

# **INSTRUCTIONAL SYSTEM DESIGN (ISD) PROCESS**

## **ISD MANUAL**

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## CHAPTER ONE: OVERVIEW OF PHASES

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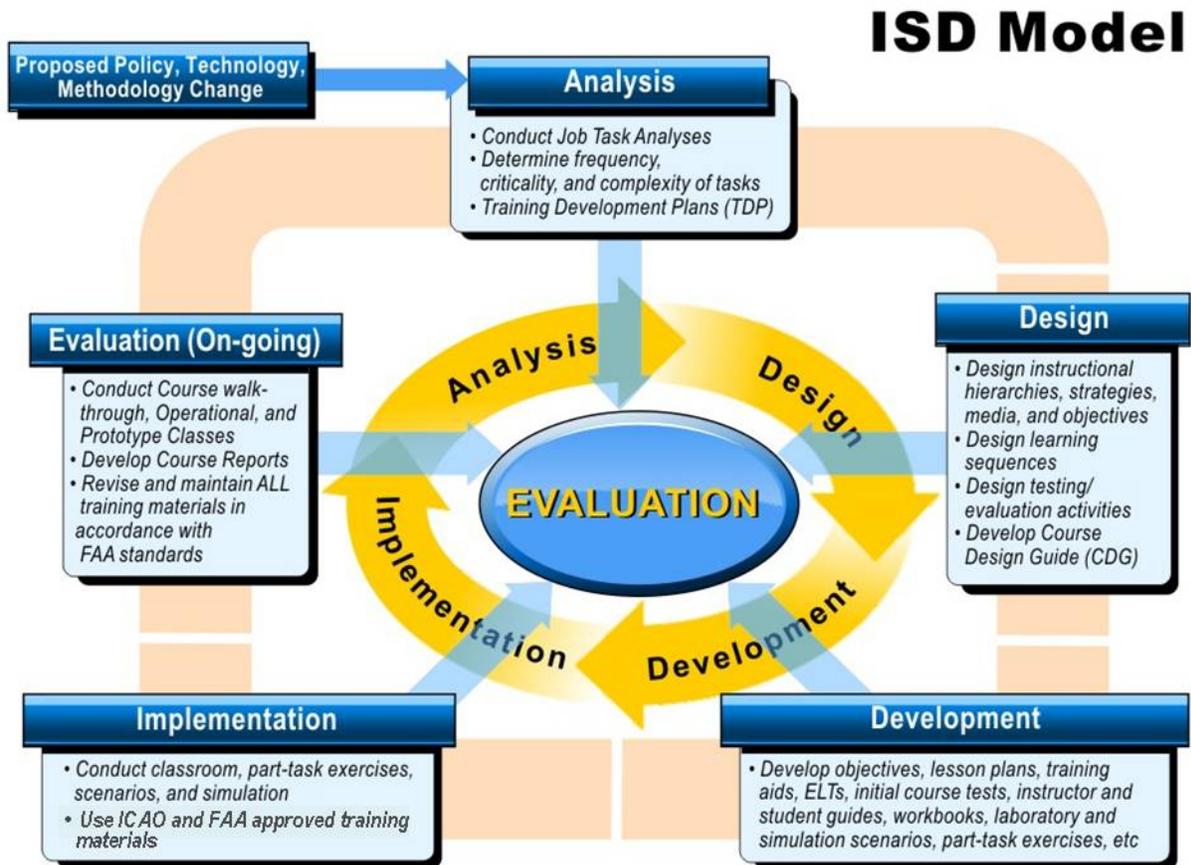
### Phases

The ISD process is comprised of five phases. The primary emphasis of a systematic approach is on the interrelationship of these phases. These phases are:

- analysis
- design
- development
- Implementation (delivery)
- evaluation.

The first four phases are sequential; the output of one phase results in input to the next phase. The final phase, evaluation, is an interactive process applied throughout the entire procedure.

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## Chapter One: Overview of Phases (Continued)

### Analysis Phase

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<b>Purpose</b>	<p>Analysis consists of several independent and interdependent activities. These analyses identify and validate the existence of a training need and specify the means and methods necessary to satisfy the need. They often consist of multiple analyses such as:</p> <ul style="list-style-type: none"><li>• front-end analysis</li><li>• needs assessment</li><li>• job function analysis</li><li>• job and task analysis</li><li>• learner analysis</li><li>• media/strategy analysis.</li></ul>
<b>Importance</b>	<p>The analysis phase is often ignored and the end result is training that does not meet the performance needs of students. Analysis ensures materials are developed that focus on job performance requirements.</p>
<b>Training Need</b>	<p>A primary purpose of the analysis phase is to determine if a training need exists. This is accomplished by conducting a needs assessment. Instructions for completing a needs assessment are provided in <a href="#">Attachment A</a>.</p> <p>If a need for training exists, then:</p> <ul style="list-style-type: none"><li>• decide the best way to satisfy the need</li><li>• broadly define the scope of the effort and needed resources.</li></ul>
<b>Mandated by Directive</b>	<p>Sometimes courses are mandated or established by a directive. When this occurs, course content must still evolve from the ISD process.</p>
<b>Poor Job Performance</b>	<p>Poor job performance is another event that may initiate training. It is significant to note that training may <b>not</b> always be the solution for such a problem. If the poor performance is caused by lack of skills, then a job analysis is conducted to determine the training needs.</p> <p><b>Note:</b> If poor performance is due to lack of or no motivation or the wrong environmental condition, training will <b>not</b> resolve the problem.</p>
<b>Job Requirements</b>	<p>The secondary purpose of the analysis phase is to collect and study information concerning the requirements of the particular job.</p> <hr/> <p>Continued on next page.</p>

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**Job and Task Analysis (JTA)**

The JTA is one output of this phase. The JTA contains the following and is covered in detail in Chapter [Two](#):

- list of duties, tasks, subtasks, elements, sub-elements
- conditions, standards, and job aids
- skills and knowledge
- tasks to be trained.

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**Training Proposal (TP)**

If the need for training has been established, the TP is another output of this phase. The TP contains the following:

- contact information
- description of training need
- training requested
- cause of training need
- benefits and differences
- number to train
- completions schedule
- prerequisites
- other pertinent factors

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**Training Development Plan (TDP)**

The appropriate WCG office responds to a TP with a TDP or the first part of the course design guide (CDG), called the management summary. Both are work plans for the development of a course. The TDP or the management summary contains:

- purpose
  - objectives
  - technical approach
  - products or deliverables
  - media selection analysis
  - cost analysis and funding requirements
  - schedule
  - issues/concerns
  - course catalog entry.
-

## Chapter One: Overview of Phases (Continued)

### Design Phase

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#### Purpose

The purpose of the design phase is to prepare a plan for training based on the information compiled in the analysis phase. This plan guides the development of all training materials and strategies and includes:

- training outcomes and associated instructional and enabling objectives
  - instructional methods/media
  - testing activities
  - technical content outline
  - current references
  - instructional notes.
- 

#### Course Design Guide (CDG)

The output of the design phase is the CDG. The CDG is the blueprint for the development of training. It is produced by:

- analyzing the training outcomes in the TDP
  - developing instructional and enabling objectives to support job tasks
  - identifying current reference documentation
  - outlining technical content to support instructional and enabling objectives
  - identifying media and training aids
  - identifying instructional and testing methods
- 

**Note:** The CDG is used as a basis for the development of training materials, tests, and overall course structure and is discussed in detail in Chapter [Five](#).

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## Chapter One: Overview of Phases (Continued)

### Development Phase

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**Purpose** The purpose of the development phase is to translate the CDG into instructional materials, to validate materials through tryouts, and to prepare a course report.

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**Process** The development process is conducted in the following steps:

1. analyze existing instructional materials
2. develop new instructional materials, including student guides, course manuals, visuals, lesson tests, course tests, and performance exams.
3. develop lesson plans
4. validate materials (conduct tryouts and first class)
5. revise, if needed.

---

**Course Report** The formal documentation that is the output of the development phase is the course report. It provides a complete and current overall record of the course. It validates the course and certifies the course described in the TDP (see page 3) has been successfully developed and is ready for regular presentation to students. This report is submitted within 45 days after first course conduct (operational tryout or prototype class). See Chapter [Seven](#), Course Validation, for more information.

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## Chapter One: Overview of Phases (Continued)

### Delivery (Implementation) Phase

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**Purpose** The delivery phase involves the presentation of the course materials to the students.

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**Procedures** Presentation of material is the main part of implementation, but there are several factors which are equally important:

- organization of presentation materials
  - management of student handouts
  - operation of training and audiovisual aids
  - administration of tests and performance exams
  - distribution and collection of course critiques.
-

## Chapter One: Overview of Phases (Continued)

### Evaluation Phase

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**Purpose** The evaluation phase is an interactive process applied throughout all phases of the ISD process. This continuous process is required to maintain or improve the effectiveness and efficiency of a course. It also measures how well the instructional process enables students to accomplish objectives and how training affects graduate job performance.

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**Benefits** The benefits of an ongoing evaluation process are:

- identifying and reducing problems with development and instruction
- ensuring cost effectiveness
- measuring transfer of learning to workplace performance
- ensuring continuous improvement of WCG products

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**Evaluations** There are two types of evaluations:

- Formative (internal) - the process used to measure how well training is being conducted by WCG and how well students are able to meet the instructional objectives.
- Summative (external) - the process used to determine learning transfer to the job and whether job performance improves as a result of training.

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## CHAPTER TWO: JOB AND TASK ANALYSIS (JTA)

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<b>Purpose</b>	The purpose of this chapter is to describe job and task analysis and the process for conducting a JTA.
<b>Description</b>	Job and task analysis is a procedure for identifying the component parts or tasks which encompass a specific job. The tasks identified through job analysis are then further analyzed, using a process called task analysis, to include the subtasks or steps of each task.
<b>Importance</b>	A JTA is a method of documenting job functions. The JTA helps in identifying the duties, tasks, skills, and knowledge required to perform the job and define the content of training.
<b>Benefits</b>	A JTA ensures that training is based on identified needs for knowledge, skills, and abilities bearing on the performance of official duties.
<b>Contents</b>	The remainder of this chapter outlines the job hierarchy, provides definitions and characteristics of the levels of the job hierarchy, and describes the JTA process, including determination of training requirements, selecting tasks for training, and documenting the analysis.
<b>Contents</b>	The remainder of this chapter is divided into sections corresponding to each of the phases listed above.

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## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### Hierarchy

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**Job** A job consists of a cluster of duties and tasks performed by a person assigned to a position. If identical duties and tasks are performed by several individuals, they all hold the same job.

---

**Duty** Duties are main divisions of a job, each made up of groups of related tasks. Duties describe entire functions rather than individual actions.

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**Characteristics** A duty is characterized as a:

- function of a job. Several duties together comprise a job.
- grouping of closely related tasks.

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**Tasks** Tasks are units of work that make up a duty.

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**Characteristics** A task is characterized as:

- observable (or results in an observable product)
- measurable
- a statement of a highly specific action
- a statement with a verb and object and sometimes a qualifying phrase
- having a definite start and stop point
- resulting in a product or service
- independent of other actions.

---

**Conditions** Performance of a task is usually accomplished under different types of conditions, such as with problems, without all the needed information, etc.

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**Standards** Adequate or successful performance is defined by standards of accuracy, quality, or within specified tolerances or measures.

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**Job Aids** Items used when performing tasks, such as tools, job sheets, etc., can be identified as job aids.

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## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### Hierarchy

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#### Key Points

Unique operational procedures or cautions that relate only to a specific task are identified as key points.

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#### Subtasks

Subtasks describe the step-by-step performance of the task. This level of detail is needed to develop training on how to perform the task.

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#### Characteristics

A subtask can be described as:

- dependent upon other subtasks
  - one step in the performance of a task.
- 

#### Elements and Sub-elements

Often subtasks must be divided into further levels to describe performance of the task. Elements describe specifics of subtasks; sub-elements further detail specifics of elements.

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#### Skills

Behaviors needed to perform a subtask, element, or sub-element.

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#### Characteristics

Skills can be characterized as requiring:

- precision
  - physical coordination
  - manual dexterity.
- 

#### Knowledge

Knowledge is the supporting facts, rules, formulas, etc., to perform a subtask, element, or sub-element.

---

#### Characteristics

Knowledge can be characterized as:

- factual
  - prerequisite to skilled performance
  - used to make complex decisions
  - requiring knowledge of action indicators.
-

## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### Analysis Process

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#### Purpose

The purpose of this section is to describe the process of performing a JTA.

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#### Description

A JTA consists of a listing of major job duties and their accompanying tasks, subtasks, and supporting skills and knowledge. Analysis of the results of the JTA sets the direction for the training. Task statements are used as the basis for developing objectives and for lab activities and performance tests.

---

#### Process

The JTA process begins with defining the job and is conducted in four stages:

- Stage 1. List and describe the job duties and tasks.
- Stage 2. List and describe the subtasks, elements, and sub-elements.
- Stage 3. List and describe the knowledge and skills.
- Stage 4. Validate the task list. Revise any inaccurate or incomplete task information.

**Note:** Data gathered during Stages 1, 2, and 3 come from interviews, direct observation, printed materials (training manuals, manufacturer's instruction books and manuals, and technical literature, etc.), or questionnaires and surveys.

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## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### Analysis Process

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#### **New Job**

Most of the analysis techniques described to this point apply to a new job. Conducting interviews with or sending questionnaires to job incumbents can be useful only to the degree that the new job resembles a job that already exists. Initially, there may be no job data available and no opportunity to observe the job in actual operation. In spite of these limitations, it is still necessary to develop a training course before the new system or equipment is placed into operation.

Most new or advanced systems are really the second or third generation of existing equipment. New jobs, then, tend to be similar to operating or maintaining older equipment. Analysis from jobs on older equipment can be used as the basis for analyzing the new job. Analysis of older equipment depends on a clear understanding of the new equipment. This is a major reason for having SMEs on the team who are thoroughly familiar with similar equipment. They are more likely to understand how the new equipment is different and how the tasks for the new job will be different.

---

#### **Analysis for the New Job**

The team has to “think through” the tasks envisioned for the new job in an attempt to define or predict the required behavior of the person who will maintain or operate the equipment. The team obtains as much early task data as possible and be willing to change the task list as data becomes available. Finally, they may end up with incomplete information.

As with analysis of existing jobs, the analysis of a new job results in a list of tasks that comprise the job as well as the conditions, initiating cues, standards, knowledge, and skills required to perform each task. However, as noted earlier, the data for the new job will not be totally valid until an analysis is performed on the job after the new equipment is in use.

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## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### Choosing Tasks for Training

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**Purpose** This section covers selecting tasks for training.

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**What To Train** Factors to consider when analyzing tasks to select for training include:

- Criticality. *Is it critical enough to train?*
- Frequency. *Is it performed often enough so that it is worth training?*
- Delay Tolerance. *How much delay can be tolerated before taking action?*
- Learning Difficulty. *How difficult is it to learn?*

---

**Task Criticality** The definitions listed below can be used for task criticality.

**Critical**

- Tasks that must be performed correctly because of possible adverse impact on mission effectiveness or serious injury, death, or significant damage to equipment/property.

**Semi-Critical**

- Tasks that affect performance, which if performed incorrectly, may result in some system/subsystem degradation, equipment damage, personnel injury, and/or security degradation.

**Non-Critical**

- Incorrect performance is not likely to result in damage, injury, or death.
- 

**Task Frequency** The definitions listed below can be used for frequency:

- Continuous activity (CA)
  - Hourly (H)
  - Daily (D)
  - Weekly (W)
  - Monthly (M)
  - As required (AR).
- 

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## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### Choosing Tasks for Training

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**Delay Tolerance** There are some tasks in which no delay can ever be tolerated between the time the need for task performance occurs and the time the actual performance must begin. A person must be capable of performing the task automatically without taking time to read directions or find someone to provide advice and guidance. For other tasks, a delay is acceptable as there is no impact to operations.

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**Learning Difficulty** This refers to the mental and physical effort required of an employee to master performing the task. When rating difficulty, consider only typical situations involved in performing the task rather than unusual circumstances or locations.

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**Choosing Tasks** When analyzing which tasks to train, select tasks that:

- are critical
- have a low task delay tolerance
- are performed frequently
- are difficult to learn, if they also satisfy one or more of the three conditions above
- are new tasks.

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## Chapter Two: Job and Task Analysis (JTA) (Continued)

### Documenting the Analysis

---

<b>Purpose</b>	The purpose of this section is to provide directions for documenting the results of the analysis efforts, including verbs to use, numbering systems, and formatting the results.
<b>Gather Information</b>	Collect all the information gathered from various sources to place in the JTA report.
<b>Format the Information</b>	Decide how to format the information, to include all relevant data. There are a number of acceptable formats; two of those commonly used are included in <a href="#">Attachment B</a> .
<b>Describe the Job</b>	<p>Develop an introductory statement about how the JTA was conducted. This introductory statement describes the various levels used in the JTA, and defines the terminology used.</p> <p>The labeling information described below is commonly used to organize the various levels in a JTA. The duties, tasks, subtasks, elements, and sub-elements are usually shown in a hierarchical structure (see page 3-2). The statements for Level III and below are generally listed in the order performed.</p> <p>The job itself is not normally labeled in any way except by title or name.</p>
<b>Duty</b>	Level I is the duty level. The duties listed are those which the job incumbent is either responsible for doing or supervising.
<b>Task</b>	Level II is the task level. The tasks listed are necessary for the performance of a duty.
<b>Subtask</b>	Level III is the subtask level. The subtasks are identified for each Level II task.  <b>Note:</b> Additional levels may be needed to further describe each task and subtask.

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## Chapter Two: Job and Task Analysis (JTA) (Continued)

### Documenting the Analysis

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<b>Numbering</b>	<p>A JTA has a numbering system consistent with the levels identified for the job. Duties (Level I) are numbered 1.0, 2.0, 3.0, etc.</p> <p>Tasks (Level II) are numbered according to the duty to which they apply; such as 1.1, 1.2, 2.1, 2.2, etc.</p> <p>Subtasks (Level III) are numbered by the task to which they apply; such as 1.1.1, 2.1.3, 3.4.5, etc.</p> <p>Elements (Level IV) are numbered by the subtask they support; for example 1.1.1.1, 2.1.3.3, 3.4.5.2, etc.</p> <p>Sub-elements (Level V) are numbered by the element they support; e.g., 1.1.1.1.2, 2.1.3.3.1, 3.4.5.2.2, etc.</p>
<b>Outline</b>	<p>When the levels are listed in outline form, each numbered level is indented from the previous level to facilitate seeing the hierarchy.</p> <p>Example:</p> <ul style="list-style-type: none"><li>1.0 Performing NAS system reconfiguration<ul style="list-style-type: none"><li>1.1 Reconfigure HOST computer system processors (switchover)<ul style="list-style-type: none"><li>1.1.1 Determine impact to user<ul style="list-style-type: none"><li>1.1.1.1 Check reason for switchover</li></ul></li></ul></li></ul></li></ul>
<b>Conditions, Standards, Job Aids, Key Points</b>	<p>List all conditions, standards, job aids, and key points.</p>
<b>Skills and Knowledge</b>	<p>List skills and knowledge requirements for each task.</p>
<b>Characteristics</b>	<p>Rate each characteristic. The description of each characteristic may be personalized to suit the requirements of the job being analyzed.</p>
<b>Old/New Task, Train/No Train</b>	<p>Indicate whether the task is a new or old task and whether the task is to be trained or not.</p>

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## Chapter Two: Job and Task Analysis (JTA) *(Continued)*

### JTA Report

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**Purpose** The purpose of this section is to identify the need for reporting the results of a JTA.

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**Description** The report documents the results of the JTA efforts, including all duties, tasks, subtasks, elements, sub-elements, skills, and knowledge. The results of the JTA provide a method to trace task information throughout the training development process.

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**Course File** Refer to paragraph 6.2 for documentation requirements.

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### CHAPTER THREE: TRAINING PROPOSAL (TP)

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<b>Purpose</b>	The purpose of this chapter is to provide directions for developing a TP.
<b>Description</b>	The TP identifies the requirements for a training program which is intended to solve a perceived training problem. The requirements are usually based on an analysis of operational or management problems.
<b>Who Submits</b>	Any client or service provider can submit a training proposal. The TP is usually in the form of a task order or Request for Proposal (RFP)
<b>Training Proposal Review</b>	<p>The appropriate position within WCGB reviews it to determine if all information is clear and complete. If not, the client or service provider is contacted for clarification or additional information.</p> <p>This review confirms the desired training product, the experience and knowledge of the target population, and any data needed to forecast resource requirements.</p>
<b>Contents</b>	The remainder of this chapter describes the elements of a TP.

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### Chapter Three: Training Proposal (TP) *(Continued)*

#### Training Proposal Elements

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<b>Contents</b>	The TP contains sufficient information so that a training development plan or management summary may be prepared. There may be additional processes utilized within WCG which require more detailed content.
<b>Contact Information</b>	The point of contact for information about the training need is identified with name and phone number.
<b>Description of Training Need</b>	The problems or deficiencies for which training is needed are identified in as much detail as possible and consequences are included.
<b>Training Requested</b>	The type of training requested is specified. Training includes equipment theory, troubleshooting procedures, general overview, etc. If known, the tasks to be trained are included. The tasks come from the JTA (if appropriate and available) or the client.
<b>Cause of Training Need</b>	The situation or event that caused the need for training is identified. This includes identification of modifications to existing equipment, outdated training, no training existing, emergency training requirements, new tasking or new job function, etc.
<b>Number to Train</b>	The number of total personnel that need to be trained is included.
<b>Completions Schedule</b>	If possible, it is helpful to include the number of students to be trained within a given timeframe and the specific dates for critical completions.
<b>Prerequisites</b>	Any skills or knowledge required before coming to the proposed training is identified. Prerequisite courses are identified by number and title.
<b>Other Pertinent Factors</b>	Other considerations or factors that may have a bearing on the proposed training are included. This may include possible locations and sources of training, training equipment or methodologies, and operational or maintenance philosophies. This can also include the target population, including job titles, experience level, grade, or other specifics regarding who would benefit from the training.

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## CHAPTER FOUR: TRAINING DEVELOPMENT PLAN (TDP)

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**Purpose**

The purpose of this chapter is to provide directions for preparing the TDP. The management summary of the course design guide can be used in lieu of a specific TDP document.

---

**Description**

The TDP is a work plan for developing a course. It is not intended to be a complete course control document; only information needed for approval of the course development effort is included.

---

**Contents**

The remainder of this chapter describes the elements to be included in the TDP.

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## Chapter Four: Training Development Plan (TDP) *(Continued)*

### Training Development Plan Elements

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**TDP Contents** The TDP contains sufficient information to aid in making a decision to approve and authorize development or procurement of training. The TDP includes purpose/objectives, identification of key personnel, technical approach, products/deliverables, media selection analysis, cost analysis, funding requirements, schedule, issues/concerns, or other pertinent data. Each of these elements are discussed below.

---

**Purpose** The TDP contains an introductory statement which describes the intent of the TDP. It includes a brief statement about the course(s) that are intended to result from the plan and the target audience for the training.

---

**Objectives** The TDP identifies the outcomes and/or objectives for the overall training development effort.

---

**Key Personnel** The key personnel who comprise the training team are identified by name, title, role, and responsibilities.

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**Technical Approach** Each ISD phase is listed by name and includes the purpose, a narrative statement of why/what activities will be accomplished, and the outcome or output of that particular phase.

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**Products or Deliverables** This section of the TDP provides a synopsis of results of the media selection analysis and a list of the training documentation and training materials to be developed.

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**Media Selection Analysis** This analysis is conducted to determine the most cost-efficient, instructionally-effective delivery method for the planned training. The results of the media selection analysis is included in the TDP.

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*Continued on next page.*

## Chapter Four: Training Development Plan (TDP) *(Continued)*

### Training Development Plan Elements

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<b>Cost Analysis</b>	The media selection analysis is followed by a cost analysis, which compares the costs associated with different media to arrive at the best delivery medium. The results of the cost analysis are used to identify the final recommendation for the delivery method for the training. The cost analysis is included as an attachment to the TDP.
<b>Funding Requirements</b>	Funding required to accomplish the proposed training is identified, including proposed sources of funding. The results of the cost analysis are used to identify most, if not all, of the requirements.
<b>Schedule</b>	A schedule of milestones to accomplish the development is included.
<b>Issues/Concerns</b>	Any issues or concerns that are pertinent to the development of the project are listed. These may include assumptions made by the training team, issues that need to be resolved by the respective sponsor/customer, or any items that may have an impact on the schedule, resources or funding.
<b>Course File</b>	Refer to paragraph 6.2 for documentation requirements.

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## CHAPTER FIVE: COURSE DESIGN GUIDE (CDG)

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**Purpose**

This chapter describes the process for developing a CDG.

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**Description**

A CDG provides a road map for development or revision of a course. It includes the goals and/or outcomes for the course, the skills and knowledge to be provided to trainees, and the methodology and techniques to be used in the conduct of the course.

---

**Management  
Summary**

If a TDP was not developed, the CDG will begin with a management summary that includes the items listed in Chapter [Four](#).

---

**Contents**

The remainder of this chapter is divided into sections which describe JTA evaluation, content organization, developing objectives, CDG contents, and CDG outline.

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## Chapter Five: Course Design Guide (CDG) (Continued)

### JTA Evaluation

---

**Purpose** This section covers evaluating the JTA and making content decisions about what to train.

---

**Validate Existing JTA** If a JTA exists, it is reviewed to determine appropriate contents. If the data in the JTA is outdated, equipment/system modifications have been made, or operational procedures have been added or revised, the contents of the JTA is updated before a CDG can be written. Any revisions to an existing JTA is documented in a new JTA report.

---

**Develop a JTA** If a JTA does not exist, one must be developed. Chapter [Two](#) provides information on developing a JTA.

---

**Content Decision** After verifying and/or updating the JTA, perform an assessment of the technical aspects of each task (what knowledge is needed, what skills are required, etc.) to validate a train/no train decision. If a task is old, personnel are probably familiar with the task because they have been performing it on the job. If any portion of a task is new, then the entire task needs to be trained.

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## Chapter Five: Course Design Guide (CDG) *(Continued)*

### Content Organization

---

**Purpose**

The purpose of this section is to describe how to organize the course content identified from the JTA. The CDG organizes the identified JTA information into presentation order.

---

**Theory Presentations**

Theory presentations can usually be divided into two parts, the configuration of the equipment and the operation of the equipment. Greater emphasis can be placed on one or the other, with the determination made by the SME when deciding how much time to spend on each subject.

---

## Chapter Five: Course Design Guide (CDG) *(Continued)*

### Developing Objectives

---

<b>Purpose</b>	The purpose of this section is to review how to write and distinguish between training outcomes, instructional objectives (terminal objectives), and enabling objectives (lesson objectives).
<b>Common Elements</b>	All objectives have the same common elements: a behavior, conditions, and standards. The order of these elements is not critical but rather that they are included. Steps for developing these elements are explained below.
<b>Step 1. Identify Behaviors</b>	<p>The first step is to identify behaviors that describe what the student should know and do as a result of what will be taught in the course. All objectives can be divided into two categories, knowledge or performance. Do you want the student to know about the subject, or do you want the student to be able to perform an activity?</p> <p>Each behavior <b>must</b> be specific, observable, and measurable so accomplishment of the objective(s) can be determined.</p>
<b>Knowledge Behaviors</b>	Knowledge means the student studies and understands and can talk or write intelligently about the subject.
<b>Performance Behaviors</b>	Performance means the student can show that he/she can actually do the job according to specifications.

---

*Continued on next page*

## Chapter Five: Course Design Guide (CDG) (Continued)

### Developing Objectives

---

#### Behavioral Verbs

A list of common behavioral verbs appears below

##### Knowledge verbs

identify  
explain  
list  
describe  
define  
compile  
compare  
analyze  
diagnose  
evaluate  
calculate  
label  
classify  
locate  
monitor  
verify

##### Performance verbs

adjust  
align  
assemble  
calibrate  
inspect  
isolate  
load  
measure  
monitor  
operate  
perform  
record  
start  
test  
trace  
troubleshoot

---

#### Multiple Activities

There may be instances where multiple inseparable activities must be performed by the student. Do **not** write objectives with multiple behaviors as it is difficult to convert multiple behaviors into test items and even more difficult to determine which part of the objective was achieved.

---

#### Step 2. Identify Conditions

A condition describes the circumstances under which the student is to perform the behavior. It is usually something that will be provided or denied to the student while they perform. Examples of conditions include:

- without references
- given blank flight progress strip
- given reference materials
- given necessary tools
- given a simulation
- using a job aid.

**Note:** It is assumed the student is given instruction; therefore, this condition does not need to be specified.

---

*Continued on next page.*

## Chapter Five: Course Design Guide (CDG) *(Continued)*

### Developing Objectives

**Step 3. Identify Standards** Standards are criteria against which the behavior is measured to determine whether or not the student learned the material.

---

One term that introduces a standard in the objective statement is “in accordance with” (abbreviated as IAW).

---

**Training Outcomes (TOs)** TOs are the highest level of objectives. They usually correspond to the duty level of the job and represent groups of related knowledges or tasks. TOs are very broad and general and should be few in number for a typical course.

---

**Instructional Objectives (IOs)** IOs (or terminal objectives) represent topics of material under the TOs. These are developed from the tasks selected for training in the JTA.

---

**Enabling Objectives (EOs)** EOs represent actual instruction. They are a part of the instruction and are presented in an organized manner.

---

## Chapter Five: Course Design Guide (CDG) (Continued)

### CDG Contents

---

**Purpose** This section describes the contents of the CDG. A sample CDG (course design, or Part 2) is located in [Attachment D](#).

---

**Parts of the CDG** The three parts of the CDG are:

- \*Management Summary
- \*Cross Reference Matrix
- Course
- Design

\*NOTE: these parts may not be required as part of the CDG. The Management Summary is not required if a TDP exists.

---

**Management Summary** Part 1 of the CDG, includes purpose/objectives, identification of key personnel, technical approach, products/deliverables, funding requirements, schedule, issues/concerns, or other pertinent data. These elements are covered in more detail in Chapter [Six](#).

---

**Cross-Reference Matrix** Part 2 of the CDG, contains each training outcome with its associated instructional and enabling objectives. The number from the JTA that identifies the appropriate task, subtask, element, or sub-element is recorded with the IOs and EOs.

---

**Course Design** Part 3 of the CDG consists of elements listed below. These elements are discussed in depth within this section.

- Training Outcomes
  - Instructional Objectives
  - Enabling Objectives
  - Estimated Hours
  - Type of Learning
  - Test Item Type
  - Technical Content
  - Instructional Strategies and Media
  - Development Notes.
-

## Chapter Five: Course Design Guide (CDG) *(Continued)*

### CDG Outline

---

<b>Purpose</b>	This section describes each element in the CDG outline.
<b>TOs</b>	TOs are listed first in the body of the CDG.
<b>Sequence/ Numbering</b>	To establish traceability through the course, the TOs are labeled with consecutive upper case letters, beginning with "A." TOs are sequenced in a logical training order.
<b>IOs</b>	There are at least two IOs per TO. If there is only one IO developed, review the JTA and determine whether the TO is too narrowly written.
<b>Sequence/ Numbering</b>	To establish traceability through the course, the IOs are labeled with numbers consecutively beginning with "1." IOs are sequenced in the best order for learning.
<b>Estimated Hours</b>	Identify the estimated time in hours to present each IO. This is a total of the time elements for all the EOs within this IO.
<b>EOs</b>	The content of the EO converts to an actual lesson; thus the content of the lesson dictates the length of instruction.
<b>Sequence/ Numbering</b>	EOs are labeled consecutively with lower case letters beginning with "a." EOs are sequenced in the best order for learning.
<b>Type of Learning</b>	EOs are classified as cognitive-based or performance-based. Thus, EOs requiring thought processes and thinking skills are labeled "C" (cognitive). EOs requiring performance skills are labeled "P" (performance).

---

*Continued on next page.*

## Chapter Five: Course Design Guide (CDG) (Continued)

### CDG Outline

---

<b>Test Item Types</b>	<p>This refers to how the EOs are tested and relates to the type of learning (above). There are generally two types of tests - written and performance.</p> <p>Written tests are graded and consist of multiple-choice items. Performance tests are tests of the student’s ability to perform hands-on tasks such as alignments or adjustments, troubleshooting, etc. Indicators for the test type are “W” for written and “P” for performance tests.</p> <p>Selection of the test type is consistent with the behavior determined for the EO. For example, if the EO behavior is to “describe,” do not select test type as P.</p> <p>Chapter <a href="#">Six</a>, Instructional Material: Development and Revision, provides specific guidance on writing exams.</p>
<b>Technical Content</b>	<p>This refers to the content to be covered in the lesson. Information is obtained from technical manuals and manufacturer’s instruction books; however, the final authority for breadth and depth of material rests with the SME.</p> <p>The content is listed in outline format and organized into logical segments that best support training.</p>
<b>Instructional Strategies and Media</b>	<p>This portion contains an instructional method and supporting media for attaining the IO and each EO.</p> <hr/>
<b>Developmental Notes</b>	<p>This section provides guidance, notes, and references for developing the training. Page/paragraph numbers are included where possible for technical manuals and other written documentation. Other notes that can be listed include what graphics/figures to use, whether to include animation, types of interactions to incorporate, etc.</p> <hr/>
<b>Course File</b>	<p>Refer to paragraph 6.2 for documentation requirements.</p> <hr/>

## CHAPTER SIX: INSTRUCTIONAL MATERIALS: DEVELOPMENT AND REVISION

---

**Purpose** This chapter describes the development, revision, and use of instructional materials used in various training environments.

---

**Description** Instructional materials include all the tools used by instructors to provide knowledge to students on the subject of the training. Some instructor tools include lesson plan, laboratory guide, and course test. Tools for the student include student guide, laboratory guide, and technical manuals.

---

**Contents** This chapter is divided into the following sections:

- lesson plan
- student guide
- laboratory guide
- testing
- computer graphics
- revision of course material.

---

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Lesson Plan

---

**Purpose** The purpose of this section is to describe the process for developing lesson plans (LP).

---

**Description and Policy** The LP is a tool for presenting course content to a class. The LP coordinates course content with course materials and activities to achieve lesson objectives.

---

**Format** There are various LP formats available and in use. If not otherwise prescribed, Developers must use the format standard adopted by WCG or required by the sponsor/client.

---

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Lesson Plan Contents

---

**Lesson Plan Parts** A lesson plan has three parts – the introduction, body, and summary. The elements of each part are covered in more detail below.

---

**LP Introduction** The purpose of the introduction is to prepare students to learn. This portion of the LP consists of administrative information, review/tie-in, overview, motivation, and objective.

Administrative information (which is on the lesson plan cover sheet) includes:

- course name and number
  - lesson title
  - date of preparation or version
  - duration of the lesson in hours and minutes
  - reference list
  - list of training aids used during the lesson
  - list of handouts.
- 

**Lesson  
Introduction**

Each lesson's introduction must contain the following:

- Review/tie-in provides a link from the previous lesson(s) to this lesson and reviews main points from previous lesson.
  - Overview describes what the lesson will cover and what activities are included in the lesson.
  - Motivation creates interest in the lesson and describes how students will benefit from the learning.
  - Objectives identify exactly what knowledge or skills the student is expected to learn, under what conditions, and according to what standard.
- 

*Continued on next page.*

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Lesson Plan Contents

---

#### LP Body

The body of the LP provides the essential subject matter outline and learning activities to accomplish the objective(s). The body includes:

- terms and definitions, if applicable
- outline of essential subject matter
- interactive/response items
- media aids
- instructor demonstrations, if necessary
- practice exercises, if applicable
- interim summaries, if needed.

The outline of essential content must be in logical learning sequence. Typical organizational patterns include:

- simple-to-complex
- known-to-unknown
- chronological
- general to specific
- whole-part-whole.

Interactive items are included to help students accomplish the objective(s) and to reinforce learning. They are also used by the instructor to gauge student progress, alert students to areas of difficulty, and prepare them for written or performance tests. Interactive items have many forms, such as:

- oral and written questions
- response items (for use with response systems)
- worksheets/exercises
- practice/performance activities
- role plays and case studies.

Media (visual) aids, used to augment the subject matter of the lesson, include such items as:

- computerized graphics and slides
- handouts
- video/DVD
- Smartboards
- marker boards
- charts
- schematic drawings and illustrations
- transparencies.

---

*Continued on next page.*

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Lesson Plan Contents

---

**LP Body (Cont'd)** Instructor demonstrations and practice exercises are very effective tools for teaching critical measurements or procedures. When demonstrations and practice exercises are used, include:

- objectives
- equipment needed
- instructions on what to do
- steps of the procedure being demonstrated or practiced
- safety precautions
- time frame for completing practice activities
- standards of performance, if applicable.

Interim summaries are written into the LP body to provide repetition and reinforcement of key points of the lesson.

---

### LP Summary

The final part of the lesson plan is the summary. The purpose of the summary is to review lesson content and evaluate accomplishment of the objectives.

The lesson review must include key terms and definitions, if applicable; key lesson points, objectives, and any applicable safety precautions.

An end-of-lesson test, comprehensive and testing mastery of the objectives, is included to determine if students met the objective(s) of the lesson. (The LP provides the instructor with directions for administering the test and confirming the answers with students.) Note: End-of-lesson tests are usually not graded and are for review and feedback purposes only.

The LP summary may include a reading or lab assignment to reinforce the content of the lesson, or to preview an upcoming lesson. Assignments, when given, must be allotted time during duty hours for completion.

---

*Continued on next page.*

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Lesson Plan Contents

---

#### Effective Lessons

Lesson plans may be more effective by:

- including job-like examples, stories, or graphics that induce interest in the lesson content
  - including questions related to the lesson, even if students have no knowledge, so they listen for the answers
  - using key words and other verbal aids to help students remember major points
  - providing, where possible, real-life illustrations and examples of the concepts taught in the lesson
  - using analogies and comparisons to what students already know
  - using visual aids and demonstrations that let students see as well as hear
  - involving students with worksheets and practice activities so they may apply what they've learned
  - using concise writing and sufficient space to avoid crowding information.
-

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Student Guide

---

**Purpose** This section describes the development and use of a student guide.

---

**Description** The student guide is a tool for the student to:

- prepare for class
- follow the instructor during the class presentation
- study after the lessons, prepare for tests
- use as a study resource later.

---

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Student Guide Elements

---

**Contents** The student guide consists of two major parts: the introduction and chapters or sections containing subject matter content.

---

**Introduction** The introduction consolidates course information needed at the beginning of the course, such as:

- course administrative information
- table of contents (and table of figures if applicable)
- expected training outcomes/major objectives
- course schedule
- reference list.

---

**Lesson Content** Lessons contain the following information:

- lesson title and number
- lesson objective(s)
- reference material
- contents
- practice exercises
- appendixes
- foldouts of schematics, if applicable.

Lesson objective(s) include the expected behavior, the conditions for performance of the behavior, and the standards of satisfactory performance.

The student guide follows the content of the lesson plan. Sufficient space is left for students to write notes. Handouts and visual aids are included to enhance the lesson information, if applicable.

---

**Visual Aids** Graphics and visual aids are numbered, titled, and referenced in the text.

---

*Continued on next page.*

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Student Guide Elements

---

#### Practice Exercises

Practice exercises include:

- title and objectives
  - needed equipment
  - directions and steps of procedure(s)
  - technical references
  - safety precautions
  - time frame permitted
  - standards of performance
  - review questions and answers, if desired.
- 

#### Appendixes

Appendixes are included at the end of the student guide and may contain:

- acronyms and/or glossary
  - answers to lesson test items, if applicable
  - worksheets
  - practical exercises/activities
  - references.
- 

#### CBI Student Guide

Directions include how to use the CBI student platform, navigate through the lessons, and study the lessons.

The CBI student guide provides direction for students to:

- enroll in the course
  - log on/log off the CBI student platform
  - navigate (proceed) through the lessons
  - take the quizzes/tests within the lessons
  - quit for the day and begin the next time
  - take the course test, including how to get a password
  - complete the course critique.
- 

#### Correspondence Study Manual

Because the instructor is not present while the student is taking the correspondence study course, the instructions for taking the course must be detailed, including all information needed to understand how to proceed through and complete the course.

All materials the student needs to achieve the objectives must be included in or accompany the correspondence study manual.

---

## Chapter Six: Instructional Materials: Development and Revision (Continued)

### Laboratory Guide

---

**Purpose**

This section describes the use of laboratory guides. The laboratory guide is used to:

- inform the student of what to expect in the lab
  - standardize lab procedures
  - provide information and practice on the procedure(s) to be performed
  - provide references and pertinent visuals.
- 

**Description**

A laboratory guide is a tool for the student to use when working:

- on problems, such as calculations, etc.
  - at a console
  - at a computer
  - on equipment.
-

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Laboratory Guide Contents

---

<b>Contents</b>	The laboratory guide includes, as appropriate: <ul style="list-style-type: none"><li>• administrative information</li><li>• equipment needed</li><li>• safety precautions</li><li>• laboratory objective(s)</li><li>• step-by-step description of procedure(s) to be performed.</li></ul>
<b>Administrative Information</b>	Administrative information in the laboratory guide includes: <ul style="list-style-type: none"><li>• lab number</li><li>• title</li><li>• time allowed for the activity</li><li>• performance requirements.</li></ul>
<b>Laboratory Objective(s)</b>	An objective is included for the lab. If more than one unrelated procedure is performed in a specified period, there must be an objective for each procedure.
<b>Equipment Needed</b>	The laboratory guide lists all of the equipment needed by the student to perform the procedure(s). If equipment is to be shared during the lab period, this information is stated.
<b>Safety Precautions</b>	Safety precautions for the laboratory area shall be included in all lab guides. General safety precautions are listed in the introduction, while precautions specific to certain procedures must be detailed in the procedures themselves.
<b>Procedure(s)</b>	Each laboratory procedure must be thoroughly described step by step. A method for signing off or tracking student progress through the procedure must be included.

---

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Testing

---

**Purpose** This section describes the development and use of tests.

---

**Description** Testing is used to measure student learning and performance.

---

**Benefits** Testing provides a method to identify:

- how well the students have mastered the course objectives
- where weak areas may exist and/or instruction should be improved
- how much repetition and reinforcement may be required.

---

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Testing

---

#### Contents

This section describes various types of tests that may be used to measure student performance.

---

#### Test

Each objective in the course is tested. The number of test items required per objective must be sufficient to ensure students have mastered the content of the objective. Test items:

- relate directly to an objective
  - avoid negative statements
  - avoid giving clues to the correct response in the wording
  - avoid ambiguous statements.
- 

#### Types of Test Items

The types of test items used to evaluate student learning include multiple choice, true/false, matching, completion, free answer, and performance. The types of test items used are determined by the behavior specified in the objective to be tested.

---

#### Multiple Choice

They should consist of a stem which contains the application of the behavior of the objective, and at least four responses. Multiple-choice design includes:

- ensuring items are brief and specific
  - ensuring responses are plausible, grammatically consistent, and in logical order
  - ensuring there is only one correct answer
  - avoiding use of “all of the above” or “none of the above” as responses
  - avoiding patterns of correct answers.
- 

#### Matching

Matching items use two columns of related words, phrases, or symbols to be matched. Matching design includes:

- using only related material in one matching set
  - ensuring the number of responses is greater than the number of items to be matched
  - using a maximum of twelve responses
  - arranging responses in logical order
  - never carrying a matching set from one page to another.
- 

*Continued on next page.*

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Testing

---

#### True/False

True/false items are **not** recommended as a sole means for evaluating student performance. True/false items include:

- ensuring approximately half the answers are true and half false
  - using words with precise meanings
  - not writing true statements consistently longer than false statements
  - avoiding words such as all, none, always, and never, which tend to make the item false.
- 

#### Completion

The completion, or “fill in the blank,” items consist of a statement from which a word or short phrase has been omitted. The student must supply the missing word or phrase in the blank(s) provided. Completion items include:

- ensuring all blanks are of equal length
  - wording each item so there is only one correct response or synonym
  - ensuring blanks are at or toward the end of each item.
- 

#### Free Answer

Free answer items are used when the objective requires students to explain or describe a function, procedure, system, or rule. Free answer items include:

- stating the item in a simple, direct manner
  - leaving sufficient space for students to explain, rather than just list or enumerate.
- 

#### Performance

Performance tests are graded tests administered in a controlled environment with conditions of performance and expected outcomes. A performance test requires the student to demonstrate a task or procedure, such as:

- troubleshoot an equipment problem
  - operate computer or equipment
  - apply radar separation
  - perform a ramp inspection
  - problem-solve a situation
  - fill in a form.
- 

*Continued on next page.*

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Testing

---

#### Conditions of Performance

Lab conditions are things given to or withheld from students during lab performance and include some or all of the following:

- real or simulated equipment
  - tools
  - time on task--may be important for safety reasons
  - work alone or as a member of a group
  - whether use of reference notes or consultation with the instructor is allowed.
- 

#### Performance Outcomes

Outcomes of performance include:

- performing to the standard stated in the objective
  - terms of completion, grading, or passing the exercise
  - achievement of the expected outcome (problem detected, isolated, or solved).
- 

#### Developing the Performance Test

Begin with a preliminary plan for the performance test. The following elements must be clearly explained in the student materials:

- determine the performance to be tested
  - identify the observable tasks and subtasks
  - list materials, tools, and equipment needed
  - develop criteria for performance
  - decide on an evaluation strategy.
- 

#### Checklists

Checklists ensure objectivity in evaluating performance. Checklist development includes:

- stating each item simply, clearly, and in observable performance terms
  - including the important/critical parts of a skill in the performance
  - identifying which steps will be graded, and which will not be graded
  - including only and all critical criteria
  - listing items in logical order
  - choosing the type of checklist appropriate to measure process or product of performance
  - indicating steps of the procedure that could be dangerous.
-

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Computer Graphics

---

<b>Purpose</b>	This section describes development of computer graphics.
<b>Relevance</b>	Computer graphics directly support and reinforce content related to lesson objectives.
<b>Simplicity</b>	Individual slides must be simple and not cluttered. They: <ul style="list-style-type: none"><li>• provide a title for each slide</li><li>• present one main idea per slide</li><li>• follow the 6 X 6 rule of thumb – no more than six lines of text per slide (excluding slide title) and no more than six words per line</li><li>• use key words and phrases rather than long sentences and paragraphs</li><li>• avoid the use of animation or sound unless it directly supports the point of the slide</li><li>• use no more than three different colors for text.</li></ul>
<b>Legibility</b>	Ensure visuals are legible by using: <ul style="list-style-type: none"><li>• sans serif font (such as Ariel) rather than serif font (such as Times New Roman)</li><li>• all caps for titles and upper and lower case for text</li><li>• bold text</li><li>• text size no smaller than 18 points (28 to 36 preferred)</li><li>• good contrast between text and background.</li></ul>

---

## Chapter Six: Instructional Materials: Development and Revision (Continued)

### Revision of Course Material

---

**Purpose**

This section describes instructional materials revision.

---

**Description**

Course revision means modifying, changing, adding, and/or deleting content from course materials to:

- ensure the course content complies with current job requirements, standards, and practice
  - correct inaccurate or incomplete material
  - enhance teaching and learning methods.
-

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Revision

---

#### **Administrative Revision**

Any clerical change to lesson materials that does not impact its basic intent or content.

Examples of administrative revisions include:

- correction of grammatical errors
  - template formatting
  - typographical errors
- 

#### **Minor Revision**

Minor course revision includes course maintenance and includes all tasks associated with the ongoing effort to ensure instructional materials reflect current procedures, policies, and/or systems.

---

#### **Major Revision**

Major course revision includes those tasks necessary to substantially upgrade existing instructional materials and is conducted as a result of specific tasking.

---

#### **Configuration Management**

WCG has a system that provides for positive identification review, validation and approval of course materials and their changes prior to their implementation and such a system requires records. The system is addressed both in this Manual and in the WCG Quality Manual. Both documents are integral to the process.

---

#### **Course Conversion**

Course conversion is a process whereby all or part of the course content is changed to another delivery method. It may have many of the same characteristics as a major course revision. Course conversions require:

- an addendum or complete revision of the CDG
  - revision of the course content
  - development in the new media
  - development of a new course report
-

## Chapter Six: Instructional Materials: Development and Revision *(Continued)*

### Revision

---

#### **Analysis Documentation**

Analysis documentation usually is not affected by minor revisions. However, changes in subject matter, test items, and updating of technical content are documented in the course file.

Some or all of the following analysis documents may need to be developed or revised for a major course revision or course conversion effort:

- needs assessment
- job and task analysis
- training development plan
- course design guide.

---

#### **Course File**

Regardless of the type of revision made to a course, an audit trail of changes must be kept in the course files. Traceability is very important when attempting to document the source(s) of change. WCG has a system of storage for file copies of analysis and development documentation for all current courses.

---

## CHAPTER SEVEN: COURSE VALIDATION

---

**Purpose** This chapter describes the course validation process. It provides instructions on how to verify instructional materials and associated documentation are complete, accurate, and ready for delivery.

---

**Reasons for Validation** All WCG courses are validated prior to implementation of training. Validation ensures that each of the following critical elements are reviewed and revised as necessary:

- course documentation
- technical accuracy
- instructional soundness
- instructional materials
- effectiveness of instruction

---

**Validation Steps** The process for conducting validation consists of five steps:

1. review instructional materials
2. conduct course walk-through
3. conduct operational tryout
4. conduct first class
5. write course report

---

**Contents** The remainder of this chapter is divided into sections corresponding to each of the validation steps mentioned.

---

## Chapter Seven: Course Validation (*Continued*)

### Review of Instructional Materials

---

**Purpose** The review of instructional materials may be conducted for an entire course or on a lesson-by-lesson basis, depending upon which is most practical. The purpose for reviewing the materials is to:

- ensure course documentation is completed
- provide a technical review of the content of the materials
- provide a review of the instructional soundness of the materials
- ensure the materials conform to any pre-specified requirements or formats
- ensure the course conforms to the prescribed design.

---

**Participants** Participants include SMEs, ISSs, and representatives from the respective sponsors/customers and/or their designates.

---

**Course Documentation Review** Review the course documents to ensure they are:

- completed and approved
- filed in a course file.

---

**Technical Review** The technical review of materials:

- verify that references cited are current and located as stated
- review text, graphics, tests, videos, etc., for accuracy and clarity
- identify any missing content or extraneous content
- ensure lesson sequence is in proper order
- ensure currency of content
- ensure the material is presented at a level described in the course documentation.

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*Continued on next page.*

## Chapter Seven: Course Validation (*Continued*)

### Review of Instructional Materials

---

#### **Instructional Review**

The instructional review of materials:

- ensure the instructional strategies used are adequate
  - ensure the clarity of the materials
  - assess the presence of complete objectives
  - ensure materials are directly related to the objectives
  - assess whether tests measure student performance on the objectives
  - assess the presence of critical (specified) events of instruction
  - assess the use of media and equipment, interaction, examples, practice exercises, assessment activities, and feedback for appropriateness and relevance to the target audience
  - determine if there is sufficient feedback on practice exercises and test results.
- 

#### **Requirements and Formats Review**

This review assesses the consistency of the format and conformance of materials to any pre-specified formats or other requirements.

---

#### **Course Design Review**

The course design review ensures the following are included and match the course design:

- lesson objectives
  - media and instructional methods
  - sequence of instruction
  - tests and/or other assessment activities.
- 

#### **Action**

Following completion of the instructional materials review, written documentation is completed by the reviewers. This documentation includes the name of the course, a list of the reviewers, the date of the review, a consolidated list of changes to be made prior to the course walk-through, and a scheduled date for the completion of the revisions.

---

## Chapter Seven: Course Validation (*Continued*)

### Course Walk-Through

---

**Purpose** The course is presented in its entirety but in an abbreviated manner so that SMEs, ISSs, and instructors observe the sequence of the course. The purpose is to ensure:

- revisions from the instructional and technical reviews were made
- the instruction is sequenced logically
- consistency and quality of materials
- logistics problems in delivering the course are identified and resolved.

---

**Participants** Suggested participants for the course walk-through are:

- one or more instructors to present the course
- a representative from the sponsor/customer
- instructors/SMEs and ISSs

---

**Guidance** The CDG and all instructional materials are provided to reviewers prior to the start of the walk-through allowing sufficient time to review changes made as a result of the instructional materials review.

---

**Review Areas** Review areas are:

- sequence
- transitions/tie-ins
- pacing of instruction
- time allocations for lessons and activities
- consistency of text layout, font, graphics, color schemes, etc.
- readability of materials, visuals
- logistical problems
- weak points in the lesson plan.

---

**Product** The operational tryout involves presentation of the course to the target audience. The product of the course walk-through determines a “go/no go” decision. A key consideration in the go/no go decision is whether or not some or all of the course needs to be tested with the actual target population.

The manner in which course material is tested with the target population is flexible and agreed to prior to testing. All corrections as a result of the target population test is made prior to the conduct of an operational tryout.

---

## Chapter Seven: Course Validation (*Continued*)

### Operational Tryout

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#### **Purpose**

The operational tryout is delivered just as it would be for an actual target audience, with one exception: participants attending the operational tryout are provided an opportunity to comment on each lesson. The main purpose of the operational tryout is to locate and eliminate problems, such as:

- time allocated for each lesson and the course as a whole
- the logistics and operations associated with delivery of the course
- the sequence of the course within and between lessons
- final check of the previous corrections made
- achievement of course outcomes and objectives
- validity of test items
- orientation of the instructors to the course materials and methods
- providing other stakeholders with an opportunity to review and comment on the course.

---

#### **Participants**

The following participate in an operational tryout when possible:

- one or more instructors to present the course
- course developers and ISSs
- stakeholder reviewers from interested organizations
- representatives/designees from the sponsor/customer
- participants from the actual target audience

---

#### **Guidance**

The estimated course delivery time plus an additional 20 - 30 percent to allow for comments and discussion after each lesson is scheduled for the operational tryout.

---

*Continued on next page.*

## Chapter Seven: Course Validation (*Continued*)

### Operational Tryout

---

<b>Feedback Forms</b>	<p>Feedback forms enable participants to react to the training after each lesson or training segment in terms of:</p> <ul style="list-style-type: none"><li>• adequacy of the classroom</li><li>• appropriateness of materials for the type of learning outcome</li><li>• adequacy of materials for instruction on the subordinate skills</li><li>• pacing of instruction</li><li>• clarity and quality of both materials and instruction</li><li>• readability of materials</li><li>• relevance of materials to students' needs and interests</li><li>• adequacy of the instructional content and activities, including lectures, questions, discussion, exercises, and tests.</li></ul>
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<b>Results</b>	<p>Results of assessment activities are compiled and examined to determine if the course met stated goals for student achievement.</p>
----------------	--

---

## Chapter Seven: Course Validation (*Continued*)

### Conduct of First Class

---

<b>Purpose</b>	The purpose is to verify that all previously identified revisions have been made and to establish that the course is effective.
<b>Participants</b>	Participants include one or more instructors from the delivering organization and a representative sample of students from the actual target population.
<b>Student Feedback Forms</b>	Feedback forms enable participants to react to the training after each lesson and at the end of the entire course in terms of: <ul style="list-style-type: none"><li>• adequacy of the classroom</li><li>• appropriateness of materials for the type of learning objective</li><li>• instruction on the subordinate skills and whether sequenced logically</li><li>• pacing of instruction</li><li>• clarity and quality of both materials and instruction</li><li>• readability of materials</li><li>• relevance of materials to students' needs and interests</li><li>• adequacy of the instructional content and activities including lectures, questions, discussion, exercises, and tests.</li></ul>
<b>Instructor Feedback Forms</b>	Instructor feedback forms enable instructors to assess the course according to the criteria mentioned above and in these additional areas: <ul style="list-style-type: none"><li>• the time allocated for each lesson and the course</li><li>• the adequacy of logistics associated with course delivery</li><li>• the smooth sequence of the course within and between lessons</li><li>• a final check of the previous corrections made</li><li>• the effectiveness and appropriateness of the instruction.</li></ul>
<b>Course Report</b>	Following completion of the review, information is compiled for use in writing the course report (discussed in the next section).

---

## Chapter Seven: Course Validation (*Continued*)

### Course Report

---

**Purpose**

The course report certifies the course is valid and is ready for delivery to students.

---

**Process**

A course report is prepared within 45 calendar days of the completion of the first class.

Within 30 calendar days of receipt of the course report, the sponsor/customer transmits a memorandum of acceptance or rejection of the training and guidance on any action to be taken. Both the course report and memorandum of acceptance are placed in the course file.

---

**Content**

The following sections list the content included in the course report.

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## Chapter Seven: Course Validation (*Continued*)

### Course Report Elements

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#### Course Data

The course data for the course report includes:

- course number
  - course title
  - brief course description and list of training outcomes
  - criteria for passing the course
  - list of lesson plans or training segments
  - course duration
  - required prerequisites.
- 

#### Class Data

The class data for the course report includes:

- class number
  - beginning and ending dates of the class
  - location of first class
  - course schedule of daily activities
  - number of students in class and class roster
  - number of students meeting the prerequisites
  - number of students who successfully completed the course and explanation for any student who did not pass.
- 

#### Test Data

The test data for the course report includes a list of tests administered by name/type (e.g., end-of-lesson, block, comprehensive, lab exercise, etc.), an indication of which tests are graded, which are non-graded, and for each test the:

- number of students
  - mean score
  - score range
  - number of students failing to meet passing criteria.
- 

*Continued on next page.*

## Chapter Seven: Course Validation (*Continued*)

### Course Report Elements

---

**Planned Revisions**     The result of the first class identifies any planned revisions. These include:

- media
- method or instructional strategy
- location
- tests
- class schedule or duration
- course materials
- numbers or types of instructors or instructor capabilities
- facilities and equipment
- cost impact of revisions.

---

**Supporting Documentation**     Any necessary supporting documentation is included, such as:

- evaluation forms and/or checklists
- results of test item analysis
- other relevant information.

---

**Course File**     Refer to paragraph 6.2 for documentation requirements.

---

## CHAPTER EIGHT: COURSE EVALUATION

---

### **Purpose**

This chapter provides an overview of the fifth phase of the ISD process. It provides direction on how to interpret course evaluation data, and how to analyze results to improve the quality of training.

---

### **Evaluation in All Phases of ISD**

The evaluation phase of ISD is an interactive process applied throughout the entire ISD procedure. This chapter focuses on course evaluations conducted during the delivery phase, after the course is fully developed and implemented.

---

### **Benefits**

The benefits are:

- ensuring participants are learning the material
  - ensuring training meets customer needs
  - identifying course strengths and weaknesses
  - providing a basis for course revisions/improvements
  - measuring transfer of learning to workplace performance
  - ensuring training is appropriate and cost effective
  - ensuring training is tied to job duties.
-

## Chapter Eight: Course Evaluation *(Continued)*

### Levels of Evaluation

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<b>Levels of Evaluation</b>	WCG uses the Kirkpatrick model for training evaluation, which classifies evaluations of the effectiveness of training.
<b>Level 1, Participant Reaction</b>	This is the traditional level where, at the end of a course, participants are asked to rate their satisfaction with various aspects of the training and to provide any comments they may have concerning the course.
<b>Level 2, Learning Outcomes</b>	This level measures how well participants have mastered the course objectives, and is accomplished through written and performance exams administered during the course.
<b>Level 3, Transfer of Learning</b>	This level determines the extent that the skills taught in training are used on the job, and whether job performance improved as a result of training. This usually occurs three to six months after training, when participants have had time to apply their new skills on the job.
<b>Level 4, Training Value</b>	This measures the extent the training produced benefits to the organization in terms of increased productivity, quality improvement, or cost benefit. Training Value evaluations are conducted for individual courses on an as-needed basis rather than routinely.
<b>Contents</b>	The remainder of this chapter is divided into these sections: <ul style="list-style-type: none"><li>• end-of-course evaluation (Level 1)</li><li>• post-course evaluation (Level 3)</li><li>• training value (Level 4)</li><li>• use of evaluation data (all levels).</li></ul>

---

## Chapter Eight: Course Evaluation (*Continued*)

### End-of-Course Evaluation

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**Purpose** End-of-course evaluation is a means of obtaining level 1 (participant reaction) evaluation data. It occurs at or near the completion of training to gather information on participant opinions and attitudes for modifying/improving the training.

---

**Content** The WCG end-of-course questionnaire asks students to rate 12 standard indicators concerning the quality of the training. They are:

- course objectives
  - course design and organization
  - clarity and relevance of content
  - student materials
  - learning environment
  - instructors
  - workshops/labs
  - opportunity to practice
  - performance evaluations
  - tests
  - learning
  - overall effectiveness.
- 

**Additional Questions** In addition to the standard questions above, training managers may add their own course-specific questions to the questionnaire.

---

## Chapter Eight: Course Evaluation *(Continued)*

### Post-Course Evaluation

---

<b>Purpose</b>	Post-course evaluation is a means of obtaining level 3 (learning transfer) evaluation data. It occurs approximately three to six months after training (delay time to be determined by relevant program manager) when course graduates have had time to apply their new skills to the job. The purpose is to determine the extent that skills taught are used on the job, and whether or not job performance improved as a result of training.
<b>Sources of Data</b>	Post-course evaluation data is obtained from two sources - course graduates and their supervisors.
<b>Content</b>	Post-course evaluations collect data on the following: <ul style="list-style-type: none"><li>• whether or not the graduates needed the training for their present jobs</li><li>• the extent to which the course provided graduates with the knowledge and skills to perform their jobs</li><li>• the extent to which graduates are applying the knowledge and skills to their jobs on a recurring basis</li><li>• whether job performance improved as a result of training</li><li>• graduate and supervisor written comments.</li></ul>
<b>Additional Questions</b>	In addition to the standard questions above, training managers may add their own course-specific questions to the graduate and supervisor questionnaires.

---

## Chapter Eight: Course Evaluation (*Continued*)

### Training Value

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<b>Purpose</b>	Level 4 evaluation (training value) examines the tangible results of a training course in relation to its contribution to organizational improvement. Organizational measures such as productivity, costs, efficiency, and morale are analyzed to determine the impact of training at the organizational level.
<b>Sources of Data</b>	Training value data is obtained from students in training, course graduates, supervisors, and stakeholders who are impacted by training's success or failure.
<b>Content</b>	<p>A variety of measures has been used to assess the impact of training at the organizational level. Overall, these indicators are generally classified into three categories:</p> <ul style="list-style-type: none"><li>• Perceptions: This subjective measure assesses whether individuals feel or believe that the training has had an organizational impact, such as an increase in productivity. Perceptions may be collected when objective measures are not feasible.</li><li>• Performance: Assesses the impact of training on objective measures such as productivity, quality, turnover, absenteeism, and accident rates.</li><li>• Financial: Assesses the dollar value of a training course to an organization in terms of savings, increased revenue, or return on investment.</li></ul>
<b>Frequency</b>	A comprehensive assessment involves assembling a team of evaluators from diverse sources and are performed on an "as needed" basis.

---

## Chapter Eight: Course Evaluation *(Continued)*

### Use of Evaluation Data

---

**Problem Identification** The evaluation questionnaires do not always identify causes of problems. To pinpoint the exact nature of the problem and formulate strategies to solve it, additional evaluation data is collected.

---

**Additional Data** Sources of additional data include the following:

- analysis of student/supervisor comments
- telephone interviews with former students, field supervisors
- observation of a class or classes
- comparison of job requirements with training provided
- reviewing validity of course documentation
- developing and administering a customized questionnaire which focuses on the problem
- observing the environment at the work site
- observing performance on the job.

---

**Course Revision** The additional data collected is analyzed and a response plan prepared. If the response indicates a minor revision, action to revise the course can be taken immediately. If a major revision is required the response must be a coordinated effort between the sponsor/customer and the training provider.

---

**NOTE:** Checklists are included at the end of this document as Attachment E for the review of completed specific items at the end of each ISD Phase (Analysis, Design, Development, Implementation, Evaluation).

## ATTACHMENT A: SAMPLE NEEDS ASSESSMENT

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### Training Needs Analysis & Initial Evaluation Plan Report

**Report Date:** *Enter the date of the report.*

**Analysis Title:** *Enter the title of the report.*

**Brief Description:** *Enter a brief description of the organization needs analysis, including the reason for the analysis and the major goals of the analysis.*

**Contact Name(s):** *Enter the name of the person to be contacted about this analysis (e.g., your name).*

**Phone Number(s):** *Enter the phone number(s) of the contact person (e.g., your phone number(s)).*

**Approving Official:**

**Signature:** Signature of approving official      **Date:** Date of signature.

---

### PHASE 1. ORGANIZATIONAL GOALS & TRAINING FOCUS

---

#### 1.1 What organizational goals are driving this training program?

*It is critical to link the training needs analysis to organizational goals whether the analysis is being driven from a sponsor/customer. If you have completed the Organization Needs Analysis, the organizational goals that appear in this field are from Question 1.1. You can copy, edit or modify this field as needed.*

*If you have not completed a related Organization Needs Analysis, you can either go back and do so at this time or enter the required information in this field.*

*These goals serve as the basis for evaluating whether or not the training produces the desired organizational results.*

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## Attachment A: Sample Needs Assessment (Continued)

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---

### 1.2 What knowledge &/or skills gap and potential training solution(s) are the focus of this training needs analysis?

*Identify at a summary level the knowledge and/or skills gap and the potential training solution that is the focus of this training needs analysis. If you have completed the Organization Needs Analysis, the recommended training solutions that appear in this field are from Question 2.5 under "Lack of knowledge &/or skills." You can copy, edit or modify this field as needed.*

*If you have not completed a related Organization Needs Analysis, you can either go back and do so at this time or enter the required information in this field.*

### 1.3 Additional Questions/Information:

*Enter additional information or questions not already covered on the organizational goals and training focus.*

---

## PHASE 2. TARGET POPULATION(S)

---

### 2.1 Who are the employees to be trained?

*Describe the critical characteristics of the employees as they relate to this training, including any or all of the following:*

*occupational series and grade level*

*previous training and experience*

*skill level*

*If you have completed the Organization Needs Analysis, the target group(s) to be trained that appear in this field are from Question 2.1 of the Organization Needs Analysis. You can copy, edit or expand upon this field as needed.*

*If you have not completed a related Organization Needs Analysis, you can either go back and do so at this time or enter the required information in this field.*

### 2.2 How many total employees are to be trained in each target group and what is the likely breakdown over time?

*Identify the total number of employees in each target group to be trained AND/OR the breakdown of employees to be trained over a pre-determined period of time (e.g., initially, per year, quarterly for 2 years).*

## Attachment A: Sample Needs Assessment (Continued)

---

### 2.3 What is the geographic distribution of the employees to be trained?

*Identify the geographic distribution of the employees to be trained. This may be important information to consider in alternative training approaches (e.g., centralized classroom versus a distance delivery format like IVT).*

### 2.4 Additional Questions/Information:

*Enter additional information or questions not already covered on the target population(s).*

---

## PHASE 3. CRITICAL TASKS & COMPETENCIES

---

### 3.1 What are the critical tasks to be trained?

*This question assumes that some level of job/task analysis has been completed that address the performance gaps described in Question 2.4 of the Organization Needs Analysis and that you can identify the critical tasks that need to be trained.*

*Identifying the critical tasks for training may be based on any or all of the following considerations:*

- the difficulty of the task,*
- the uniqueness of the task,*
- how often the task is performed, or*
- the importance of the task to the overall job performance.*

### 3.2 What competencies (if any) need to be trained for each group in order to support successful job performance? (Knowledge, Skills, and/or Abilities)?

*Identify the associated competencies, or knowledge, skills, and/or abilities that need to be trained for successful job performance of the critical tasks identified in Question 3.1. Depending on the nature and scope of the training, you may or may not have any*

*The following are some general examples of competencies:*

- Knowledge of state-of-the-art developments within the engineering/scientific community.*
- Skill in coordinating with project members regarding technical application of compliance, assessment, and program management factors.*
- Ability to administer resources (e.g., budget, personnel, and equipment).*

### 3.3 Additional Questions/Information:

*Enter additional information or questions not already covered on the critical tasks and competencies.*

---

## Attachment A: Sample Needs Assessment (Continued)

---

### PHASE 4. PERFORMANCE & LEARNING OBJECTIVES

---

#### 4.1 What is the desired work performance being trained and the measurable criteria? (*Performance Objectives*)

*A performance objective is a statement that describes in behavioral terms the action the learner will be able to do back on the job following training. Performance objectives should relate back to the critical tasks to be trained that are identified during the job task analysis. Performance objectives provide measurable criteria by which to evaluate learner success on the job up to six months following training.*

*A measurable performance objective is composed of the following three parts:*

- Condition: Describes what the learner is given to act upon, and/or what the student is restricted from using when performing.*
- Behavior(s): Observable acts/behaviors described using action verbs that demonstrate that the participant has learned.*
- Criteria: The specific standards which define minimum acceptable performance (e.g., citing time limits, accuracy expected, or quality).*

*Identify the ideal on-the-job performance being trained and the measurable criteria. These performance objectives should link directly to the critical tasks to be trained in 3.1. The measurable criteria for the ideal performance may include:*

- following the standard procedures/ requirements provided in a document or job aid,*
- performing with a specified level of accuracy, quality, or appropriate behaviors,*
- producing a product within a specified amount of time, or*
- producing a specified number of products within a given amount of time.*

*In some cases you may need to identify both the entry level success criteria for new employees and/or the full performance level (FPL) for experienced employees.*

#### 4.2 What are the measurable learning objectives for the training?

*A learning objective is a statement that describes in behavioral terms the action the learner will be able to do during the training. Learning objectives serve to guide both the development and delivery of the instruction, as well as provide measurable criteria by which to evaluate learner success following the training.*

*A measurable learning objective is composed of the following three parts:*

- Condition: Describes what the employee is given to act upon, and/or what the employee is restricted from using when performing the task.*
- Behavior(s): Observable tasks/behaviors described using action verbs that specify employee performance (see sample Action Verbs list).*
- Criteria: The specific standards which define minimum acceptable performance (e.g., citing time limits, accuracy expected, or quality).*

*Identify what the participants learn as a result of training using measurable or observable criteria.*

## Attachment A: Sample Needs Assessment (Continued)

---

*These learning objectives should support the critical tasks and competencies to be trained that you identified in Questions 3.1 and 3.2.*

*The measurable criteria for a learning objective may include:*

- following the standard procedures/ requirements provided in a document or job aid, or*
- performing with a specified level of accuracy, quality, or appropriate behaviors.*

### 4.3 What prerequisite knowledge and skills are needed prior to taking the current training?

*Identify the relevant prerequisite knowledge and skills needed by each group in order to successfully acquire the performance and knowledge objectives for the proposed training.*

### 4.4 Additional Questions/Information:

*Enter additional information or questions not already covered for the performance and learning objectives.*

---

## PHASE 5. ALTERNATIVE TRAINING DELIVERY FORMATS

---

### 5.1 Are there any restrictions or considerations for selecting appropriate training approaches?

*It is critical to identify any restrictions or considerations for selecting a training approach. Some contributing factors may include geographical distribution (see 2.3), cost, time away from the job for training, or tasks that require “hands-on” training. The contributing factors should be considered when identifying the recommended training delivery format next in 5.2.*

### 5.2 Which of the following training delivery format(s) is (are) most appropriate?

**Check all that apply.**

*Based on the restrictions or considerations identified in 5.1, select the training delivery format(s) that seem most appropriate from the list given. You may have different delivery formats for different learner groups or content areas, so check all that apply.*

*In describing your reasons for recommending particular training delivery formats you may need to elaborate on the restrictions or considerations identified in 5.1 above. For example, if cost is a restriction, you may want to complete a Cost-Benefit Analysis to predict which training delivery format is most likely to provide the greatest return on investment within the cost parameters.*

- **Lecture/Workshop**
- **Laboratory/Simulators**
- **Work Team/Peer Learning**
- **Mentoring**
- **On-the-Job Training (OJT)**
- **Interactive Video Teletraining (IVT)**

## Attachment A: Sample Needs Assessment (Continued)

---

- Computer-Based Instruction (CBI)
- Internet/Intranet Training
- Desktop Video Teletraining
- Video/Audio or other Self-Study
- Correspondence Study
- Electronic Performance Support System (EPSS)
- Job Aids
- Other -- Describe:

Explain or elaborate as needed:

### 5.3 Additional Questions/Information:

*Enter additional information or questions not already covered on alternative training delivery formats.*

---

## PHASE 6. INITIAL EVALUATION PLAN

---

### 6.1 Which of the following method(s) do you recommend for determining participant reactions to the training? (Level 1)

*Identify the method(s) you recommend to determine participant reactions to the training immediately following the training. This is the traditional level of evaluation that is used at the end of training to find out how the participants felt about various aspects of the course.*

**Check all that apply.**

- Pre-Training and/or
- Post-Training
- Questionnaire
- Individual Interview
- Group Interview

Explain or elaborate as needed:

### 6.2 Which of the following method(s) do you recommend for determining the achievement of the learning objectives? (Level 2)

*Identify the method(s) you recommend to determine whether participants achieved the learning objectives identified in Phase 5 immediately after the training. Measures of learning are taken at the end of training and often at intervals during it. They tell how well the participants have mastered the learning objectives.*

**Check all that apply.**

- Pre-Training and/or

## Attachment A: Sample Needs Assessment (Continued)

---

- Post-Training
- Scored Test/Quiz
- Performance Assessment (Observed)
- Self-Assessment
- Interview

### 6.3 Which of the following method(s) do you recommend for determining the training transfer to successful on-the-job performance on-the-job? (Level 3)

*Identify the method(s) you recommend to determine the training transfer to successful job performance. If you determine that this level of evaluation is appropriate to implement, it usually occurs from 3 to 6 months after training.*

**Check all that apply.**

- Questionnaires
- Direct Observation
- Job Function/Procedures/Checklist
- Individual Interviews
- Group Interviews

Explain or elaborate as needed:

### 6.4 Which of the following method(s) do you recommend for determining that the desired organizational results are achieved? (Level 4)

*Identify the method(s) you recommend to determine that the desired organizational results are achieved. If you determine that this level of evaluation is appropriate to implement, it usually occurs from 6 to 12 months after the training delivery (or 3 to 6 months after evaluating the transfer of training to successful job performance in 6.3).*

**Check all that apply.**

- Questionnaires
- Individual Interviews
- Group Interviews
- Performance Measures
- Organizational Records (e.g., number of errors, system down time)
- Cost-Benefit Analysis/ROI

Explain or elaborate as needed:

### 6.5 Additional Questions/Information:

*Enter additional information or questions not already covered on the initial evaluation plan.*

**PHASE 7. TRAINING PROJECT PLAN**

---

**7.1 Are there any factors that are driving the development or delivery of training?**

*Identify any critical factors that may have a significant impact on the development or delivery of training, such as:*

- Pre-determined due dates.
- Budget planning.
- Available resources (e.g., funds, SMEs, and technical support).
- Scheduling facilities.
- Internal political concerns/priorities.

**7.2 If the training development and/or delivery requires a statement of work, use the following checklist to make sure that you have all the components of the Statement of Work that you need for developing and delivering the training.**

*Use the checklist to develop and/or verify that the Statement of Work is complete with the information you need. Note that some training projects may not require a Statement of Work. For example, if you develop and deliver the training internally and will not require the services of an external vendor, you will probably not need to complete a Statement of Work.*

*You can include the Statement of Work as an attachment to the Training Needs Analysis Report and indicate the name of the attached document in your elaboration to this checklist.*

***Check all that apply.***

**STATEMENT OF WORK**

- Title of Project
- Customer Name and Organization
- Performance Objectives
- Overall Context for the Project
- Project Scope (users, methodologies, content)
- Technical Considerations
- Project Tasks
- Deliverables and Time of Delivery
- Government Participation/Support
- Reporting Requirements

**Explain or elaborate as needed:**

## Attachment A: Sample Needs Assessment (Continued)

---

### 7.3 Use the following checklist to make sure that you have all the components of the Project Management Plan you need for developing and delivering the training.

*Use the checklist to develop and/or verify that the Project Management Plan is as complete as you require. Note that for larger projects or contractual situations, the Project Management Plan is often completed by the contractor. For some internal projects you may need a less detailed Project Management Plan that includes only the tasks, deliverables, timeline, and personnel from the Plan Detail. You can include the Project Management Plan as an attachment to the Training Needs Analysis Report and indicate the name of the document to be attached in your elaboration to this checklist.*

**Check all that apply.**

#### **PROJECT MANAGEMENT PLAN**

- Project Synopsis
- Agency Objective
- Project Context
- Plan Summary
- Plan Detail (tasks, deliverables, activities, resource requirements, travel, costs)
- Cost Schedule
- Project Timeline
- Project Personnel (Resumes)
- Administrative Information

**Explain or elaborate as needed:**

### 7.4 Additional Questions/Information:

*Enter additional information or questions not already covered in the training project plan.*

---

**ATTACHMENT B: COURSE DEVELOPMENT EFFORT**

**Determine Level of Development Effort Required**

**Limited Development Effort**            Time very critical.  
 Requirement for training not expected to be of long duration.  
 Small to medium student population.

Training outcomes do not require measurable terminal behaviors.  
 Uniformity of training important, but exceptionally high degree not required.

**Complete Development Effort**            Planning cycle provides significant lead time.  
 Large student population.  
 Expected continuing training requirement of long duration.

Mandatory training requirement.  
 Training outcomes are based on very specific description of terminal behaviors.  
 High degree of uniformity and quality control required of training.

**Set general conditions applicable to each type of development effort:**

<b>Development Activity</b>	<b>Complete</b>	<b>Limited</b>
Depth of Analysis	Job and task analysis or job training standard.	Task list or inventory.
Instructional Objectives	Fully descriptive explicit statement of behavior, conditions, and standards.	Only statement of behavior.
Methodology	Fully consistent with behaviors described by the instructional objectives--simulation, role-playing, laboratory exercises, etc.	Limited to lecture, group discussion, etc., (instructor-centered activities).
Performance Measurements	Fully consistent with instructional objectives--live simulations, hands-on equipment tests, actual task performance, etc.	Written tests, oral questions, interactive items, etc.
Course Design	Instructional objectives, enabling objectives, classification of behaviors, methodology, learning sequence, practice activities, and performance tests.	Course outline.

**ATTACHMENT C: JOB AND TASK ANALYSIS (JTA)**

**Format Sample #1**

**(System/Equipment Name)**

**1.0 Duty** *(Here is where you list the first duty of the job being analyzed.)*

---

**1.1 Task** *(Here is where you list the first task of this duty.)*

---

**1.1.1 Subtask** *(Here is where you list the first subtask of this task.)*

---

**Conditions** *(List here the conditions of performance of this subtask.)*

---

**Standards** *(List here the standards of satisfactory performance of this subtask.)*

---

**Job Aids** *(List here any items that are used by the person in the performance of the subtask.)*

---

**Skills** *(List here the skills required for performance of this subtask.)*

---

**Knowledge** *(List here the knowledge required for performance of this subtask.)*

---

Circle the appropriate rating within each characteristic:

Criticality		Frequency		Delay Tolerance		Difficulty	
<b>Critical</b> <i>(possible adverse impact on mission or serious injury)</i>	<b>3</b>	<b>Continuous activity</b>	<b>6</b>	<b>Low</b> <i>(must be performed then and there)</i>	<b>3</b>	<b>High</b> <i>(problem solving)</i>	<b>3</b>
<b>Semi-critical</b> <i>(may result in system degradation, equipment damage, personnel injury or security degradation)</i>	<b>2</b>	<b>Hourly</b>	<b>5</b>	<b>High</b> <i>(a delay is acceptable as there is not impact to operations)</i>	<b>1</b>	<b>Moderate</b> <i>(evaluating, recognizing, or understanding)</i>	<b>2</b>
<b>Non-critical</b> <i>(not critical to the operation of the system)</i>	<b>1</b>	<b>Daily</b>	<b>4</b>			<b>Low</b> <i>(recall and remembering)</i>	<b>1</b>
		<b>Weekly</b>	<b>3</b>				
		<b>Monthly</b>	<b>2</b>				
		<b>As required</b>	<b>1</b>				
		<b>Not performed</b>	<b>0</b>				

Task is:  Old  New  
 Training decision:  Yes  No

*Continued on next page*

Attachment C: Job and Task Analysis (JTA) (Continued)

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**Format Sample #2**

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**JOB AND TASK ANALYSIS**  
**(System/Equipment Name)**

<b>Job:</b> <i>(Here is where you list the name of the job; i.e., Electronic Technician)</i>				
<b>Duty:</b> 1.0 <i>(Here is where you list the first duty of the job.)</i>				
<b>Task:</b> 1.1 <i>(Here is where you list the first task of the duty.)</i>				
<b>Old/New</b>	<b>Frequency</b>	<b>Criticality</b>	<b>Complexity</b>	<b>Training</b>
<i>(Identify old or new)</i>	<i>(Use the code for frequency.)</i>	<i>(Use the code for criticality.)</i>	<i>(Use the code for complexity.)</i>	<i>(Check or X if to be trained.)</i>
<b>Conditions:</b> <i>(Here is where you list the conditions for performance of the task.)</i>				
<b>Standards:</b> <i>(Here is where you list the standards for performance of the task.)</i>				
<b>Job Aids:</b> <i>(Here is where you list any job aids required for performance of the task.)</i>				

**Subtasks:** 1.1.1 *(Here is where you list the first subtask.)*

1.1.2 *(Here is the second subtask.)*

1.1.3

**Steps, Skills, & Knowledge:**

S: *(Here is one skill.)*

S:

K: *(Here is one knowledge.)*

K:

K:

---



**Attachment D: CDG Sample Format (Continued)**

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**b. Enabling Objective** Identify the overall equipment operation.

---

- Technical Content**
- a. RMR Group System Overview
    - Antenna
    - Remote monitor receiver
    - Status unit
  - b. Location and function of:
    - Front panel components
    - Rear panel components
- 

**Instructional Strategies and Media** CBI  
digital audio  
video disk

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- Developmental Notes**
- image of units, graphic of installed units (blowups)
  - provides constant monitoring and alarms
  - illuminate for normal operation
  - illuminate for alarm conditions (sound alarm, silence alarm)
  - reference chapter from technical manual or handbook
- 

Objective	Estimated Hours	Learning Type	Test Type
1. Instructional	2.0	P	---
a. Enabling	1.0	C	W
b. Enabling	1.0	C	W

P – performance  
C – cognitive  
W – written

---

**Attachment E: Checklists for Review of Completed ADDIE Phases**

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**Checklist for Analysis Phase**

**Directions** Put a check in the box that indicates the correct answer.

<b>Item to be Reviewed</b>	<b>Yes</b>	<b>No</b>
1. Was there an assessment of the target population?		
2. Was a job task analysis completed?		
3. Is the JTA available to disburse to the development team?		
4. Was a Training Proposal developed identifying the specifics of the training being requested/required?		
5. Have subject matter experts (SMEs) been identified?		
6. Have all appropriate offices been coordinated with to support the beginning of the training?		
7. Will the training development team be available immediately?		
8. Has funding been approved in order for the project to move forward?		
9. Are there enough available resources (computers, personnel, etc) to begin the project?		
Comments:		

**Attachment E: Checklists for Review of Completed ADDIE Phases (Continued)**

**Checklist for Design Phase**

<b>Directions</b>	Put a check in the box that indicates the correct answer.
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<b>Item to be Reviewed</b>	<b>Yes</b>	<b>No</b>
1. Has the Course Design Guide (CDG) been completed?		
2. Has the CDG been reviewed by the SMEs?		
3. Has the CDG been reviewed by the ISD specialist?		
4. Have all designated/appropriate elements of the CDG been filled out/addressed?		
5. Are there resources available for the end product that will allow accomplishing the training to the highest level of learning written for the training?		
6. Has the CDG been approved by the appropriate people/offices in order for the training to move forward?		
Comments:		

**Attachment E: Checklists for Review of Completed ADDIE Phases (Continued)**

**Checklist for Development Phase**

<b>Directions</b>	Put a check in the box that indicates the correct answer.
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Item to be Reviewed	Yes	No
1. Are the instructor lesson plans completed?		
2. Do all the lesson plans include the three main parts? (Introduction, Body, Summary)		
3. Do the lesson plans include embedded questions and/or exercises to ensure proper learning and achievement of the End-of-Lesson Test?		
4. Are the student manuals completed? Lab guides?		
3. Are the PowerPoint files completed?		
4. Do all the electronic files comply with the established configuration management system?		
5. Have all the appropriate tests been developed? (End-of-Lesson, Block Tests, Lab Exams)		
6. Have all PowerPoint slides been included in the lesson plan?		
7. Do all lesson plans include a Title Page? Instructor Reference Sheet?		
Comments:		

**Attachment E: Checklists for Review of Completed ADDIE Phases (Continued)**

**Checklist for Implementation Phase**

<b>Directions</b>	Put a check in the box that indicates the correct answer.
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Item to be Reviewed	Yes	No
1. Were all lesson plans completed and contained the three major elements of Introduction, Body, and Summary.		
2. Were all Student Manuals completed?		
3. Were any additional instructional materials such as lab guides, job aids completed?		
4. Were all appropriate tests completed?		
5. Are all files appropriately configured and stored for future use?		
Comments:		

**Attachment E: Checklists for Review of Completed ADDIE Phases (Continued)**

**Checklist for Evaluation Phase**

<b>Directions</b>	Put a check in the box that indicates the correct answer.
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Item to be Reviewed	Yes	No
1. Were feedback forms collected and reviewed for the course walk-through and appropriate revisions accomplished?		
2. Were feedback forms collected and reviewed for the Operational Try-out and appropriate revisions accomplished?		
3. Were feedback forms collected and reviewed for the First Course Conduct and appropriate revisions documented and accomplished?		
4. Was all appropriate data collected and compiled for use in the final report?		
5. Have any final suggested revisions been collected and distributed to the assigned technical SME for review?		
6. Were all timeframes allocated for the course collected and reviewed?		
Comments:		