were relevant to learning objectives	5	4	3	2	1	<input type="radio"/>
	b. Enhanced the instruction	5	4	3	2	1	<input type="radio"/>
	c. Were good quality (readable/accurate)	5	4	3	2	1	<input type="radio"/>
6. EXAMS	a. Test items were related to learning objectives	5	4	3	2	1	<input type="radio"/>
	b. Test items were easily understood	5	4	3	2	1	<input type="radio"/>
7. HANDOUTS	a. Were relevant to learning objectives	5	4	3	2	1	<input type="radio"/>
	b. Were explained and used during instruction	5	4	3	2	1	<input type="radio"/>
8. CASE STUDIES	a. Case studies/exercises supported objectives	5	4	3	2	1	<input type="radio"/>
	b. Case studies/exercises were understood	5	4	3	2	1	<input type="radio"/>
9. OVERALL REACTION	a. Course expectations were met	5	4	3	2	1	<input type="radio"/>
	b. Would recommend course to others	5	4	3	2	1	<input type="radio"/>
	c. Contributed to my knowledge and skills	5	4	3	2	1	<input type="radio"/>

COURSE CONTROL NUMBER _____

SESSION NUMBER _____

NAME: (optional)

Last

First

PART III

Write your narrative comments below. Give specific suggestions for improvement to this course. Your pertinent comments will be reviewed by the proponent, instructors, and the Professional Development Support Center in Huntsville, AL. Thank you for your time and attention to detail.

1. What subject(s) should be improved or added to enhance your job performance?

2. What subject(s) should be deleted or de-emphasized?

3. What subject(s) was most beneficial?

4. GENERAL COMMENTS:

a. Instructors _____

b. Classroom/Lodging _____

See reverse for additional space



Evaluation of Proponent-Sponsored Engineer Corps Training (PROSPECT) Course Session													
1. Course Title:				2. Course Number:			3. Session Number:						
4. Course Location:				5. Course Dates:			6. Number of Attendees:						
7. Evaluator-Name, Duty Title, Organization:							8. Hours Observed:						
9. Course Proponent-Name, Duty Title, Organization:							10. Overall Course Rating: I A G O						
Ratings		I-Inadequate		A-Adequate		G-Good		O-Outstanding					
11. Major Items Evaluated		Rating		See Notes #	Major Items Evaluated		Rating		See Notes #				
a. Course Preparation		I	A	G	O		j. Aids and Equipment		I	A	G	O	
b. Introduction		I	A	G	O		k. Student/Instructor Ratio		I	A	G	O	
c. Objectives		I	A	G	O		l. Instructor Qualities		I	A	G	O	
d. Lesson Plans		I	A	G	O		m. Presentation/Content		I	A	G	O	
e. Schedule of Instruction		I	A	G	O		n. Target Audience		I	A	G	O	
f. Course Manual		I	A	G	O		o. Student Interest and Participation		I	A	G	O	
g. Student Handouts		I	A	G	O		p. Administration		I	A	G	O	
h. Exams/Evaluations		I	A	G	O		q. Room and Facilities		I	A	G	O	
i. Practical Exercises		I	A	G	O				I	A	G	O	
12. Notes: Notes are numbered to correspond with those entered on the "See Notes #" column above. Standard Abbreviations: (N/O - Not Observed), (N/A - Not Applicable), (N/R - Not Rated).													

Evaluation of Proponent-Sponsored Engineer Corps Training (PROSPECT) Course Session

12. Notes: (Continued)

13. Professional Development Support Center (PDSC) Recommendations:

14. Course Proponent Comments and/or Recommendations:

15. Actions Accomplished:

16. Signature of Evaluator:

17. Date:

18. Signature of Course Proponent:

19. Date:

SAMPLE

1/8/2004

Pre-Test/Post-Test Analysis Report

Course No: 64	Title: INSTRUCTIONAL METHODS
FY: 2004	Location: Huntsville , AL
Session: 1	Dates: 11/3/2003 - 11/7/2003
Pre-Test Population: 19	Post-Test Population: 19

	---- Correct ----	Other Responses			- No Answer -
1 PreTest	A = 0 (0%)	B = 0 (0%)	C = 0 (0%)	D = 0 (0%)	19 (100%)
7 PostTest	C = 16 (84%)	A = 1 (5%)	B = 0 (0%)	D = 2 (11%)	0 (0%)
2 PreTest	C = 2 (11%)	A = 0 (0%)	B = 1 (5%)	D = 0 (0%)	16 (84%)
3 PostTest	B = 19 (100%)	A = 0 (0%)	C = 0 (0%)	D = 0 (0%)	0 (0%)
3 PreTest	A = 0 (0%)	B = 1 (5%)	C = 0 (0%)	D = 0 (0%)	18 (95%)
11 PostTest	C = 17 (89%)	A = 0 (0%)	B = 0 (0%)	D = 2 (11%)	0 (0%)
4 PreTest	B = 0 (0%)	A = 1 (5%)	C = 0 (0%)	D = 1 (5%)	17 (89%)
1 PostTest	C = 17 (89%)	A = 1 (5%)	B = 1 (5%)	D = 0 (0%)	0 (0%)
5 PreTest	D = 8 (42%)	A = 0 (0%)	B = 0 (0%)	C = 0 (0%)	10 (53%)
4 PostTest	D = 19 (100%)	A = 0 (0%)	B = 0 (0%)	C = 0 (0%)	0 (0%)
6 PreTest	B = 9 (47%)	A = 0 (0%)	C = 0 (0%)	D = 0 (0%)	9 (47%)
6 PostTest	A = 19 (100%)	B = 0 (0%)	C = 0 (0%)	D = 0 (0%)	0 (0%)
7 PreTest	D = 0 (0%)	A = 0 (0%)	B = 0 (0%)	C = 1 (5%)	18 (95%)
8 PostTest	B = 18 (95%)	A = 1 (5%)	C = 0 (0%)	D = 0 (0%)	0 (0%)
8 PreTest	D = 2 (11%)	A = 0 (0%)	B = 2 (11%)	C = 0 (0%)	15 (79%)
9 PostTest	B = 14 (74%)	A = 4 (21%)	C = 0 (0%)	D = 1 (5%)	0 (0%)
9 PreTest	A = 9 (47%)	B = 0 (0%)	C = 1 (5%)	D = 0 (0%)	8 (42%)
13 PostTest	D = 18 (95%)	A = 0 (0%)	B = 1 (5%)	C = 0 (0%)	0 (0%)
10 PreTest	A = 8 (42%)	B = 0 (0%)	C = 1 (5%)	D = 0 (0%)	10 (53%)
2 PostTest	C = 14 (74%)	A = 1 (5%)	B = 2 (11%)	D = 2 (11%)	0 (0%)
11 PreTest	B = 1 (5%)	A = 0 (0%)	C = 1 (5%)	D = 0 (0%)	17 (89%)
5 PostTest	D = 17 (89%)	A = 1 (5%)	B = 1 (5%)	C = 0 (0%)	0 (0%)
12 PreTest	C = 2 (11%)	A = 0 (0%)	B = 0 (0%)	D = 0 (0%)	17 (89%)
12 PostTest	B = 10 (53%)	A = 0 (0%)	C = 0 (0%)	D = 8 (42%)	1 (5%)

**U.S. Army Corps of Engineers
Professional Development Support Center
Classroom Course Evaluation**

Course: 64 2004 1

Dates: 3-Nov-2003 7-Nov-2003

Title: INSTRUCTIONAL METHODS

Location: Huntsville, AL

	<u>Sub-Element Average</u>	<u>Element Average</u>
1. Instructors		
A. Were well organized	4.7	
B. Were well versed in their subject matter	4.7	
C. Performed a review after each subject	4.6	
D. Encouraged student participation	4.7	
E. Demonstrated effective platform skills	4.5	4.7
2. Learning Objectives		
A. Were identified for each subject	4.7	
B. Were job related	4.2	
C. Were thoroughly covered	4.4	4.5
3. Course Content		
A. Was presented in a logical sequence	4.1	
B. Subjects were job related	3.9	
C. Course was a reasonable length	3.9	4.0
4. Course Manual		
A. Was well organized	4.1	
B. Was legible	4.6	
C. Was used during instruction	4.7	
D. Will be used as a reference on the job	3.8	4.3
5. Visual Aids		
A. Were relevant to learning objectives	4.5	
B. Enhanced the instruction	4.4	
C. Were good quality (readable/accurate)	4.4	4.4
6. Exams		
A. Test items were related to learning objectives	4.7	
B. Test items were easily understood.	4.4	4.6
7. Handouts		
A. Were relevant to learning objectives	4.5	
B. Were explained and used during instruction	4.5	4.5
8. Case Studies		
A. Case studies/exercises supported objectives	4.4	
B. Case studies/exercises were understood	4.3	4.3
9. Overall Reaction		
A. Course expectations were met	4.2	
B. Would recommend course to others	4.2	
C. Contributed to my knowledge and skills	4.4	4.2

SAMPLE

Course: 64 2004 1

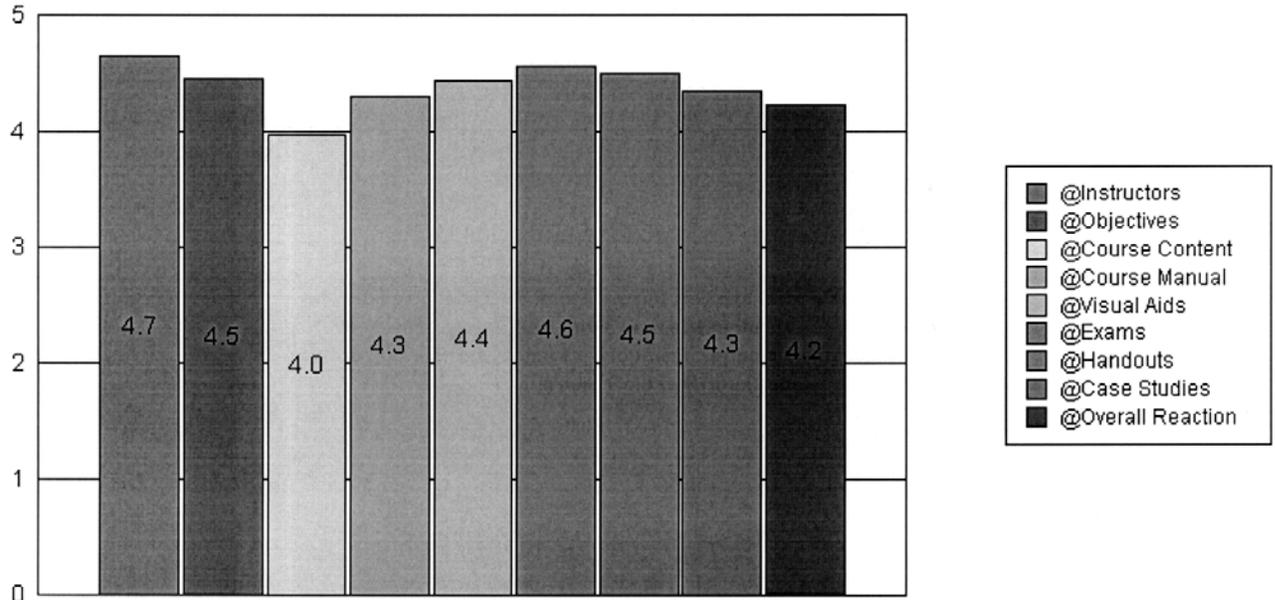
Dates: 3-Nov-2003 7-Nov-2003

Title: INSTRUCTIONAL METHODS

Location: Huntsville, AL

Course Elements

Rating below 3.7 indicates need for improvement



	GS07	GS09	GS11	GS12	GS13	Total
	0	0	1	0	0	1
0025	0	0	2	1	0	3
0028	0	0	0	1	0	1
0110	0	0	0	0	1	1
0303	0	1	0	0	0	1
0401	0	0	0	1	1	2
0560	0	0	0	1	0	1
0690	0	0	0	1	0	1
0808	0	0	0	1	0	1
0810	2	0	0	0	1	3
0819	0	0	0	1	0	1
0855	1	0	0	0	0	1
1302	0	0	0	1	0	1
1410	0	0	0	0	1	1
Total	3	1	2	7	4	19

SAMPLE

Job Aid 1 - COESAT

Required Tasks and Documentation for PROSPECT TRAINING		PROSPECT Courses	Conf Workshop Seminar	Personnel Involved	Average Time Required
Analysis	Identify training needs (ENG Form 4713R)	X	X	AO/S	1d
	Describe Target Population (CEHR-P Form 829)	X	X	AO/CM/S	4 h
	List Duties and Tasks (CEHR-P Form 830)	X		AO/CM/S	3 d
	Survey Target Population (as needed and if time permits-includes transmittal letter, task inventory, etc.) or use other method for task analysis as described in the COESAT Handbook. (CEHR-P Form 914)	X		CM	5 d
	Select Tasks for Training (Task Analysis Report)	X		AO/CM/S	1 d
	Analyze Selected Tasks (CEHR-P Form 832, Task Analysis / Objective Analysis Worksheet)	X		AO/CM/S	3 d
	Verify Training Need (CEHR-P Form 4712, Verification of Training Needs FY _)	X	X	AO/CM	2 h
Design	Develop Objectives (CEHR-P Form 832, Task Analysis / Objective Analysis Worksheet)	X	X (obj only)	AO/CM/S	2 d
	Design Test Items (CEHR-P Form 832, Task Analysis / Objective Analysis Worksheet)	X		AO/CM/S	2 d
	Develop Schedule of Instruction (SOI) (CEHR-P Form 676 or equivalent)	X	X	CM/AO/S	1 d
Development	Develop Lesson Plans (CEHR-P Form 675 or equivalent)	X		CM/AO/S	varies
	Develop Support Materials (Student Manual, PowerPoint Presentation, Handouts, CD-ROM, Web-Based Instruction, Computer-Based Instruction, Videotapes, etc.)	X	X	CM/AO/S	varies
	Validate Materials	X		CM/AO/S	varies
Implementation	Administer Pretest	X		S/I	1 h
	Conduct Training	X	X	S/I	varies
	Administer Posttest	X		S/I	1 h
	Administer End-of-Course Evaluations (CEHR-P Form 924)	X	X	S/I	.75 h
Evaluation	Analyze Pretest/Posttest (Computer-Generated Report)	X		CM/AO/S	.5 h
	Evaluate End-of-Course Evaluations (Computer-Generated Report)	X	X	CM/AO/S	.5 h
	Evaluate Course (CEHR-P Form 744)	X	X	CM/AO/S	varies
	Evaluate Instructors (CEHR-P Form 748)	X	X	CM/AO/S	varies
	Analyze Post-Training Surveys (Course Specific)	X		CM/AO/S	.5 h

Job Aid 2 - Writing Learning Objectives

Task	---What the learner must perform (one observable performance or behavior/one verb, e.g., <i>type</i> a letter).
Condition	Describes actual conditions under which task will occur and identifies the tools, procedures, materials, aids or facilities used to perform the task.
Standard	—How well the student must perform the task.

Process

- Select an ACTION verb for performing the task. (See the VERB LIST.)
- Determine if the verb you chose best describes the type behavior the learners need to display after training, e.g. cognitive indicates mental skills (knowledge), affective means growth in feelings or emotional areas (attitude), and psychomotor is for manual or physical skills (Skills).
- Under what conditions must the task be performed?
- Determine to what standard the task must be performed.

Outline for Objective

Given _____ (condition), the students will _____ (task)
 _____ (standard).

Sample Objective

Using student notes, the COESAT Handbook, and AR 350-1, the student will list the five phases of COESAT without error.

Examples of Standards and Conditions Follow:

Standards	Conditions
How Often? <ul style="list-style-type: none"> • At least once per hour • At the start of every cycle 	What is Given? <ul style="list-style-type: none"> • By checking a chart • By referring to the manual
How well? <ul style="list-style-type: none"> • Exactly 10 % • No more than 1 error • Within 15 minutes (never use time unless it is required by the job) 	What is not given? <ul style="list-style-type: none"> • Without reference to the manual • With no supervision
How many? <ul style="list-style-type: none"> • List at least 16 items • Produce 4 items 	What are the variables? <ul style="list-style-type: none"> • No matter how upset the customer becomes
How much? <ul style="list-style-type: none"> • 100 meters long • ½ block before turning 	
COMBINATION OF STANDARDS	COMBINATION OF CONDITIONS
<ul style="list-style-type: none"> • Produce at least 15 per hour (how many and how often) 	<ul style="list-style-type: none"> • When driving (what is given) and in the city (variable)

Job Aid 3 - Creating Visuals

Visuals and Illustrations, woven within text material, are essential for clear understanding of subject matter. They should *follow* the narrative page that refers to the visual or be grouped together at the end of the Chapter/Section. Visual aids can make your presentation effective. When used properly, they can help your audience understand and retain your message. Unfortunately, the audience sometimes walks away remembering the slick graphics, not your message.

Visual aids should do what their name implies — "aid" your presentation. But, when your medium overwhelms your message — when it detracts from rather than enhances your presentation — your efforts will be in vain. Here are a few pointers that will improve the effectiveness of whatever visual aid you use.

One Point Per Visual

- ❑ Showing more than one point on a visual is confusing and can dilute your message. Even when using a graph or chart, one idea per visual is most effective.
-

Key Words Only

- ❑ Your audience should be able to glance at your visual aid to get the message. If they have to read, you are likely to lose their attention and may never recapture it. Use short phrases rather than sentences when possible.
-

Keep It Simple

- ❑ Presenters often try to get too fancy with their visuals. Complicated backgrounds and graphics can distract the audience from focusing on your points.
-

Keep It Readable

- ❑ Consider the size of your room when preparing your visual aids. Whatever you use — copy, numbers, charts, graphs, etc.— should be readable by the entire group.
-

Stand-alone Content

- ❑ The visuals should make the information easier to understand — not *be* the entire presentation. Don't use visual aids as a crutch. If there are technical difficulties and you can't use the visuals, you should still be able to give an effective presentation.
-

Template

- ❑ Use a set font and color scheme. Use PowerPoint's standard tools and features, including dozens of built-in templates and clip art. Don't waste time creating a new slide template when you can customize one that already exists.
-

Continued on next page

Job Aid 3 - Creating Visuals, Continued

Fonts

- Choose a clean easy-to-read font, e.g., Arial or Times New Roman.
 - Stick with one or two types of fonts.
 - Bulleted items should be no smaller than 18 to 22 points.
 - The title should be no smaller than 28 points.
 - Make titles consistent—all caps or upper and lower case. (See sample in Desktop Publishing.)
-

Bullets

- Keep each bullet to one item, two at the most.
 - Limit the number of bullets in a screen to six, four with a large title, logo, picture, etc. Remember the Rule of 6: No more than 6 lines and no more than 6 words to a line.
 - Space between bullets.
 - If you crowd too much into the text, the audience will not read it.
 - Be consistent: Use sentences or phrases, but BE CONSISTENT.
 - If you use sentences, begin the sentence with a capital letter and end the sentence with proper punctuation.
 - Keep slides *standardized*: (1) Align with margin or center; (2) use the same font size, and (3) use the same spacing for indentures, etc.
-

Caps

- Do not use all capital letters.
 - Makes text hard to read
 - Conceals acronyms
 - Denies their use for EMPHASIS
-

Italics

- Use *italics* for the following:
- "Quotes"
 - Highlight* thoughts or ideas
 - Book, journal, or magazine titles.
-

Colors

- Reds and oranges are high-energy, but can be difficult to focus on.
 - Greens, blues, and browns are mellow, but not as attention grabbing.
 - Do not use white or dark backgrounds if the audience is more than 20 feet away.
-

Attention Grabber

- To make a slide stand out, change the font or background.
 - Use pictures to grab attention. Sometimes students remember pictures more easily than they remember words.
-

Illustrations

- Use only when needed; otherwise, they become distracters instead of communicators.
 - Ask yourself if the illustration makes the message clearer.
 - Simple diagrams are great communicators.
 - Think in terms of what the student needs, not your delivery.
-

Continued on next page

Job Aid 3 - Creating Visuals, Continued

Easels

- Make letters at least 1 to 4 inches high on butcher paper attached to an easel..
 - Butcher paper with lines is much easier to write on.
-

You

- Do not use the media to hide you.
 - The audience came to see you.
 - The media should ENHANCE the presentation, not *BE* the presentation.
 - If all you are going to do is read from the slides, just send them the slides.
-

And Then Put It Away

When you are finished with the visual, put it away — turn off the overhead, cover the model, or leave a blank page on the easel. Doing so will redirect the audience's attention to *you* and will ready them to focus on what you have to say. Visuals can greatly enhance your presentation—or they can ruin an otherwise effective message.

Remember

Only you can prevent "***Death by PowerPoint.***"

Modified from "Making Presentations People Will Love" by Donald R. Clark
(<mailto:donclark@nwlink.com>)

Job Aid 4 - Writing Multiple-Choice (MC) Test Items

Purpose

In developing tests, the most fundamental step is constructing the test item. Most PROSPECT courses employ the multiple-choice (MC) test because it is versatile and useful with all levels and types of knowledge. Become familiar with the testing vocabulary and the tried-and-true rules of test construction listed in this job aid.

Rule for Test Construction

Rule	Action
1	Use plausible distracters; avoid illogical answers/distracters.
2	State the stem in either question or completion form. The stem should be able to stand alone as a sentence. When using the completion format, don't leave a blank in the stem.
3	If you use a stem as an incomplete statement, the options statements should complete the sentence; however, using a complete sentence in the stem is the best practice.
4	Write the stem so that the student knows what is required <i>without seeing the response options</i> .
5	Keep the length of options fairly consistent.
6	Balance the key. Don't have 18 "A" answers in a 20-question test.
7	Avoid grammatical clues. Ensure distracters are parallel in construction.
8	Avoid clues to the right answer, e.g., don't make the correct answer more detailed or longer than other options.
9	Avoid negative stems. For example, don't say, "which is not?" Say, "which will?" Also phrase options positively, not negatively.
10	Use only one correct option.
11	Give clear directions. Ensure the examinee knows exactly what to do.
11	Include the main and most of the phrasing in the stem. For example, don't repeat "The" four times, once in each distracter, when you could put "The" in the stem.
13	If the stem is lengthy or complicated, break it into more than one sentence to set up the situation, problem, or condition. Then use one sentence to ask the question.
14	Avoid "all of the above." If you use it, use it sparingly.
15	NEVER use "none of the above."
16	Use good grammar, punctuation, and spelling consistently.
17	Minimize examinee reading time.
18	Avoid trick items, e.g., those that mislead or deceive examinees.
19	Base each item on an instructional objective
20	Test for important or significant material; avoid trivial material.
21	Keep the vocabulary consistent with the examinee's level of understanding.
22	Avoid cueing one item with another; keep items independent.
23	Place options in logical or numerical order, e.g., lower to higher.
24	Avoid "never," "usually," or "always."
25	Avoid the use of humor, slang, or biased words.
26	Do not use "I don't know" as an option.

Continued on next page

Basic Testing Vocabulary

Criterion-Referenced Test	A test that establishes whether or not an individual performs the learning objective to the established standard.
Distracter	In testing, incorrect answers provided as choices in multiple choice or matching type test items.
Knowledge Test	A test that measures the achievement of theory supporting skill through the use of test items written at the appropriate knowledge and training levels.
Pretest	A test administered to students prior to entry into a course or unit of instruction to determine the skills (entering behaviors) the student already possesses in a given subject.
Posttest	A test administered upon completion of a course or unit of instruction to measure learning achieved and to assess whether a student has mastered the objectives of the course or unit of instruction.
Reliability	The degree to which a test/test item gives consistent results each time it is used.
Stem	The part of a multiple-choice test item that asks the question.
Test	A device or technique used to measure the performance, skill level, or knowledge of a learner on specific subject matter.
Test Fidelity	The degree to which the test resembles the actual task performed. The closer the resemblance, the higher the fidelity of the test.
Validity	The degree to which a test measures what is was designed to measure.

Continued on next page

Basic Testing Vocabulary, Continued

A FINAL WORD

#	Question
1	Do the distracters distract the uninformed? Remember, no trick questions.
2	Is there one and <i>only one</i> way to read the question?
3	Are necessary question references available?
4	Are the questions in the "active" voice?
5	Do the test items contain common words and phrases?
6	Are the questions simple, not long and complicated?
7	Is the stem clear enough that a proficient student could answer without seeing answer choices?
8	Can the student tie the correct answer to references, lecture, or class discussion?
9	Are all answer choices similar in appearance? (For example, length.)
10	Do the stem and all answer choices agree in grammar and content?

Job Aid 5 - Checklist for Assembly of Course Manual

Item	Action
Assembly <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Did you begin assembly of the manual with (1) the most current copy from Desktop Publishing, (2) hard copies of new and/or revised materials, (3) last years' camera-ready copy, and (4) changes/revisions from the shelf copy? <input type="checkbox"/> Are all sections of the manual included? Cover Page; PROSPECT Intro; Foreword (Optional); TOC; SOI; Student Notes (Optional); Instructor Bios; Graphics; Course Objectives (if desired by Instructors as a separate section); Text Material; Abbreviations and Acronyms; Appendixes; Glossary; and Reference Material.
Cover <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Does the cover have the correct title, date, logo, FY, PDSC website, and address? <input type="checkbox"/> Does the PROSPECT intro (statement) appear on inside cover? (See sample in Desktop Publishing.)
TOC <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Are all sections on indicated pages? Remember, you must number ALL PAGES. <input type="checkbox"/> Does the wording match in four (4) places? Section Headers, Section Tabs, TOC, and SOI
SOI <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Have the lead instructor and Course Manager verified that the SOI is current? <input type="checkbox"/> Is the course title correct? <input type="checkbox"/> Are any words misspelled? NOTHING ruins credibility more than a MISPELLED word! <input type="checkbox"/> Do subject and reference sections on the SOI match tabs and section headers for the section?
Instructor Bios <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Do ALL instructors who will teach have Bios? Delete Bios for those who no longer teach. <input type="checkbox"/> Are Bios free of spelling or grammatical errors? <input type="checkbox"/> Are instructor addresses and phone numbers current?
Numbering <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Are all pages numbered correctly? See Chapter 4-21. <input type="checkbox"/> Are right hand pages "odd numbered" and left hand pages "even numbered"? If they are not, insert blank pages or indicate to the PRINTER where to leave blank pages. <input type="checkbox"/> Do all sections begin on the pages indicated in the TOC?
Graphics <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Do you have blank slides? Find out why. <input type="checkbox"/> Can you read all parts of the graphic or chart? Look for dark colors in graphics that make them hard to read. <input type="checkbox"/> Are the graphics blurry? <input type="checkbox"/> Remember that PRINTERS usually print pictures darker than the originals. Can you lighten them? Do you need to tell the PRINTER to lighten them?
Text <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Are any words misspelled? <input type="checkbox"/> Are the section/tab styles consistent? Titles and bullets should be the same style, font, and size throughout, if possible. Indentures should be the same. <input type="checkbox"/> Have you chosen a readable font, e.g., Arial or Times New Roman?
Sending to Printer <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Will you use a hard copy or electronic (CD) master? <input type="checkbox"/> How many students are registered? Check the Registrar's folder and the Course Manager before determining the quantity to print. <input type="checkbox"/> Will you use shrink-wrap, rubber bands, or staples? Shrink-wrap is normally more expensive. Use rubber bands or staples for a section or a small number of pages. <input type="checkbox"/> Have you included special instructions, e.g., "half-screen," lighten," "use electronic file," or "use high dpi." For electronic files, find out what format the Printer needs. <input type="checkbox"/> Have you completed (1) the set-up sheet for the Printer, (2) Reproduction Form, and (3) Credit Card Request Form? <input type="checkbox"/> Did the Course Manager review the manual prior to sending to the Printer? Note: The Course Manager should return the manual to the technician as soon as possible. <input type="checkbox"/> Did you make arrangements with the Printer for a draft copy for technician and Course Manager review before printing all copies? (Optional-Only available from Kinko's)
Manual Return from Printer <input type="checkbox"/>	<ul style="list-style-type: none"> <input type="checkbox"/> Have you checked all pages where changes occurred and performed a representative check of the remainder of the manual to ensure the printer copied everything correctly? <input type="checkbox"/> Are photographs light enough to view? <input type="checkbox"/> Has anything changed on the charts? Certain printers can change symbols or drawings. <input type="checkbox"/> Did you put a copy on the "shelf" in the team area? <input type="checkbox"/> Did you place the camera-ready master in the official file? <input type="checkbox"/> Did the Course Manager see a copy of the completed manual and the cost for printing?

Verb List

Standardized Verbs

Standardized verbs ---

1. Promote clarity.
 2. Prevent duplication.
 3. Promote application of sound training principles. Many words appear to be action verbs, but don't actually refer to an observable action. Examples of such verbs are *know*, *understand*, or *appreciate*. By using standard verbs, you will avoid these words and produce sound, observable tasks.
-

STANDARD VERBS

Note:

Use verbs marked with an asterisk (*) with caution. For a fuller explanation, see VERBS TO USE WITH CAUTION.

*Achieve

To attain a desired end.

Adjust

1. To correct the actions of a distant unit.
Example: Adjust Indirect Fire.
 2. To bring parts of instruments into a truer or more effective relative position or setting.
-

*Administer

To manage or supervise the execution, use, or conduct of a relatively structured activity.

Advise

To counsel or recommend.

Alert

To make aware of.

Align

To place parts in the proper position to one another.

Allocate

To apportion for a specific purpose or to particular persons or things.

Ambush

1. To attack.
 2. To conduct a surprise attack.
-

Continued on next page

Verb List, Continued

***Analyze** To separate a whole into its constituents with a view to its examination and interpretation.

Annotate To make or furnish critical or explanatory notes or comments.

***Apply**

1. To put on.
Example: Apply Base Coat of Paint.
2. To use practically.
3. To concentrate.

Approve To give formal or official sanction.

Assemble

1. To fit the parts of an item together.
Note: Usually said of a machine.
2. To bring together.
Note: Usually said of an organization or group.

***Assess**

1. To determine the importance, size, or value of.
2. To fix the amount of.

Assign

1. To give responsibility.
Note: For the execution of a task.
2. To place under the control of.
Example: Assign employees to organizations.

Assist To give aid by participating in a task.

Authenticate

1. To verify identity in response to a challenge.
Note: See Challenge.
2. To verify the authenticity of.

Breach

1. To break through.
2. To secure passage through.
Note: Usually said of an obstacle.

Brief To give information or final precise instructions.

Continued on next page

Verb List, Continued

Calculate	To ascertain by computation.
Camouflage	Concealing of personnel, equipment, and facilities.
Challenge	To order to prove identity.
Change	To make different in some particular.
Check	To inspect for satisfactory condition, accuracy, safety, or performance.
<hr/>	
Clear	<ol style="list-style-type: none"> 1. To make secure by searching and eliminating enemy resistance. Example: Clear a Building. 2. To make safe by following a prescribed procedure for unloading. Example: Clear an M16A2 Rifle. 3. To render operable by overcoming a temporary condition. Example: Clear a Stoppage in a M60 Machine Gun.
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Close	<ol style="list-style-type: none"> 1. To arrive at a designated position. 2. To move in such a manner as to present passage through.
Collate	To bring parts together to form a whole.
<hr/>	
Collect	<ol style="list-style-type: none"> 1. To gather or exact from a number of persons or sources. Note: Usually said of information. 2. To bring together in a group.
Combine	To join two or more things such as units, or chemical substances into one.
<hr/>	
Communicate	To convey knowledge of or information about; to make known.
*Compare	To examine the character or qualities of, especially in order to discover resemblances or differences. Example: Compare Courses of Action.
<hr/>	
Complete	To bring to an end and especially into a perfected state.
Comply	To act in accordance with orders, regulations, policy, etc.
Compute	To determine, especially by mathematical means.

Continued on next page

Verb List, Continued

*Conduct	To direct or control, lead, or guide.
Confirm	To validate.
Connect	1. To join. 2. To fasten together.

Consolidate	1. To organize or reorganize, bringing separate parts together into one whole. 2. To secure or complete an action. Example: Consolidate the Objective.
Construct	To build.

Control	1. To exercise restraining or direct influence over. 2. To regulate. 3. To dominate.
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Coordinate	To bring into a common action, movement, or condition.
Correct	To alter or adjust so as to bring to some standard or required condition.

Correlate	To present or set forth so as to show relationship.
*Counsel	Advise or provide guidance.

Counter	To act in opposition to; nullify.
Cover	To afford protection or security to.

Cross	To pass over or through.
Cross-check	To check from various angles or sources to determine validity or accuracy.

Debrief	To obtain an oral report on an action or mission immediately afterwards.
Decontaminate	To cleanse or remove chemical or radiological contamination.

Continued on next page

Verb List, Continued

Defend	To ward off an actual or threatened action.
*Define	1. To determine the limits and nature. 2. To state the meaning of.
Deliver	To send to an intended destination.

*Demonstrate	1. To show by reasoning. 2. To show the operation or working of. 3. To explain by using examples, experiments, or action.
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Deploy	1. To spread out, use, or arrange, especially tactically. 2. To position for use.
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Designate	To indicate and set apart for a specific purpose, office, or duty.
Destroy	1. To render unusable. 2. To render ineffective.

Detect	To discover.
Determine	1. To settle or decide by choice of alternatives or possibilities. 2. To fix precisely.

Develop	To set forth or make clear by degrees or in detail.
Direct	1. To regulate the activities or course by acting through subordinate leaders. 2. To control through suggestions and guidelines.

Disassemble	To take apart, usually for the purposes of cleaning or repair.
Disconnect	To sever the connection between.
Disengage	To release or break contact with.

Dismantle	To render inoperable by taking apart. Note: See Disassemble.
Dispatch	To send away with promptness or speed, especially on official business.

Continued on next page

Verb List, Continued

Displace	To leave one position and occupy another.
Disseminate	To disperse throughout. Note: Usually refers to orders, information, and similar matters.
Distribute	To give out or deliver, especially to members of a group.
Draft	To draw the preliminary sketch, version, or plan of.
*Effect	To cause the desired result or outcome. Note: See Achieve.
Emplace	To put in a prepared position.
Employ	To make use of.
Encrypt	Encipher, encode.
Enforce	To see that the provisions (of an order or regulation) are carried out effectively.
Engage	To intermesh or interlock. Note: Usually refers to machinery.
*Ensure	To make certain. To guarantee.
Enter	To come in.
Erect	To build or set up.
Establish	1. To bring into existence. 2. To introduce as a permanent entity or procedure.
Evacuate	To move from an area.
Evade	To avoid.

Continued on next page

Verb List, Continued

*Evaluate	To determine the significance or worth of, usually by careful appraisal and study.
Exchange	To part with for a substitute.

Extend	To increase the scope, meaning, or application of.
Extract	To select and copy out or cite.

Finalize	To put in final or finished form: to give final approval to.
Fire	To discharge a weapon.
Format	To produce a document or electronic report in a specified form or style.

Formulate	To put into a systematized statement or expression.
Forward	To send onward.
Fuel	To provide with fuel.

Ground	To connect electrically with a ground.
Guard	<ol style="list-style-type: none"> 1. To protect by physical security means. 2. To prevent from escaping by physical security means.

Hover	To hold a flying aircraft relatively motionless.
*Identify	<ol style="list-style-type: none"> 1. To determine critical or necessary conditions or other factors. 2. To determine the specific model of an item. 3. To ascertain the origin, nature, or definitive characteristics of.

Implement	To give practical effect to and ensure of actual fulfillment by concrete measures.
Infiltrate	To move by small groups, usually clandestinely.

Inform	To make known.
Input	To provide information to or to enter information into a system.

Continued on next page

Verb List, Continued

*Inspect	To examine officially.
Install	To put in an indicated place, condition, or status.
Integrate	To form, coordinate, or blend into a functioning or unified whole.

Interpret	To present or delineate the meaning of. Example: Interpreting for Russian and English speakers.
Issue	To give out.
Land	To bring an aircraft to earth.

Launch	To send an aircraft or missile into the air. Note: See Take Off.
Lead	1. To go at the head. 2. To exercise direct, low-level control.

Level	1. To make even or uniform. 2. To apportion equally.
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Load	1. To insert ammunition into a weapon or launcher. 2. To place in or on a means of conveyance.
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Locate	To determine or set the position of.
Log	To enter details of or about an event in a log.

Maintain	To preserve, fix, or keep in good repair.
Make	To create or cause to happen.

*Manage	1. To handle or direct with a degree of skill or specialized knowledge 2. To exercise executive, administrative, and supervisory direction.
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Continued on next page

Verb List, Continued

Modify	To make minor changes in/to.
*Monitor	To watch, observe, or check, especially for a special purpose.

Motivate	To provide with an incentive.
Move	To proceed from one point to another.

*Name	<ol style="list-style-type: none">1. To designate or mention by name.2. To appoint.3. To identify by giving the right name.4. To give a name.
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Navigate	Determine and follow a course.
Notify	To inform, to warn, to make known, or to make notice of.

Observe	To watch carefully.
Obtain	To gain or attain. Note: Usually by planned action or effort.

Occupy	<ol style="list-style-type: none">1. To make ready for business.2. To make available for entry or passage.
Open	

Operate	<ol style="list-style-type: none">1. To cause a piece of equipment to function.2. To perform a function.
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*Orchestrate	<ol style="list-style-type: none">1. To compose/arrange music.2. To organize, manage, or arrange.
Order	To command a specific action to be executed.

Continued on next page

Verb List, Continued

Organize	To arrange by systematic planning and united support.
Orient	To point or look in a specific direction.
*Oversee	To watch over and direct.

Pack	To place in a container for transportation or storage.
Patrol	To conduct security or offensive operations with small, specially tailored groups.
*Perform	To carry out an action or pattern of behavior.

Place	Put in proper position or location. Note: "Position" or "locate" are usually better choices.
Plan	1. To devise or project. 2. To formulate a systematic scheme or program of action.

Plot	To mark or note on a map, chart, or graph.
Police	1. To provide protective or police services. 2. To make clean and put in order.

Position	To put in place; to set.
Post	1. To make transfer entries. 2. To position at a certain site.

Predict	Foretell on the basis of observation, experience, or scientific reason.
Prepare	1. To put together. 2. To combine elements and produce a product. Example: Prepare a Meal. 3. To make ready. 4. To make other persons or things ready.

Prevent	To keep from occurring or recurring. Example: Prevent Cold Weather Injuries.
*Prioritize	To put in order or rank. Note: Especially for the purpose of allocating resources.

Continued on next page

Verb List, Continued

Process	To initiate a series of actions or operations leading to a particular end. Example: Process a Request for Transfer.
Produce	To develop or create.
Project	To plan, calculate, or estimate for the future.

Protect	To shield from destruction; safeguard.
Provide	To supply or make available.
Publish	To produce for distribution.

Range	To determine the distance.
Reach	To arrive at a location.
React	To respond, usually to an emergency situation with a limited choice of actions.
Read	To examine carefully so as to understand.

Realign	To reorganize or make new groupings.
Reassess	To re-determine the extent or value.
Recall	To bring back to another location.

Receive	To acquire from someone else. Example: Receive patients.
*Recognize	To determine the category of an item. Learning Objective Example: Recognize certain types of vehicles.

Receive	To acquire from someone else. Example: Receive patients.
*Recognize	To determine the category of an item. Learning Objective Example: Recognize certain types of vehicles.

Continued on next page

Verb List, Continued

Recommend	To endorse as worthy, fit, competent, exceptional, etc.
Reconnoiter	To obtain information by visual observation or other methods. Note: Reconnoiter usually implies a physical movement to the area to be observed.

Record	<ol style="list-style-type: none"> 1. To set down as a means of preserving information. 2. To document. 3. To mechanically or electronically save information.
Recover	To extract damaged or disabled equipment and move to a location for repair.

Redistribute	To reallocate, usually in response to uneven consumption or usage.
Reduce	<ol style="list-style-type: none"> 1. To diminish in size, amount, extent, or number. 2. To render operable by following a prescribed procedure to eliminate a malfunction. 3. To render ineffective by partially dismantling.

Reestablish	To establish again, usually in response to a combat loss or damage. Example: Reestablish communications.
Reexamine	To examine again.
Release	<ol style="list-style-type: none"> 1. To let go. 2. To set free from configuration or condition.

Relieve	<ol style="list-style-type: none"> 1. To replace. 2. To reduce or eliminate pressure on.
Relocate	Establish or lay out in a new place.

Remove	<ol style="list-style-type: none"> 1. To take away or displace. 2. To dismiss. 3. To eliminate, kill, or destroy.
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Reorganize	To organize again.
Repair	To restore to serviceable condition.

Continued on next page

Verb List, Continued

Replace	To substitute a new or workable item or person.
Replenish	To fill again.

Report	<ol style="list-style-type: none"> 1. To present an account officially. 2. To formally or regularly carry back and repeat to another. 3. To provide information on ongoing activities.
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Request	<ol style="list-style-type: none"> 1. To ask for. 2. To ask someone to do something.
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Resolve	To reduce by analysis.
Restate	To state again or in another way.

Resume	To begin again.
Return	To restore to a former or proper place.
*Review	To go over for the purpose of determining correctness or currency.

Revise	<p>To correct or improve.</p> <p>Note: Usually applied to a plan or document.</p>
Rotate	To cause to turn about an axis or center.

Schedule	To appoint, assign, or designate for a fixed time.
Secure	<ol style="list-style-type: none"> 1. To make safe. 2. To fix tightly. 3. To make immobile.

Select	To choose from among others to meet specific standards or criteria.
Send	To dispatch.
Set	To adjust a device to a desired position, to make ready for future action.

Continued on next page

Verb List, Continued

Set up	To erect or position components.
Sort	To examine and place into categories.
Splint	To support or restrict.

State	To declare or set forth; a condition.
Stockpile	To accumulate supplies for use.
Store	To stock or deposit.

Strike	To attack.
Submit	To send forward for approval.

Supervise	1. To oversee. 2. To critically watch, motivate and direct the activities of subordinates.
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Support	To aid or help.
Sweep	To move through and search an area.

Glossary

Section I - Abbreviations

ADDIE	Analysis, Design, Development, Implementation, Evaluation
ATMP	Army Training Management Program

CAI	Computer-aided instructions
CBI	Computer-based instructions
CBT	Computer-based training
CD-ROM	Compact-Disk Read Only Memory
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CEHR-D	Human Resources Planning and Development Division, Directorate of Human Resources, HQUSACE
CEHR-P	USACE Professional Development Support Center, Huntsville
CEHR-P-TO	USACE Professional Development Support Center, Huntsville
COESAT	Corps of Engineers Systems Approach to Training
COTS	Commercial off-the-shelf
CRI	Criterion-referenced instruction
CRT	Criterion-referenced test/testing
CSI	Computer-supported instruction

DIF	Difficulty, Importance, Frequency
DL	Distance Learning
Dod	Department of Defense

ER	Engineering Regulation
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Glossary, Continued**Section I - Abbreviations**, Continued

FAA	Functional Area Assessment
ICH	Instructor Contact Hours
LO	Learning Objective
METL	Mission Essential Task List
MIPR	Military Interdepartmental Purchase Request
OJT	On-the-job training
PAT	Process Action Team
PE	Practical Exercise
PMP	Project Management Plan
PROSPECT	Proponent-Sponsored Engineer Corps Training
SAT	Systems Approach to Training
SGI	Small Group Instruction
SME	Subject Matter Expert
TBD	To be developed/determined
TD	Training Developer or Training Development
TLO	Terminal Learning Objective
TMIS	Training Management Information System
TNET	Teletraining Network

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Glossary, Continued**Section I - Abbreviations**, Continued

TRADOC	Training and Doctrine Corps of Engineers
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USACE	United States Army Corps of Engineers
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VI	Visual Information
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VTC	Video Teleconference
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VTT	Video Teletraining
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WBT	Web-based training
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Glossary, Continued

Section II - Terms

Action Officer	<i>Action officer</i> refers to course proponents within their functional area of responsibility. Action officers submit recommendations to senior decision makers or Organizational Proponents who then approve or disapprove the recommendations.
Action Verb	Verb that conveys action/behavior, e.g., <i>place</i> , <i>cut</i> , or <i>drive</i> . For training purposes, these action verbs must reflect measurable, observable, verifiable, and reliable behaviors.
Analysis	One of the five basic phases of the COESAT training development process. Analysis tells (1) if training is needed; (2) who needs the training; (3) the critical tasks students must perform; and (4) the standards, conditions, and performance measures needed to perform each task.
Answer Key	A document that shows the answer to each test question.
Audit Trail	A systematic documentation of decisions or actions taken.

Behavior	An observable activity or action. The performance of a skill.
Bypassing	In instruction, normally programmed, web-based, or computer-based; this techniques permits a student to omit certain portions of material because of prior knowledge.

Cognitive Learning	A category of learning concerned with knowledge and various mental activities and processes.
Computer-aided Instruction (CAI)	CAI involves use of computers to aid in the delivery of instruction.
Computer-based Instruction (CBT)	CBI usually refers to course materials presented or controlled by a computer, using multiple requirements for student responses as a primary means of facilitating learning.
Content Validity	Tests intended to measure the extent to which students learn the content of the instructions. The extent to which the test measures this is called content validity.

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Glossary, Continued**Section II - Terms**, Continued

Corps of Engineers Systems Approach to Training (COESAT)	The Corps system for complying with the requirement in AR 690-400 to develop training based on needs systematically.
Course Manager	CEHR-P-TO personnel assigned responsibility to oversee/manage courses in accordance with ER 690-1-414.
Criterion	The standard by which something is measured.
Criterion-referenced Test	Test to measure student's accomplishment of lesson objectives, with the criterion or standard being accomplishment of the objectives.
Cue	A word, situation, or other signal for action.

Design	The phase of COESAT that translates analysis data into a blueprint for training. The design phase tells resource requirements, training structure, learning objectives, training sequence, student evaluation requirements, and a schedule of instruction.
Design Concept	Detailed description of the way objectives will be presented in an exportable course.
Development	A major phase of the COESAT process that converts the design into training materials, e.g., lesson plans, student handouts, media, etc.
Difficulty-Importance-Frequency Model	A model sometimes used for selecting tasks for training, based on difficulty, importance, and frequency of job task performance.
Digitization	The overarching term for electronic recording of information for distribution via Internet, computer networks, computer disks, magnetic tapes, optical disks, satellite transmission, and bulletin boards.
Distance Learning (DL)	The delivery of training to students at the right place and right time through application of multiple means and technologies. DL may involve both synchronous (with instructor) and asynchronous (without student-instructor interaction). It may also involve self-paced instruction without benefit or access to an instructor.

Continued on next page

Glossary, Continued

Section II - Terms, Continued

Enabling Learning Objective (ELO)	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 Learning Objective (TLO) and another ELO.
Evaluation	The cornerstone of quality training. One of the five phases of COESAT. Evaluation can occur as formal as internal and external evaluations or informal feedback between the student and instructor.
Exportable Training	Training to be conducted locally using visual-based exportable training materials.
Facilitator	In the exportable training program, the individual who leads training sessions.
Fidelity	The extent to which an objective or training approximates those of a task or job.
In-house Course	A classroom training program course designed, developed, and taught by Corps employees who serve with the permission of their organization.
Item Analysis	The process of determining whether a test item is functioning as intended.
Interactive Multimedia Instruction (IMI)	IMI applies to a group of predominately interactive, electronically-delivered training and training support products.
Job (or Duty Position)	A collection of unique, specific, related set of activities (tasks) performed by a unique, defined set of personnel.
Job Aid	A checklist, procedural guide, decision table, worksheet, algorithm, or other device used as an aid in performing duty position tasks.
Just-in-Time Training	Training provided to individuals or groups just before they will use the skills or function taught, typically used to teach perishable or infrequently used skills.
Knowledge-based Test	Testing procedure that simply asks for recall or the selection of information or knowledge.

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Glossary, Continued

Section II - Terms, Continued

Learning Hierarchy	The relationship among objectives in which students must master some objectives before they can learn others.
Learning Object	Learning objects represent an alternative approach to content development: developers break content down into chunks, normally between five and fifteen minutes of learning material.
Learning Objective	A precise three-part statement describing what the students will accomplish in terms of expected student performance under specific conditions to accepted standards.
Learning Organization	Organization with continuous testing of experience and the transformation of that experience into performance and supporting skills/knowledges. The learning is accessible to the whole organization and is relevant to its core purpose.
Lesson	The basic building block of training. The lesson normally includes (1) showing or telling students what to do or how to do it, (2) giving an opportunity for students to practice, and (3) providing students feedback regarding their performance.
Lesson Plan	The blueprint for presenting training by an instructor. It prevents training from becoming haphazard and provides for training standardization. The lesson plan includes all the details required for presentation.

Mission Essential Task List (METL)	A compilation of mission essential tasks that an organization must perform if it is to be successful. A mission-based training requirement (1) justifies resource needs, (2) links functional requirements to tasks, and (3) allows developers to make informed decisions, thereby satisfying critical mission-based task performance requirements.
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Objectives	Statements which specify precisely what behavior the student must exhibit upon completion of training, the conditions under which the behavior will be accomplished, and the minimum standard of acceptable performance (also referred to as training or learning objectives).
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Performance-based Tests	Tests which measure performance of a task in either the natural or a simulated situation against a standard or criterion. Included are written simulations, identification tests (written or performance), simulated performance, and work samples (written or performance).
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Glossary, Continued**Section II - Terms, Continued**

Posttest	A test given to a student upon completing a course of instruction to measure learning achieved.
Prerequisites	Skills, knowledges, and abilities required of a student to effectively participate in a specific training course prerequisites may be based on position, grade, job series, subject knowledge, or experience the student must have.
Pretest	A test given to a student before entry into a course or unit of instruction to determine the technical skills and knowledges he or she already possesses in a given subject. In classroom training, this test can be used to identify areas for more/less emphasis; in exportable training, it can be used to identify portions of the instruction the student can by-pass.
Proponent (Organizational)	The Organizational Proponent sponsors and reviews the training curriculum, to include all courses for the functional area: (1) to ensure consistency with mission objectives and eliminate or prevent any duplications between courses, (2) to recommend solutions for training tasks not covered by existing courses, (3) to recommend the most cost-effective methodology for training; and (4) to ensure currency of content training and materials.
Proponent-Sponsored Engineer Corps Training (PROSPECT)	Short-term training courses sponsored by USACE elements. Previously, the acronym was used to refer to the classroom program only; however, all training managed by CEHR-P-TO is proponent-sponsored, whether classroom or exportable.

Reliability	The extent to which a test/test item gives consistent results each time instructors use it. Instructors should measure tests for validity as well as reliability.
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Stem	The part of a multiple-choice test item that asks the question.
Subject Matter Expert(s)	An individual, usually from a USACE element, who has been designated by a proponent or action officer to serve as an advisor/consultant to CEHR-P-TO for a specified course regarding subject matter, content, objectives, etc. An SME may be an advisor/ consultant, a developer, a course monitor, or an instructor; an SME sometimes performs multiple roles.

Continued on next page

Glossary, Continued

Section II - Terms, Continued

Target Population	The group of individuals that will potentially require training in a specific area.
Task	A unit of work that forms a significant part of a duty.
Task Analysis	A method by which the knowledge, skills, and steps required for task performance is systematically examined.
Task Inventory	A list of all the task statements for a job.
Teletraining	Video or audio training delivered via communication links such as satellite or cable links.
Terminal Learning Objective (TLO)	The main objective of a lesson. The TLO describes exactly what the student must accomplish, under the stated conditions and to the prescribed standard, upon lesson completion.
Training Developer (TD)	The individual with the function of analyzing, designing, developing, and evaluating training and training products. Any individual functioning in this capacity is a training developer, regardless of job or position title.
Training Package	In the exportable training program, all the materials needed to conduct the training. Included are a facilitator's guide, student study guides, visual content carriers (e.g., videocassettes, and supplemental materials.

Validation	Presentation of training under normal circumstances to determine the validity of learning objectives, content, sequence, methods, and student achievement.
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Web-based Training	Web-based training is a DL method in which training applications residing on a central computer functions as a network server to deliver training across a public or private computer network, e.g., the Internet, to students at any location and displayed on a web-browser. Authorized students may access training on demand and download applications for individual instruction.
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